

MCLS

THE MATHEMATICAL COGNITION
AND LEARNING SOCIETY

THE SEVENTH ANNUAL
MCLS CONFERENCE

June 26-28, 2024
Washington, DC, USA

LIGHTNING TALKS

L1/S4D: Session 1 (Wednesday, 3:45-5:00 PM)

- 1. The influence of reasoning ability, processing speed and domain-general divergent thinking on mathematical creativity**
Michaela A. Meier¹, David Z. Hambrick², Alexander P. Burgoyne³, Roland H. Grabner¹
¹University of Graz; ²Michigan State University; ³Georgia Institute of Technology
- 2. Tackling the maths anxiety barrier: can a digital maths game help children to spontaneously decide to practise more maths at home**
Pierpaolo Dondio¹, Mauriche Gomides², Flavia Santos²
¹TU Dublin; ²University College Dublin
- 3. Overcoming the natural number bias in fraction comparison through magnitude-based reasoning: Results of an intervention study**
Michael D'Erchie¹, Johannes Rosenkranz², Sabrina Schwarzmeier¹, Andreas Obersteiner¹
¹Technical University of Munich; ²University of Education Freiburg, Germany
- 4. The role of language in children's beliefs that numbers are infinite: Insights from Hindi and English learners in India**
Urvi Maheshwari¹, Jessica Sullivan², David Barner¹
¹University of California San Diego; ²Skidmore College
- 5. Domain-general and domain-specific antecedents of pre-algebraic knowledge: Focusing on English-language learners with word-problem difficulty**
Xin Lin
University of Macau
- 6. A meta-analysis of mathematics anxiety interventions in reducing mathematics anxiety and improving mathematics performance**
Yuting Liu, Peng Peng
University of Texas at Austin
- 7. Bidirectional longitudinal relations between preschool children's spatial skills and interest in spatial activities**
Xinzhuo Zou, Xiao Zhang
The University of Hong Kong
- 8. Is students' ability of visually comparing fraction magnitudes related to their general fraction knowledge? An eye-tracking study**
Sabrina Schwarzmeier, Andreas Obersteiner
Technical University of Munich
- 9. Children's estimates of equivalent rational number magnitudes are not equal: evidence from fractions, decimals, percentages, and whole numbers**
Lauren Schiller¹, Roberto Abreu-Mendoza², Clarissa Thompson³, Miriam Rosenberg-Lee⁴
¹Columbia University; ²Indiana University, Bloomington; ³Kent State University; ⁴Rutgers University, Newark

L2/S8D: Session 2 (Thursday, 3:45-5:00 PM)

- 1. Building fraction knowledge using real-world examples in conversation**
Karina Kling, Yihan Chen, Susan Levine
University of Chicago
- 2. Adults views on key academic domains: when is literacy more important than math?**
Megan Merrick¹, Giulia Borriello², Amanda Grenell¹, Emily Fyfe¹
¹Indiana University-Bloomington; ²Kent State University
- 3. Math skills in bilingual and monolingual children with or without specific learning disorders and the role of socio-economic status**
Paola Bonifacci¹, Marina Porrelli², Alessia Rapino³, Lucia Pradelli⁴, Carlotta Facini⁵, Chiara Gelmini⁶, Chiara Nanni⁷, Anna Gallani⁸, Simona Chiodo²
¹University of Bologna; ²AUSL Bologna; ³AUSL Modena; ⁴AUSL Piacenza; ⁵AUSL Parma; ⁶AUSL Reggio Emilia; ⁷AUSL Imola; ⁸AUSL Ferrara
- 4. Highlighting contrasts between problems help preschoolers solve pre-algebraic problems**
Chen Cheng
The Hong Kong University of Science and Technology
- 5. College students' self-regulated studying of worked examples**
Rebecca Adler, Xinran Wang, Bethany Rittle-Johnson
Vanderbilt University
- 6. Relations among parents' own math experiences and their expectancy and value for children's math achievement**
Siqi Zhang, Suzanne Varnell, Salvador R. Vazquez, Sarah H. Eason
Purdue University
- 7. Practicing arithmetic with spatial representations improves fact retrieval**
Elida Laski, Marina Vasilyeva
Boston College
- 8. Linking arithmetic strategy use to spatial skills in children**
Xinhe Zhang, Elizabeth Gunderson
Indiana University

L3/S10D: Session 3 (Friday, 10:45-12:00 PM)

- 1. Constructing algebra: Conceptual change in algebraic thinking and its relation to arithmetic knowledge and domain-general cognitive skills**
Ulises Xolocotzin, Ana Medrano, Teresa Rojano
Cinvestav
- 2. Exploring the utility of home math environment profiles for predicting children's math skills**
Shirley Duong, Heather Bachman, Elizabeth Votruba-Drzal, Melissa Libertus
University of Pittsburgh
- 3. Math anxiety hinders the game experience of primary school pupils playing a maths digital game, but only when they play one versus the other.**
Pierpaolo Dondio, Andre Almo, Mariana Rocha
TU Dublin
- 4. Mathematical language and its relation to numerical performance in linguistically diverse elementary-school children**
Vera Hilger, Sonja Ugen, Linda Romanovska, Katharina Tremmel, Aurélie Wealer
University of Luxembourg
- 5. Math anxiety and math-self concept in children and parents as predictors of mathematical performance in kindergarten children**
Esmeralda Dionicio^{1,2}, María Inés Susperreguy^{1,2}, Christian Peake^{2,3}, Ma. Francisca del Río^{2,3}, Valentina

Giaconi^{2,4}, Yovanna Galaz^{2,3,5}

¹ Pontificia Universidad Católica de Chile; ²Millennium Nucleus for the Study of the Development of Early Math Skills (MEMAT), Chile; ³Universidad Diego Portales; ⁴Universidad de O'Higgins; ⁵Universidad Alberto Hurtado

- 6. Mathematics anxiety assessed using AMAS: Measurement invariance in university students across four countries**
Serena Rossi¹, Krzysztof Cipora¹, Alice Masi², Iro Xenidou-Dervou¹
¹Loughborough University; ²Padova, Italy
- 7. Effects of explicit instruction on non-symbolic estimation of ratios and differences depend on stimulus modality**
Kate Stuart, Nicola J. Morton, Simon Kemp, Randolph Grace
University of Canterbury, Christchurch
- 8. Approximate ratio processing is numerical and operates independent of language**
Chuyan Qu¹, Sam Clarke², Elizabeth Brannon¹
¹University of Pennsylvania; ²University of Southern California
- 9. Do individual differences in student skills determine effects of spatial training on mathematics performance?**
Victoria Alexander Terry¹, Kelly Mix¹, Susan Levine²
¹University of Maryland; ²University of Chicago

L4/S11D: Session 4 (Friday, 2:00-3:15PM)

- 1. Children's numerical estimations are biased by males more than females**
Kathleen Cracknell¹, Miaofan Chen², Julia Hauss¹, Lin Bian³, Jinjing (Jenny) Wang¹
¹Rutgers University – New Brunswick; ²University of Maryland, College Park; ³The University of Chicago
- 2. Cognitive predictors of associativity understanding and its contribution to arithmetic and algebraic computation: A latent growth curve analysis**
Eason Sai-Kit Yip, Terry Tin-Yau Wong
University of Hong Kong
- 3. Working memory mediates the relationship between math vocabulary and math performance in Chilean second graders**
Roberto A. Ferreira^{1,2}, Cristina Rodríguez^{1,3}
¹Millennium Nucleus for the Science of Learning (MiNSoL); ²Universidad de Talca; ³Universidad Católica del Maule
- 4. Increasing family support professionals' ability to model early math talk: Results from an intervention study**
Sarah Pan, Alisha Wackerle-Hollman, Michèle Mazzocco
University of Minnesota

- 5. Multidimensionality of home math engagement: examined through a comparison of preterm and full-term toddlers**
Sivan Lurie¹, Alex Silver², Melissa Libertus²
¹University of Maryland, College Park; ²University of Pittsburgh
- 6. Transdiagnostic factors as moderators of the math anxiety-math performance relation**
Nadine Yildiz, Darcy Hallett
Memorial University of Newfoundland
- 7. Shared neural processing of grammar and arithmetics: Insights from a meta-analysis**
Nurit Viesel-Nordmeyer, Johannes C. Ziegler, Jérôme Prado
Aix-Marseille University
- 8. Seeing beyond the surface: Understanding non-symbolic rational numbers by quantity and its relation to math achievement**
Sangmi Park, Alena Esposito
¹University of Wisconsin - Madison; ²Clark University