

THE ROLE OF VARIABILITY IN LEARNING GENERALIZATION: A COMPUTATIONAL
MODELING APPROACH

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Introduction

Varied Training and Generalization

Varied training has been shown to influence learning in a wide array of different tasks and domains, including categorization (Hahn et al., 2005; Maddox & Filoteo, 2011; Morgenstern et al., 2019; Nosofsky et al., 2019; Plebanek & James, 2021; Posner & Keele, 1968), language learning (Brekelmans et al., 2022; Jones & Brandt, 2020; Perry et al., 2010; Twomey et al., 2018; Wonnacott et al., 2012), anagram completion (Goode et al., 2008), perceptual learning (Lovibond et al., 2020; Manenti et al., 2023; Robson et al., 2022; Zaman et al., 2021), trajectory extrapolation (Fulvio et al., 2014), cognitive control tasks (Moshon-Cohen et al., 2024; Sabah et al., 2019), associative learning (Fan et al., 2022; Lee et al., 2019; Livesey & McLaren, 2019; Prada & Garcia-Marques, 2020; Reichmann et al., 2023), visual search (George & Egner, 2021; Gonzalez & Madhavan, 2011; Kelley & Yantis, 2009), voice identity learning (Lavan et al., 2019), face recognition (Burton et al., 2016; Honig et al., 2022; Menon et al., 2015), the perception of social group heterogeneity (Gershman & Cikara, 2023; Konovalova & Le Mens, 2020; Linville & Fischer, 1993; Park & Hastie, 1987), simple motor learning (Braun et al., 2009; Kerr & Booth, 1978; Roller et al., 2001; Willey & Liu, 2018), sports training (Breslin et al., 2012; Green et al., 1995; North et al., 2019), and complex skill learning (Hacques et al., 2022; Huet et al., 2011; Seow et al., 2019). See Czyż (2021) or Raviv et al. (2022) for more detailed reviews.

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Curriculum Vitae

Education

2017 - May 2024

Indiana University - Bloomington

PhD in Psychology and Cognitive Science

Dissertation: *The Role of Variability in Learning Generalization: A Computational Modeling Approach*

2011 - 2015

University of Wisconsin - Madison

B.Sc. in Psychology

Thesis: *Short-term mindfulness intervention reduces the negative attentional effects associated with heavy media multitasking*

Journal Articles and Conference Proceedings

- **Gorman**, T. E., & Goldstone, R. L. (2022). An instance-based model account of the benefits of varied practice in visuomotor skill. *Cognitive Psychology*, 137, 101491.
- Kattner, F., Cochrane, A., Cox, C. R., **Gorman**, T. E., & Green, C. S. (2017). Perceptual learning generalization from sequential perceptual training as a change in learning rate. *Current Biology*, 27(6), 840-846.
- **Gorman**, T.E., & Green, C.S. (2016). Short-term mindfulness intervention reduces the negative attentional effects associated with heavy media multitasking. *Scientific Reports*, 6.

Reviews and Book Chapters

- **Gorman**, T.E., Gentile, D.A., & Green, C.S. Problem gaming: a short primer (2018). *American Journal of Play*, 10 (3), 309-327
- **Gorman**, T.E., & Green, C.S. (2017). Young minds on video games. In *Cognitive development in digital contexts*. 121-143. Academic Press.
- Green, C. S., **Gorman**, T., & Bavelier, D. (2016). Action Video-Game Training and Its Effects on Perception and Attentional Control. In *Cognitive Training* (pp. 107-116). Springer International Publishing.

Presentations

- Half Day Tutorial on Measuring Mindfulness Behaviorally: Onsite/Online Data Collection with jsPsych
 - Cognitive Science Conference – 2018
- Does interleaving go the distance? Exploring the effect of dissimilarity on interleaved category learning
 - Math Psych/ICCM 2018
- Short term mindfulness intervention reduces cognitive deficits in heavy media multi-taskers
 - Undergraduate Research Symposium – UW-Madison – April 16th, 2015

Awards

IU-Bloomington – Development Training Grant – Fall 2019

IU-Bloomington - Steinmetz Summer Research Award - 2018

UW-Madison - Undergraduate Research Scholar Award – 2015

UW-Madison - Hildale Undergraduate/Faculty Research Fellowship – 2014

Ad-hoc Reviewer

Cognitive Science

Journal of Experimental Psychology: General

Journal of Experimental Psychology: Human Perception and Performance

Contemporary Educational Psychology

Conferences

Cognitive Science Conference - 2021

Cognitive Science Conference - 2018

Mathematical Psychology & ICCM 2018

Boston Meeting on Methods in Cognitive Training (NSF Sponsored) – May 2017