

Lei Yuan

Psychological and Brain Sciences
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EDUCATION

2016 Ph.D. in Cognitive Psychology, Northwestern University
2012 M.S. in Cognitive Psychology, Northwestern University
2010 B.A. in Psychology, Beijing Linye University

PROFESSION POSITIONS

2016 – present Postdoctoral Fellow, Indiana University
2010-2016 Graduate Research Assistant, Northwestern University

EXTRAMURAL FUNDING

Submitted Spencer Foundation Small Grant. How early informal knowledge about multi-digit numbers affects school learning of the place value system: A behavioral and eye-tracking investigation. Role: PI.
2017-2020 Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship. The National Institutes of Health, USA. Role: PI. Proposal ranked top 1%. [\$180,000]

HONORS AND AWARDS

2017, 2019 Provost's Travel Award for Women in Science, Indiana University, Bloomington, IN, USA,

- 2010-2016 University Fellowship, Northwestern University, Evanston, IL, USA,
 2007 National Scholarship (Highest academic honor for undergraduate students issued by the Chinese Department of Education). Beijing Linye University, Beijing, China
 2007-2010 University Scholarship, Beijing Linye University, Beijing, China

PEER-REVIEWED PUBLICATIONS

- **Yuan, L., Prather, RW., Mix, KS. & Smith, LB.** (In press) Preschoolers and Multi-digit Numbers: A Path to Mathematics through the Symbols Themselves. *Cognition*
- **Yuan, L., Prather, RW., Mix, KS., & Smith, LB.** (under review). Does number representation matter in the number line estimation task?
- **Yuan, L., & Smith, LB.** (under review). Learning before school: Individual differences in what preschoolers know about multi-digit number.
- **Yuan, L., & Smith, LB.** (under review). Learning the generative principles of a symbol system from limited examples. *Cognition*
- **Yuan, L., Xu, L., Yu, C., & Smith, LB.** (2018). Sustained Visual Attention is More Than Seeing—The Dynamics of Gaze During Manual Actions. *Journal of Experimental Child Psychology*.
- **Yuan, L., Haroz, S., & Franconeri, S.** (2018). Perceptual proxies for extracting averages in data visualizations. *Psychonomic bulletin & review*, 1-8. [https://doi.org/ 10.3758/s13423-018-1525-7](https://doi.org/10.3758/s13423-018-1525-7)
- **Yuan, L., Uttal, D.H., & Gentner, D.** (2017). Analogical reasoning in children's understanding of spatial representations. *Developmental Psychology*. <https://doi.org/10.1037/dev0000302>
- **Yuan, L., Uttal, D.H.** (2017). Analogy Lays the Foundation for Two Crucial Aspects of Symbolic Development: Intention and Correspondence. *Topics in Cognitive Science*. [https://doi.org/ 10.1111/tops.12273](https://doi.org/10.1111/tops.12273)

- **Yuan, L.**, Xu, L., Yu, C., & Smith, L. (2017). Seeing is Not Enough for Sustained Visual Attention. *The Proceedings of the 39th Annual Conference of the Cognitive Science Society, London, UK.*
- **Yuan, L.**, Uttal, D.H., & Franconeri, S. L. (2016). Are spatial relations encoded by shifting visual attention between objects? *PLoS one*, 11(10), e0163141. <https://doi.org/10.1371/journal.pone.0163141>
- Uttal, D. H., & **Yuan, L.** (2014). Using symbols: developmental perspectives. *Wiley Interdisciplinary Reviews: Cognitive Science*. 5(3), 295-304. <http://doi.org/10.1002/wcs.1280>

PUBLICATIONS IN PREPARATION

- **Yuan, L.**, & Smith, L. (in prep). Symbol grounding or not: the case of place value learning?

ORGANIZED CONFERENCE SYMPOSIUM

2019 Learning Before School. Biannual Meeting of Society for Research in Child Development, Baltimore, MD,

CONFERENCE AND INVITED TALKS

- **Yuan, L.** & Smith, L. (2019). Big Numbers and Small kids: Preschoolers' Learning of Multi-digit Numbers. Biannual Meeting of Society for Research in Child Development, Baltimore, MD, March 2019.
- **Yuan, L.**, Xu, L., Yu, C., & Smith, L. (2017). Seeing is Not Enough for Sustained Visual Attention. The 39th Annual Conference of the Cognitive Science Society, London, UK.
- **Yuan, L.**, Relational Representation from Spatial symbols. Indiana University, Developmental Seminar, 2016
- **Yuan, L.**, Franconeri, S., & Uttal, D.H. Guiding Attention to Children's graph comprehension. University of Chicago, Developmental Psychology Brownbag, 2015

- **Yuan, L., Uttal, D.H., & Gentner, D.** Analogy Facilitates Children's Map Learning. Midwest Psychological Association Annual Meeting, Chicago, IL, USA, May 2012
- **Yuan, L., Uttal, D.H., & Gentner, D.** The Effect of Analogy and Relational Language on Young Children's Map Learning. International Conference on Spatial Cognition, Rome, Italy, August 2012
- **Yuan, L., Uttal, D.H., & Gentner, D.** The Effect of Analogy and Relational Language on Young Children's Map Learning. Spatial Cognition, Munich, Germany, August 2012
- **Yuan, L., Uttal, D.H., & Gentner, D.** Analogy Facilitates Children's Map Learning. NSF's Annual Inter-Science of Learning Center Conference, San Diego, CA, USA, 2012

CONFERENCE POSTERS

- **Yuan, L., & Smith, L.** Staggering Individual Differences in Preschoolers' Multi-digit Number Knowledge. Biannual Meeting of Society for Research in Child Development, Baltimore, MD, March 2019.
- **Novack, M., Yuan, L., Uttal, D.H., & Franconeri, S.F.** How relational language promotes relational representation: The role of visual attention. Biannual Meeting of Society for Research in Child Development, Baltimore, MD, March 2019.
- **Yuan, L., & Smith, L.** Rapid Generalization from Statistical Learning. Interdisciplinary Advances in Statistical Learning. Bilbao, Spain, June 2017
- **Yuan, L., & Smith, L.** The Generalizability of Statistical Learning. Biannual Meeting of Society for Research in Child Development, Austin, Texas, April 2017
- **Yuan, L., Franconeri, S., & Uttal, D.H.** Guiding Attention to Children's graph comprehension. Biannual Meeting of Society for Research in Child Development, Philadelphia, Pennsylvania, March 2015
- **Yuan, L., Uttal, D.H., & Gentner, D.** The Effect of Analogy and Iconicity on Young Children's Map Learning. Biannual Meeting of Cognitive Development Society, Memphis, Tennessee, October 2013

- **Yuan, L., Uttal, D.H., & Franconeri, S. L.** Low Capacity for Visual Spatial Relation Memory. The Vision Science Society Annual Meeting, Naples, Florida, May 2013
- **Yuan, L., Sauter, M., Uttal, D.H., & Gentner, D.** Map in A Snap: Can Comparison Facilitate Preschoolers' Understanding of Maps? Cognitive Science Society Annual Meeting, Boston, USA, July 2011

TEACHING EXPERIENCES

Instructor:

2016-2019 Supervised Research II, Indiana University
 2015 Developmental psychology, Northwestern University

Teaching Assistant:

2013 Fall Statistics, Northwestern University
 2012 Fall Research methods, Northwestern University
 2011 Fall Advanced Introduction of Psychology, Northwestern University
 2011 Spring Cognitive Science, Northwestern University
 2010 Winter Cognitive Psychology, Northwestern University

Guest lecturer:

2017, 2018 Grant writing course, Indiana University
 2017 Fall Statistics consulting, Indiana University,
 2015 Spring Cognitive processes in social psychology, Northeastern University
 2014 Fall Cognitive Psychology, Northeastern University

Undergraduate research mentees:

Indiana University:

Haley Meekhof Currently doctoral student at IUPUI School of Health and Rehabilitation Sciences
 Kesha Kandoi Currently doctoral student at Indiana University School of Medicine
 Emily Johns Currently Project Manager at Cognitive Development Lab, Indiana University
 Hannah Hanscom, Olivia Long, Erin DeCocq, Olivia Long, Anna Graves

Northwestern University:

Thidar Khine, Stephanie Chang, T.J. Butler, Matt Hong, Ellen Reynolds

AD-HOC REVIEWER

Cognition

Child Development

Psychonomic Bulletin & Review

Journal of Cognition and Development

British Journal of Developmental Psychology

Cognitive Science Annual Conferences

SERVICES & OUTREACH

- 2019 Organizer and presenter at a site event for the #GIRLBOSS series for Girls Inc. at Bloomington, Indiana.
- 2018, 2019 Host and mentor for high school students for the STEM summer program, Indiana University
- 2015 Volunteer for the Schuler Scholar Program, Northwestern University
- 2014 Volunteer at the “Science of a Cocktail Party” event, Illinois Science Council
- 2013 Recruiter at Parent / child workshop event, Evanston Public Library
- 2012 Volunteer organizer at graduate students’ recruitment events, Northwestern University

PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

Society for Research in Child Development
 Cognitive Development Society
 Cognitive Science Society