Updated 30 October 2023

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EDUCATION

2022 — Ph.D. in Educational Psychology
Graduate Minor in Quantitative Methods for Education Sciences
University of Wisconsin – Madison
Thesis: *Measuring and Supporting Proportional Reasoning: An Interdisciplinary Approach* [Full-text available on ProQuest.]
Committee: Percival Matthews (chair), Martha Alibali, Ana Stephens, Edward Hubbard

2019 — M.S. in Educational Psychology
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: Nicole McNeil

ACADEMIC POSITIONS

Aug 2023 – — Assistant Professor
Department of Psychology
University of Wisconsin–Eau Claire

2022 – Aug 2023 — Postdoctoral Researcher, Learning Sciences and Education
University of Delaware
Mentors: Nancy Jordan and Nora Newcombe

RESEARCH FOCUS

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. Special interest in fractions, proportional reasoning, and algebra. Bridging cognitive developmental psychology with education.

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RESEARCH GRANTS

A Longitudinal Exploration of Relations Between Fractions and Algebra Knowledge: An Interdisciplinary Approach. ($2,499,995), Funded for 7/1/2023 – 6/30/2028. (NSF, EHR Core: 2301010. PI: Ana Stephens; Co-PIs: Martha Alibali, Percival Matthews, Daniel Bolt, and **Alexandria A. Viegut**).

Exploring the association between fraction and algebra knowledge: Making connections across psychology and mathematics education. ($42,000), Funded for 7/1/2021 – 6/30/2022. (Wisconsin Alumni Research Foundation. PI: Percival Matthews; Co-PI: Ana Stephens; Co-writer and graduate research assistant: **Alexandria A. Viegut**)

HONORS AND AWARDS

2022	UW-Madison Graduate School International Travel Award ($1200)
2022	UW Educational Psychology Graduate Student Travel Award ($500)
2020	Interdisciplinary Training Program Supplementary Research Award ($4,200)
2020	Madison Education Partnership Graduate Research Scholar
2020	Invited participant at AERA-NSF Institute on Statistical Analysis for Early Math Education
2017-2022	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

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (under review). Unpacking the connections between fractions and algebra: The importance of fraction schemes and units coordination.

McNeil, N. M., Jordan, N. C., **Viegut**, **A. A**., Ansari, D. (under review). The development of mathematical thinking: Key insights and lessons learned from the psychological sciences. *Psychological Science in the Public Interest.*

Matthews, P. G. & **Viegut, A. A**. (in press) What genetic epistemology does and does not do for the psychology of mathematics education. In Dawkins, P. C., Hackenberg, A. J., & Norton, A. (Eds.), *Piaget's Genetic Epistemology In and For Ongoing Mathematics Education Research.* New York: Springer.

Viegut, A. A., & Matthews, P. G. (2023). Building fraction magnitude knowledge with number lines: Partitioning versus analogy. *Developmental Psychology, 59*(10), 1757–1770. https://doi.org/10.1037/dev0001616
Accepted manuscript publicly available: https://osf.io/azkh7

Viegut, A. A., Resnick, I., Miller-Cotto, D., Newcombe, N. S., & Jordan, N. C. (2023). Tracking informal fraction knowledge and its correlates across first grade. *Developmental Psychology, 59*(10), 1739–1756. https://doi.org/10.1037/dev0001581
Accepted manuscript publicly available: https://psyarxiv.com/dbj83/

Park, Y., **Viegut, A. A.**, & Matthews, P. G. (2021). More than the sum of its parts: Exploring the development of ratio magnitude vs. simple magnitude perception. *Developmental Science, 24*(3), e13043. https://doi.org/10.1111/desc.13043

Viegut, A. A. (revision in preparation). Causal pathways from fraction knowledge to algebra: Integrating psychology and math education perspectives. Preprint available: https://osf.io/dg7ew/

INVITED TALKS

Viegut, A. A. (December, 2022). *Connecting Fractions to Other Big Ideas in Mathematics*. Talk presented to faculty, staff, and students from the Psychology department at the University of Wisconsin-Eau Claire, Eau Claire, Wisconsin.

Viegut, A. A. (October, 2022). *Connecting Fractions to Other Big Ideas in Mathematics*. Talk presented to faculty, staff, and students from the Psychology department at Temple University, Philadelphia, Pennsylvania.

Viegut, A. A. (April, 2022). *Building Fractions Knowledge with Ratios and Analogies*. Talk presented to faculty, staff, and students from the Learning Sciences department at the University of Delaware, Newark, Delaware.

CONFERENCE PRESENTATIONS

Symposia Organized at Peer-Reviewed Conferences:

Viegut, A. A., Resnick, I., Gibson, D. J., & Ciccione, L. (2023, June 5-8). *Big Ideas for Little Kids: Early Conceptual Foundations in Mathematics*. [Symposium]. Mathematics Cognition and Learning Society Conference, Loughborough, UK.

Viegut, A. A., Booth, J. L., Gesuelli, K., & Jay, V. (2021, September). *Unpacking the Connections between Fractions and Algebra Knowledge*. [Symposium]. Mathematics Cognition and Learning Society Conference, online.

Viegut, A. A., Tian, J., McMullen, J., Jordan, N. C. (2020, December). *Fraction Interventions from Lab to Classroom*. [Symposium]. Mathematics Cognition and Learning Society Conference, online.

Presentations at Peer-Reviewed Conferences:

Viegut, A. A., Resnick, I., Miller-Cotto, D., Newcombe, N. S., & Jordan, N. C. (2023, June 5-8). *Informal fraction knowledge in first grade supports later mathematics achievement.* [Conference presentation]. Mathematics Cognition and Learning Society Conference, Loughborough, UK.

Redican, E., Turski, T., **Viegut, A. A.**, Resnick, I., Newcombe, N. S., & Jordan, N.C. (2023, June 5-8). *Do playful math activities support fraction learning in first graders?* [Conference presentation]. Mathematics Cognition and Learning Society Conference, Loughborough, UK.

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (2023, April 13-16). *How does fractions knowledge support algebra knowledge?: An interdisciplinary investigation.* [Conference presentation]. American Educational Research Association Conference, Chicago, Illinois.

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (2022, June 1-3). *Why does fractions knowledge support algebra knowledge? Investigating multiple paths*. [Poster]. Mathematics Cognition and Learning Society Conference, Antwerp, Belgium.

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (2022, June 1-3). *Which aspects of fractions knowledge support knowledge of algebra concepts, procedures, and flexibility?*. [Poster]. Mathematics Cognition and Learning Society Conference, Antwerp, Belgium.

Viegut, A. A. & Matthews, P. G. (2022, April 21-23). *Improving fraction magnitude knowledge: Is analogy or partitioning more effective?.* [Poster]. Cognitive Development Society Conference, Madison, Wisconsin.

Viegut, A. A. (2021, September) *Building a more nuanced theory of the fractions-algebra connection: Insights from math education research*. [Conference presentation]. Math Cognition and Learning Society Conference, online.

Viegut, A. A., Donovan, A. M., Brown, S. A., Matthews, P. G., Alibali, M. W. (2021, April 8-12). *Gesture and strategy use in nonsymbolic and symbolic fraction comparison*. [Conference presentation]. American Educational Research Association Conference, online.

Viegut, A. A., Park, Y., Hubbard, E. M., Matthews, P. G. (2021, April 7-9). *Fraction estimation predicts later calculation, but not fluency: A cross-sequential study of primary school children*. [Poster]. Society for Research in Child Development Conference, online.

Viegut, A. A. & Matthews, P. G. (2020, December). *Using analogy to improve fraction understanding*. [Conference presentation]. Mathematics Cognition and Learning Society Conference, online.

Viegut, A. A., Donovan, A. M., Brown, S. A., Matthews, P. G., Alibali, M. W. (2020, October). *Gesture use in a nonsymbolic and symbolic fraction comparison task.* [Poster presented as GIF]. Mathematics Cognition and Learning Society Conference, online.

Viegut, A. A. & Matthews, P. G. (2019, June 16-18). *Modeling median estimates overstates regularity in children's number line estimation.* [Poster]. Mathematics Cognition and Learning Society Conference, Ottawa, Canada.

Viegut, A. A., Park, Y., Matthews, P. G. (2019, March 21-23). *Number line estimation is more than numerical: Evidence from nonstandard number lines.* [Poster]. Society for Research in Child Development Conference, Baltimore, MD.

Park, Y., **Viegut, A. A.**, Matthews, P. G. (2019, March 21-23). *The development of multiple non-symbolic ratio representations in children.* [Poster]. Society for Research in Child Development Conference, Baltimore, MD.

Viegut, A. A., Park, Y., Hubbard, E. M., & Matthews, P. G. (2018, September 27-29). *Differential improvement in fraction estimation in 2nd vs. 5th grade children: Longitudinal analysis.* [Poster]. 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. (2017, October 12-14). *Translating cognitive developmental theory to improve children's understanding of counting.* Talk presented at Cognitive Development Society Conference, Portland, OR.

<u>Non-Refereed Regional Conference Presentations:</u>

Viegut, A. A., Matthews, P. G. (2018, September). *Cross-format productions of symbolic and nonsymbolic ratios: Toward a perceptual intervention for fraction learning.* [Poster]. First Year Project Symposium, University of Wisconsin-Madison, Madison, WI.

Viegut, A. A., McNeil, N. M. (2017, May). *Can finger gesture help preschool children understand cardinality?* [Paper presentation]. Undergraduate Research Symposium, University of Notre Dame, South Bend, IN.

PROFESSIONAL SOCIETY MEMBERSHIPS

American Educational Research Association (AERA)
Cognitive Development Society (CDS)
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

Educational Psychology, University of Wisconsin-Eau Claire, Fall 2023 (in-person)

Human Development, University of Wisconsin-Eau Claire, Fall 2023 (in-person)

Human Development: Childhood to Adolescence
University of Wisconsin-Madison, Fall 2021 (in-person)
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
Motivation: Expectancy-Value and Attribution Theories
Psych 260 Educational Psychology, University of Wisconsin-Eau Claire, Fall 2022

Mathematical Development
Ed Psych 331 Child & Adolescent Development, University of Wisconsin-Madison, Spring 2022

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
Teaching Academy, Center for Excellence in Teaching and Learning, University of Wisconsin–Eau Claire, August 2023

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

Founder, UD Learning Sciences Writing Group (Fall 2022 – 2023)
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.

- Summers 2019-2022: **Developer and Instructor** for 10-week weekly Statistics Workshop to introduce a small group of interns to basic statistics and programming in R.
- Summer 2022: **Primary mentor** for Pieran Roberts in an internship funded by a James S. McDonnell Foundation grant to Dr. Percival Matthews.
- 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 4 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 4 undergraduate students with analysis, writing, presentation, and poster preparation 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 (applied 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 three undergraduates who worked as research assistants on my projects.

Mentored 23 undergraduate research assistants.
From Fall 2017 to present, have supervised and managed a team of 2-5 undergraduate research assistants each semester. Provided training on reading research articles and developing independent research through weekly meetings.

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PROFESSIONAL SERVICE

Reviewed manuscripts and conference submissions for:

- American Education Research Association Conference
- Cognitive Development
- Cognitive Psychology
- Developmental Psychology
- Frontiers in Psychology
- Investigations in Mathematics Learning
- Journal of Cognition and Development
- Journal of Experimental Child 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 five students from underrepresented groups who were applying to graduate school in Psychology and Education. Project SHORT aims to combat inequalities in the graduate school admissions process by offering free high-quality mentorship.