Exponent®
Engineering & Scientific Consulting

Mary Aldugom, Ph.D.

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Professional Profile

Dr. Mary Aldugom received her Ph.D. in Cognitive Psychology from the University of Iowa. She has experience examining the ways in which hand gestures guide visual attention and support learning and spatial thinking. Her extensive research has assessed attention, working memory, learning, and spatial abilities in both children and adults. Dr. Aldugom has designed and implemented experiments in laboratory, classroom, and online settings to investigate the underlying mechanisms by which gesture enhances visual attention and learning. She has experience analyzing both qualitative and quantitative data, and she has used eye-tracking to explore how eye gaze and eye fixations change as a result of attention and learning. Dr. Aldugom has ongoing research collaborations with several research institutions across the country, she continues to guest lecture at various institutions, and she has experience communicating cognitive research to audiences of wide backgrounds.

Since joining Exponent, Dr. Aldugom has applied her expertise to human factors investigations relating to transportation accidents, slips, trips, and falls, and compliance with safety information and warnings.

Academic Credentials & Professional Honors

Ph.D., Psychology, University of Iowa, 2022

M.A., Psychological and Brain Sciences, University of Iowa, 2018

B.S., Psychology, North Park University, 2015

First-Generation Student Achievement Award, University of Iowa, 2021

Diversity Catalyst Award, Division of DEI, University of Iowa, 2020

Distinguished Senior Award, North Park University, 2015

Most Outstanding Senior in Psychology Award, North Park University, 2015

Psychology Departmental Scholar Award, North Park University, 2014-2015

Academic Appointments

Assistant Professor, Department of Psychology and Counseling, Chicago State University, 2022-2023

Learning Model P3 Graduate Assistant, Center for Teaching, University of Iowa, 2021-2022

Graduate Teaching Fellow, Center for Teaching, University of Iowa, 2019-2020

Graduate Research Assistant, Department of Psychological and Brain Sciences, University of Iowa, 2016-2022

Graduate Teaching Assistant, Department of Psychological and Brain Sciences, University of Iowa, 2016-2022

Prior Experience

Assistant Professor, Department of Psychology and Counseling, Chicago State University, 2022-2023

Professional Affiliations

International Society for Gesture Studies – 2017 – Present

Cognitive Science Society – 2016 – Present

Psychonomic Society – 2016 – Present

Publications

Aldugom M., Izen SC, Scully ID, Hoyos C, Cades DM. How does adaptive cruise control use impact driver behaviors, mental models, and trust and perception in the system? Advances in Human Factors of Transportation, 2025; 186:351-360.

Aldugom, M., Fenn, K., Day, A., & Cook, S. W. (2021). The Role of Verbal and Visuospatial Working Memory in Supporting Mathematics Learning With and Without Hand Gesture. In Proceedings of the Annual Meeting of the Cognitive Science Society (Vol. 43, No. 43).

Aldugom, M., Fenn, K., & Cook, S. W. (2020). Gesture during math instruction specifically benefits learners with high visuospatial working memory capacity. Cognitive Research: Principles and Implications, 5(1), 1-12.

Presentations

Aldugom, M. (2022). Exploring the Underlying Mechanisms of the Beneficial Effect of Gesture on Mathematical Learning. Talk presented at Chicago State University's Faculty Research and Creative Activities November Session, Chicago, IL

Aldugom, M. & Cook, S. W. (2022). Does the Effect of Gesture Generalize Across Instructional Formats? Talk presented at the 9th Conference of the International Society for Gesture Studies, Chicago, Illinois, USA.

Aldugom, M. & Cook, S. W. (2022). Does the Amount of Instruction Influence the Benefit of Learning with Gesture? Poster presented at the 9th Conference of the International Society for Gesture Studies, Chicago, Illinois, USA.

Zbaracki, J., Mistak, A., Aldugom, M., Pruner, T., Fenn, K., Cook, S. W. (2022). Investigating student process through eye-tracking in learning tasks with gesture. Poster presented at the 9th Conference of the International Society for Gesture Studies, Chicago, Illinois, USA.

Aldugom, M., Fenn, K., Day, A., & Cook, S. W. (2021). The Role of Verbal and Visuospatial Working Memory in Supporting Mathematics Learning With and Without Hand Gesture. Poster presented at the Annual Meeting of the Cognitive Science Society.

Aldugom, M., Cook, S. W. (2020). Is Gesture Effective Across Presentation Types of the Same Mathematical Concept? Poster presented at Psychonomic Society's 60th Annual Meeting.

Aldugom, M., Cook, S. W. (2019). Does Gesture Support Mathematical Learning in an Online Learning Environment? Poster presented at Psychonomic Society's 60th Annual Meeting, Montreal, Quebec, Canada.

Aldugom, M., Fenn, K., Cook, S. W. (2018). Individual Differences in Visuospatial Working Memory Predict Learning From Gesture in a Mathematical Task. Poster presented at Psychonomic Society's 59th Annual Meeting, New Orleans, LA, USA.

Aldugom, M., Fenn, K., Cook, S. W. (2018). How Do Individual Differences in Working Memory Predict Learning with Gesture? Poster presented at The DeLTA Center and The College of Education's 1st Annual Meeting, Iowa City, IA, USA.

Aldugom, M., Cook, S. W. (2017). How Do Individual Differences in Working Memory Predict Learning with Gesture? Poster presented at Psychonomic Society's 58th Annual Meeting, Vancouver, B.C., Canada.