

Nicholas A. Vest

University of Wisconsin-Madison
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Education

- 2021– Ph.D. in Psychology (Developmental)
 Department of Psychology, University of Wisconsin-Madison
 Committee: *Martha Alibali, Mitchell Nathan, Percival Matthews, & Stephen Ferrigno*
- 2019–2021 M.S. in Psychology (Developmental)
 Department of Psychology, University of Wisconsin-Madison
- 2012–2016 B.S. in Psychology, with Honors
 Certificate in Neuroscience
 Department of Psychological and Brain Sciences, Indiana University

Research Interests

I investigate mathematical cognition using data analytics (e.g., educational data mining) to understand how children and adults learn and represent integers, with the goal of improving teaching, learning, and numeracy development in educational and childcare settings.

Research Experience

- 2025– *Graduate Research Assistant*
 Department of Psychology, University of Wisconsin-Madison
 Cognitive Development and Communication Lab
 Project: Leveraging Simple Card Games to Promote Children’s Learning about Biological Reasoning
 PIs: Martha Alibali, Ph.D., Karl Rosengren, Ph.D., Florencia Anggoro, Ph.D., & Benjamin Jee, Ph.D.
- 2022–2023 *Graduate Research Assistant*
 Department of Psychology, University of Wisconsin-Madison
 Cognitive Development and Communication Lab
 Project: Helping Children Develop a Patterning Lens
 PI: Martha Alibali, Ph.D.

- 2019–2022 *Graduate Research Assistant*
Department of Psychology, University of Wisconsin-Madison
Cognitive Development and Communication Lab
Project: Fostering Conceptual Understanding and Skill with an Intelligent Tutoring System for Equation Solving
PIs: Martha Alibali, Ph.D. & Vincent Aleven, Ph.D.
- 2017–2019 *Project Manager*
Department of Psychological and Brain Sciences, Indiana University
Learning, Education, and Development Lab
PI: Emily Fyfe, Ph.D.

Teaching Experience

- 2024 *Instructor of Record*
Department of Psychology, University of Wisconsin-Madison
Numerical Cognition (PSYCH 601)
Effectiveness Rating: 4.9/5
Inclusive Climate Rating: 5/5
- 2022–2024 *Graduate Teaching Assistant*
Department of Psychology, University of Wisconsin-Madison
Design and Analysis of Psychological Experiments II (PSYCH 710)
Design and Analysis of Psychological Experiments I (PSYCH 610)
Basic Statistics for Psychology (PSYCH 210)
Introduction to Psychology (PSYCH 202)
Cognitive Development (PSYCH 502)

Awards

- 2025 Travel Award, Society for Research in Child Development [\$300]
2024 Serendipity Award, University of Wisconsin-Madison [\$7,500]
2024 Psychology Department Award for Outstanding Teaching, University of Wisconsin-Madison [\$500]
2023 Student Research Grant Competition: Conference Presentation Award, University of Wisconsin-Madison [\$600]
2022–2025 Hertz Travel Award, University of Wisconsin-Madison [\$3,500]
2021 Simon Initiative's LearnLab Scholarship, Carnegie Mellon University [\$500]
2019–2025 Menzies and Royalty Research Award, University of Wisconsin-Madison [\$3,000]
2019 Mamie and Kenneth Clark Award, University of Wisconsin-Madison [\$2,500]

Selected Publications and Proceedings (16 total + 24 conference presentations)

** Denotes mentored undergraduate*

- Vest, N. A.**, Anthony, L. E., Callery, K.*, Shack, A. P.*, Becerra-Lopez, C.*, & Alibali, M. W. (in press). Does focusing on the unit of change help children learn growing pattern skills? *Journal of Cognition and Development*.
- Alibali, M. W., Matthews, P. G., Rodrigues, J., Meng, R., **Vest, N. A.**, Jay, V., Menendez, D., Murray, J., Donovan, A. M., Anthony, L. E., & McNeil, N. M. (2024). Research on mathematical cognition, learning, & instruction: A bird's-eye view. *Journal of Experimental Child Psychology*.
- Vest, N. A.**, & Alibali, M. W. (2024). Is zero more than nothing? Relations between concepts of zero and integer understanding. *Journal of Experimental Child Psychology*.
- Borriello, G., Grenell, A., **Vest, N. A.**, Moore, K.*, & Fyfe, E. R. (2023). Links between patterning and mathematics skills across childhood and adulthood. *Child Development*.
- Vest, N. A.**, Fagan, S. E., & Fyfe, E. R. (2022). The role of gesture and mimicry for children's pattern learning. *Cognitive Development*.
- Vest, N. A.**, Silla, E. M., Bartel, A. N., Nagashima, T., Aleven, V., & Alibali, M. W. (2022, July). Self-explanation of worked examples integrated in an Intelligent Tutoring System enhances problem solving and efficiency in algebra. *Proceedings of the Annual Conference of the Cognitive Science Society*. Toronto, Canada.
- Bartel, A. N., Silla, E., **Vest, N. A.**, Nagashima, T., Aleven, V., & Alibali, M. W. (2021, July). Reasoning about tape diagrams: Insights from students and math teachers. *Proceedings of the International Conferences of the Learning Sciences*.

Workshops

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| 2022 | NUMBERS, From Cognition to Instruction: A Birds'-Eye View of Math Cognition Interventions, Kent State University [Scholarship] |
| 2022 | From Images to Symbols: Drawing as a Window into the Mind, Annual Cognitive Science Conference, Toronto, Canada |
| 2021 | LearnLab, Educational Data Mining, Carnegie Mellon University [Scholarship] |
| 2020 | ICPSR Summer Program, Machine Learning: Applications and Opportunities in Social Science Research, University of Michigan [Scholarship] |

Service

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| 2024–2026 | <i>Research Chair</i> , The Mathematical Cognition and Learning Society |
| 2022– | <i>Graduate Student Volunteer</i> , Anti-racism Learning and Action in Neuroscience, University of Wisconsin-Madison |
| 2022– | <i>Graduate Student Representative</i> , Colloquium Committee University of Wisconsin-Madison |
| 2020–2022 | <i>Graduate Student Representative</i> , Climate and Diversity Committee University of Wisconsin-Madison |

Technical Skills

R [advanced]; Python [novice]; JavaScript [novice]