



The LEAD Graduate School & Research Network at the University of Tübingen invites you to attend the lecture
by

Dr. Daniel Ansari

Professor of Psychology and Education
Canada Research Chair in Developmental Cognitive Neuroscience and Learning

“The Development of the Mathematical Brain”
Wednesday November 10th, 2021 at 04.00 pm (MESZ)

Zoomlink: Please contact us via E-Mail and we will provide the Zoom-Link.

Abstract

Humans share with animals the ability to process numerical quantities in non-symbolic formats (e.g., collections of objects). Unlike other species, however, over cultural history, humans have developed symbolic representations (such as number words and digits) to represent numerical quantities exactly and abstractly. These symbols and their semantic referents form the foundations for higher-level numerical and mathematical skills. It is commonly assumed that symbols for number acquire their meaning by being mapped onto the pre-existing, phylogenetically ancient system for the approximate representation of non-symbolic number over the course of learning and development. In this talk I will challenge this hypothesis for how numerical symbols acquire their meanings (“the symbol grounding problem”). To do so, I will present a series of behavioral and neuroimaging studies with both children and adults that demonstrate that symbolic and non-symbolic processing of number is dissociated at both the behavioral and brain levels of analysis. I will discuss the implications of these data for theories of the origins of numerical symbol processing and its breakdown in children with mathematical learning disorders.

Biography

[Daniel Ansari](#) is a Professor and Canada Research Chair in Developmental Cognitive Neuroscience and Learning in the Department of Psychology and the Faculty of Education at Western University in Canada, where he heads the Numerical Cognition Laboratory (www.numericalcognition.org). Ansari and his team explore the developmental trajectory underlying both the typical and atypical development of numerical and mathematical skills, using both behavioral and neuroimaging methods. Ansari has published over 100 articles in peer-reviewed journals. He is member of the The College of the Royal Society of Canada, a Fellow of the Association for Psychological Science as well as the Canadian Institute for Advanced Research.

Important Publications:

- Lau, N.T.T., Merkley, R., Tremblay, P., Zheng, S., De Jesus, S. & **Ansari, D.** (2021) Kindergartners’ symbolic number abilities predict non-symbolic number abilities and math achievement in grade 1. *Developmental Psychology*, 57, 471-488
- Peters, L. & **Ansari, D.** (2019) Are specific learning disorders truly specific, and are they disorders? *Trends in Neuroscience and Education*, 17, 100115
- Merkley, R. & **Ansari, D.** (2016) Why numerical symbols count in the development of mathematical skills: Evidence from brain and behaviour. *Current Opinions in Behavioral Sciences*, 10, 14-20.

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