Rebecca Merkley

Department of Psychology, University of Western Ontario
Westminster Hall, Room 307 East
London, Ontario, Canada, N6A 3K7

Phone: +1-519-661-2111 Ext. 84109

Email: rebecca.merkley@gmail.com

Current position

2015- Postdoctoral Research Fellow
University of Western Ontario | Advisor: Professor Daniel Ansari

Education

2011-2015 DPhil in Experimental Psychology
University of Oxford | Advisor: Professor Gaia Scerif

2010-2011 EdM in Mind, Brain, and Education
Harvard Graduate School of Education

2005-2009 BA (Hons) in Psychology, Minor in French
University of Western Ontario

Grants & fellowships

Project grants

2016-2018 "Cognitive and Educational Foundations of Preschool Mathematics", Nuffield Foundation. £241,444 | Co-investigator (PI: Gaia Scerif, University of Oxford)

Fellowships

2016-2018 Developmental Neuroscience Postdoctoral Research Training Award, Brain Canada and NeuroDevNet.

2013-2015 Postgraduate Scholarship, Natural Sciences and Engineering Research Council of Canada.

2011-2014 Clarendon Fund Scholarship, University of Oxford.

2011 Mind, Brain, Behavior Graduate Student Research Award, Harvard University.

Awards & honours

2014 National Science Foundation-sponsored Distinguished Student Poster Award, International Mind, Brain, and Education Society Conference

2014 Poster Award, European Association of Research on Learning and Instruction: SIG22 Neuroscience and Education Meeting

Publications

Peer-reviewed

Merkley, R., & Ansari, D. (2016). Why numerical symbols count in the development of mathematical skills: evidence from brain and behavior. *Current Opinion in Behavioral Sciences. 10,* 14-20. DOI: 10.1016/j.cobeha.2016.04.006

Merkley, R., Shimi, A., & Scerif, G. (2016). Electrophysiological markers of newly acquired symbolic numerical representations: The role of magnitude and ordinal information. *ZDM. 48* (3), 279-289. DOI: 10.1007/s11858-015-0751-y

Merkley, R., Thompson, J., & Scerif, G. (2016). Of huge mice and tiny elephants: Exploring the relationship between inhibitory processes and preschool math achievement. *Frontiers in Psychology.* 6:1903. DOI: 10.3389/fpsyg.2015.01903

Merkley, R., & Scerif, G. (2015). Continuous visual properties of number influence the formation of novel symbolic representations. *Quarterly Journal of Experimental Psychology. 68*(9), 1860-1870. DOI: 10.1080/17470218.2014.994538

Matusz, P.J., Broadbent, H., Ferrari, J., Forrest, B., **Merkley, R.**, & Scerif, G. (2015). Multi-modal distraction: Insights from children's limited attention. *Cognition. 136*, 156-165. DOI: 10.1016/j.cognition.2014.11.031

Merkley, R., & Ansari, D. (2010). Using eye tracking to study numerical cognition: the case of the ratio effect. *Experimental Brain Research. 206*(4), 455-460. DOI: 10.1007/s00221-010-2419-8

Commentaries

Merkley, R., Scerif, G., & Ansari, D. (accepted). What is the precise role of cognitive control in the development of a sense of number? (Commentary on Leibovich et al.) *Behavioral and Brain Sciences*

Merkley, R., Matejko, A.A., & Ansari, D. (2017). Strong causal claims require strong evidence: a commentary on Wang et al. (2016). *Journal of Experimental Child Psychology* DOI: 10.1016/j.jecp.2016.07.008

Merkley, R., Matejko, A.A., & Wilkey, E.D. (2016). Exploring the origins and development of the visual number form area: A functionally specialized and domain-specific region for the processing of number symbols? *Journal of Neuroscience. 36*, (17), 4659-4661 DOI: 10.1523/JNEUROSCI.0710-16.2016

Other Publications

Turoman, N. **Merkley, R.**, Scerif, G. & Matusz, P.J. (under review). How do kids and grown-ups get distracted in everyday situations? *Frontiers in Young Minds.* (Publication written for and reviewed by children)

Merkley, R., & Ansari, D. (in press). Numerical symbols count for mathematical success. *Perspectives on Language and Literacy.* (Publication of the International Dyslexia Association)

Invited talks

2016 "Beyond number sense: Domain-general and specific contributions to early childhood numeracy". *Centre for Educational Neuroscience, University College London - Birkbeck University of London - UCL Institute of Education.* London, UK

Conference presentations

Oral Symposia Presentations

2016 **Discussant** at symposium: "Reconciling domain-specific and domain-general influences on numerical cognition: Implications for education." *International Mind, Brain, and Education Society Conference.* Toronto, Canada.

Merkley, R., *&* Scerif, G. Developmental differences in the role of ordinality in the formation of abstract symbolic representations. *Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting.* Ottawa, Canada

2015 **Merkley, R.**, *&* Scerif, G. The development of inhibitory control and non-symbolic numerical processing in early childhood. *British Psychological Society Developmental and Social Sections Meeting.* Manchester, UK

Poster Presentations

2017 **Merkley, R.**, Bugden, S., Scerif, G. *&* Ansari, D. What does it mean to have a concept of symbolic number: Developmental differences in cardinal and ordinal processing of Arabic numerals. *Improving Mathematical Cognition and Learning: Formal and Informal Instructional Influences & Interventions.* Vanderbilt, USA

2016 **Merkley, R.**, Lyons, I. M., *&* Ansari, D. Longitudinal analysis of mathematics abilities in the early years: Modeling risk and resilience for learning difficulties. *NeuroDevNet Annual Brain Development Conference.* Calgary, Canada

Matusz, P. J. **Merkley, R.**, *&* Scerif, G. Taking attention back to school: Multisensory contexts reveal effects of experience on attention allocation. *International Mind, Brain, and Education Society Conference.* Toronto, Canada

2015 **Merkley, R.**, Shimi, A., *&* Scerif, G. The role of magnitude and ordinal information in the formation of novel symbolic numerical representations. *Flux Congress.* Leiden, Netherlands

2014 **Merkley, R.**, *&* Scerif, G. Does congruency between discrete and continuous properties of non-symbolic number influence children's formations of symbolic representations? *International Mind, Brain, and Education Society Conference.* Fort Worth, USA

Merkley, R., *&* Scerif, G. Perceptual information influences the formation of numerical representations: Evidence from an artificial learning paradigm. *EARLI SIG22: Neuroscience and Education Meeting.* Göttingen, Germany

2013 **Merkley, R.**, *&* Scerif, G. Why do preschoolers' attention and numeracy relate?

Implications from cognitive training. *British Psychological Society Developmental and Cognitive Sections Meeting*. Reading, UK

Teaching

University of Oxford

2013-2014 Demonstrator, Psychology Block Practical | Topic: Attention and Number
2012-2014 Demonstrator, Psychology Core Practicals
2012-2014 Tutor, Part I Developmental Psychology | Topics: Executive functions, Numerical cognition
2012-2013 Tutor, Introduction to Developmental Psychology

Students advised

2016- Honours Theses (University of Western Ontario): Selena Basile, Rachel Goren
2013-2015 Undergraduate Research Projects (University of Oxford): Joanna Bishop, Jamie Stiff, Holly Cuthbert

Outreach & service

2016- Board Member, Learning Disabilities Association of Ontario, London Region
2016- Volunteer Math Tutor, Learning Disabilities Association of Ontario, London Region
2015- Organizer, Development - Impact and Science Early Career Research Network (DISCERN) - Funded by a British Academy Rising Star Engagement Award to Gaia Scerif
2016 Coordinator, Making Links - Developmental Psychology and Education Outreach Event
2014 Founder, Oxford Science Adventures - Developmental Psychology Outreach and Participant Recruitment Event
2013-2014 Graduate Student Representative, Teaching Policy Committee, University of Oxford
2007-2009 Volunteer Reading Tutor, Learning Disabilities Association of Ontario, London Region

Ad hoc reviewing

Cognition | Neuropsychologia | Developmental Science | Frontiers in Psychology | ZDM Mathematics Education | PLOS ONE | Developmental Psychology | Research in Developmental Disabilities | Review of Educational Research | Bilingualism: Language and Cognition | British Journal of Educational Psychology