

## Melissa-Evelyn Libertus, PhD

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### Academic appointments

2023 – present: Chair, Developmental Psychology, University of Pittsburgh, USA  
2022 – present: Professor, Dept. of Psychology, University of Pittsburgh, USA  
2018 – 2022: Associate professor, Dept. of Psychology, University of Pittsburgh, USA  
2013 – 2018: Assistant professor, Dept. of Psychology, University of Pittsburgh, USA  
2013 – present: Research scientist, Learning Research and Development Center  
University of Pittsburgh, USA  
2010 – 2013: Postdoctoral fellow, Dept. of Psychological and Brain Sciences  
Johns Hopkins University, USA  
Advisors: Lisa Feigenson & Justin Halberda

### Education

2006 – 2010: PhD in Psychology and Neuroscience, Duke University, USA  
Advisor: Elizabeth M. Brannon  
2004 – 2006: M.A. in Psychology and Neuroscience, Duke University, USA  
Advisor: Elizabeth M. Brannon  
2001 – 2004: B.Sc. in Cognitive Science (summa cum laude), University of Osnabrück,  
Germany  
Advisor: Inge Schwank

### Scholarships and Awards

2015: Association for Psychological Science (APS) Rising Star Award  
2015: Sofja Kovalevskaja Award, Alexander-von-Humboldt-Foundation (declined)  
2014: International Mind Brain and Education Society (IMBES) Early Career Award  
2011: Developmental Science Early Career Research Prize  
2011: Building Bridges Travel Award, German Scholars Organization  
2009 – 2010: Katherine Goodman Stern Fellowship, Duke University  
2009: Frances Degen Horowitz Millennium Scholar, Society for Research in Child  
Development  
2007 – 2009: Three Conference Travel Grants, Duke University  
2006 – 2007: George H. Hitchings New Investigator Award in Health Research and Training,  
Triangle Community Foundation  
2006 – 2009: Four Summer Vertical Integration Scholarships, Duke University  
2004 – 2005: Fulbright Scholarship (declined)  
2002 – 2006: German National Merit Foundation Scholarship (Studienstiftung des Deutschen  
Volkes)

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### GRANTS

#### External grants

##### Current

“Collaborative Research: A Multi-Lab Investigation of the Conceptual Foundations of Early Number Development”

National Science Foundation (DRL 2201960)

PIs: David Barner, Sara Cordes, Lisa Feigenson, Elizabeth Gunderson, Dan Hyde, Melissa Kibbe, Melissa Libertus, Jessica Sullivan, Kristy vanMarle

Funded period: 07/22-06/26

Total costs: \$1,165,082

“Quantitative and remote methods to study early cognitive development and heterogeneity in ASD”

Heising-Simons Foundation

PIs: Elena Tenenbaum, Shafali Jeste

Role: Consultant

Funded period: 12/2021-11/2023

Total costs: \$500,000

“Early Emergence of Socioeconomic Disparities in Mathematical Understanding”

National Science Foundation (DRL 1920545)

PI: Elizabeth Votruba-Drzal, Co-Is: Heather Bachman, Melissa Libertus

Funded period: 09/2019-08/2023

Total costs: \$2,108,317

“Cognitive and Biological Mechanisms in Pediatric Voice Therapy”

National Institutes of Health (R01DC017923)

PI: Katherine Verdolini Abbott, Co-Is: Patrick Barth, Dimitar Deliyski, Joseph Dohar, Melissa Libertus, Rita Patel

Funded period: 09/2019-08/2025

Total subaward: \$430,646

“How Parents Support Young Children’s Mathematical Thinking Across SES”

National Institutes of Health (R01HD093689)

PI: Melissa Libertus, Co-Is: Heather Bachman, Elizabeth Votruba-Drzal

Funded period: 05/2019-04/2024

Total costs: \$3,056,395

“Intrinsic and extrinsic influences on young children's mathematical abilities”

James S. McDonnell Foundation

PI: Melissa Libertus

Funded period: 01/2019-12/2024

Total costs: \$600,000

“Collaborative Research: Math Cognition In Toddlers From Latino and White families: Contributions Of Home Experiences With Mothers and Fathers”

National Science Foundation (HRD 1760844)

PIs: Catherine Tamis-LeMonda, Natasha Cabrera, Melissa Libertus

Funded period: 08/2018-07/2023

Total costs: \$450,000 (University of Pittsburgh only)

“NCS-FO: Neurobehavioral Integration of Visual and Semantic Number Knowledge and its Role for Individual Variation in the Math Ability of Children and Adults”

National Science Foundation (DUE 1734735)

PIs: Marc Coutanche, Julie Fiez, Melissa Libertus

Funded period: 09/2017 – 11/2023

Total costs: \$982,661

## Completed

“APA Summer Undergraduate Psychology Research Experience (SUPRE)”

APA

PI: Jana Iverson; Co-PIs: Julie Fiez, Lauren Hallion, Tristen Inagaki, Melissa Libertus, Anna Marsland, Ed Orehek, Elizabeth Votruba-Drzal, Aidan Wright

Funded period: 06/2018 – 07/2018

Total costs: \$21,869

“APA Summer Undergraduate Psychology Research Experience (SUPRE)”

APA

PI: Jana Iverson; Co-PIs: Julie Fiez, Melissa Libertus, Elizabeth Votruba-Drzal, Aidan Wright

Funded period: 05/2017 – 07/2017

Total costs: \$21,874

“Tell me about math: A longitudinal training study on the effects of parent-child interactions and parental cognition on children’s math abilities”

National Science Foundation (DUE 1534830)

PI: Melissa Libertus, Co-PIs: Klaus Libertus, Aidan Wright

Funded period: 09/2015 – 08/2019

Total costs: \$499,750

“Revealing the importance of math-related parent-child interactions via EEG hyperscanning”

National Science Foundation (Supplement to DUE 1534830)

PI: Melissa Libertus, Co-PIs: Klaus Libertus, Aidan Wright

Funded period: 09/2016 – 08/2019

Total costs: \$ 99,194

## Internal grants

### Completed

“Personalizing Family Routines to Support 3-Year-Olds’ Math Skills”

Learning Research and Development Center Internal Award

PI: Diana Leyva, Co-PI: Melissa Libertus

Funded period: 09/2020 – 08/2022

Total costs: \$149,364

“Using human intracranial recordings to examine the spatiotemporal dynamics of symbolic and non-symbolic number processing”

Learning Research and Development Center Internal Award

PI: Melissa Libertus, Co-PI: Avniel Ghuman

Funded period: 07/2019 – 06/2021

Total costs: \$38,000

“Students in cognitive development learn to apply knowledge and communicate effectively through blog posts for parents”

Discipline-Based Science Education Research Center

PIs: Emily Braham, Melissa Libertus

Funded period: 09/2017 – 12/2017

Total costs: \$2,000

“How Low- and High-SES Parents Support Young Children’s Mathematical Thinking”

Learning Research and Development Center Internal Award

PI: Melissa Libertus, Co-PIs: Heather Bachman, Elizabeth Votruba-Drzal

Funded period: 07/2017 – 06/2019  
Total costs: \$149,962

“How parents of low and high socioeconomic status support preschool-aged children’s mathematical thinking”

Central Research Development Funds (CRDF), University of Pittsburgh  
PI: Melissa Libertus  
Funded period: 07/2017 – 06/2019  
Total costs: \$16,000

“The dangers of computation without quantitative meaning: Testing the case of symbolic estrangement”

Learning Research and Development Center Internal Award  
PI: Melissa Libertus, Co-PIs: Julie Fiez, Christian Schunn  
Funded period: 05/2014 – 06/2016  
Total costs: \$87,955

“Tell me about math: A longitudinal training study on the effects of parent-child interactions and parental cognition on children’s math abilities”

Learning Research and Development Center Internal Award  
PI: Melissa Libertus, Co-PI: Klaus Libertus  
Funded period: 05/2015 – 02/2016  
Total costs: \$149,873

## PUBLICATIONS

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### Publications in peer-reviewed journals

\* denotes graduate student mentee; \*\* denotes undergraduate student mentee

1. Ribner, A., **Libertus, M.** (in principle acceptance as a Registered Report). Mechanisms Underlying Transfer from Domain-Specific and Domain-General Cognitive Training to Children’s Math Skills. *Child Development*.
2. \*Silver, A., Swirbul, M., Tamis-LeMonda, C., Cabrera, N., **Libertus, M.** (in principle acceptance as a Registered Report). Registered Report: Investigating the relations between parent engagement and toddlers’ math performance. *British Journal of Developmental Psychology*.
3. \*Duong, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (in press). Exploring the Role of Parent and Child Factors in Parental Questioning During Shared Book Viewing. *Cognitive Development*.
4. Feinstein, H., Dasdogen, U., **Libertus, M.**, Awan, S., Galera, R., Dohar, J., Verdolini Abbott, K. (in press). Cognitive mechanisms in pediatric voice therapy – an initial examination. *Journal of Voice*.
5. \*Silver, A., Chen, Y., Smith, D., Tamis-LeMonda, C., Cabrera, N., **Libertus, M.** (2023). Mothers’ and fathers’ engagement in math activities with their toddler sons and daughters: The moderating role of parental math beliefs. *Frontiers in Psychology*, 14, 1124056.
6. Miller, P., Elliott, L., Podvysotska, T., Ptak, C., \*Duong, S., \*Fox, D., Coulanges, L., **Libertus, M.**, Bachman, H., Votruba-Drzal, E. (2023). Toddler Home Math Environment: Triangulating Multi-Method Assessments. *Frontiers in Educational Psychology*, 14, 1105569.

7. Ribner, A., \*Silver, A., Elliott, L., **Libertus, M.** (2023). Exploring effects of an early math intervention: The importance of parent–child interaction. *Child Development, 94*(2), 395-410.
8. Koch, G., **Libertus, M.**, Fiez, J., Coutanche, M. (2023). Representations within the intraparietal sulcus distinguish both numerical tasks and stimuli. *Journal of Cognitive Neuroscience, 35*(2), 226-240.
9. \*Silver, A., **Libertus, M.** (2022). Environmental influences on math performance in early childhood. *Nature Reviews Psychology, 1*, 407-418.
10. Elliott, L., Bachman, H., \*Carvalho Pereira, J., Coulanges, L., \*Duong, S., Montue, T., Miller, P., **Libertus, M.**, & Votruba-Drzal, E. (2022). Self-regulation in toddlers and the emergence of academic disparities. *Infant Behavior and Development, 69*, 101779.
11. Elliott, L., Votruba-Drzal, E., Miller, P., **Libertus, M.**, & Bachman, H. J. (2022). Unpacking the Home Numeracy Environment: Examining Dimensions of Number Activities in Early Childhood. *Early Childhood Research Quarterly, 62*, 129 –138.
12. \*\*Carver, C., \*Duong, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Examining Relations Between Parental Feedback Types and Preschool-Aged Children’s Academic Skills. *International Journal of Psychological Studies, 14*, 4.
13. Miller, P., Betancur, L., Kammerzell, J., **Libertus, M.**, Bachman, H., Votruba-Drzal, E. (2022). Time spent playing predicts early reading and math skills through associations with self-regulation *Journal of Applied Developmental Psychology, 83*, 101470.
14. Bachman, H., Miller, P., Elliott, L., \*Duong, S., **Libertus, M.** & Votruba-Drzal, E. (2022). Associations among Socioeconomic Status and Preschool-aged Children’s Approximate Number System Acuity, Number and Spatial Skills: The Role of Executive Function. *Journal of Experimental Child Psychology, 221*, 105453.
15. \*Silver, A., Elliott, L., **Libertus, M.** (2022). Parental math input is not uniformly beneficial for young children: The moderating role of inhibitory control. *Journal of Educational Psychology, 114*(5), 1178-1191.
16. Dearing, E., Casey, B., Davis-Kean, P., Eason, S., Gunderson, E., Levine, S., Laski, E., **Libertus, M.**, Lombardi, C., Lu, L., Nelson, A., Ramani, G., Susperreguy, I. (2022). Socioeconomic variations in the frequency of parent number talk: A meta-analysis. *Education Sciences, 12*, 312.
17. \*Ren, X., \*Liu, R., Coutanche, M., Fiez, J., **Libertus, M.** (2022). Numerical Integration between Symbolic and Non-symbolic Numerical Information: Evidence for Task-Dependence and Its Link to Math Abilities in Adults. *Cognition, 224*, 105067.
18. \*Silver, A., Elliott, L., Reynvoet, B., Sasanguie, D., **Libertus, M.** (2022). Teasing apart the unique contributions of cognitive and affective predictors of math performance. *Annals of the New York Academy of Sciences, 1511*(1), 173-190.
19. Elliott, L., \*Silver, A., \*\*Imbeah, A., **Libertus, M.** (2022). Actions may speak louder than words: Comparing methods of assessing children’s spontaneous focusing on number. *Journal of Experimental Child Psychology, 214*, 105301.
20. **Libertus, M.**, \*Duong, S., \*Fox, D., Elliott, L., McGregor, R., Ribner, A., \*Silver, A. (2021). A Rational Explanation for Links between the ANS and Math. *Behavioral and Brain Sciences, 44*, e178.

21. Reynvoet, B., Ribner, A., Elliott, L., Van Steenkiste, M., Sasanguie, D., **Libertus, M.** (2021). Making Sense of the Relation between Number Sense and Math. *Journal of Numerical Cognition*, 7(3), 308-327.
22. Ribner, A., Coulanges, L., Friedman, S., **Libertus, M.**, and the i-Fam Team (2021). Screen Time in the COVID Era: International Trends of Increasing Use Among 3- to 7-Year-Old Children. *The Journal of Pediatrics*, 239, 59-66.
23. Elliott, L., \*\*Zheng, P., **Libertus, M.** (2021). Individual Differences in Parental Support for Numeracy and Literacy in Early Childhood. *Education Sciences*, 11(9), 541.
24. Leyva, D., **Libertus, M.**, McGregor, R. (2021). Relations between Subdomains of Home Math Activities and Corresponding Math Skills in 4-Year-Old Children. *Education Sciences*, 11(10), 594.
25. \*Silver, A., Elliott, L., \*Braham, E., Bachman, H., Votruba-Drzal, E., Tamis-LeMonda, C., Cabrera, N., **Libertus, M.** (2021). Measuring emerging number knowledge in toddlers. *Frontiers in Psychology*, 12, 703598.
26. \*Duong, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2021). What's in a question? Parents' question use in dyadic interactions and the relation to preschool-aged children's math and language abilities. *Journal of Experimental Child Psychology*, 211, 105213.
27. Möhring, W., Ribner, A., Segerer, R., **Libertus, M.**, Kahl, T., Troesch, L., Grob, A. (2021). Children's growth in spatial skills: Causes and consequences for later mathematical thinking. *Learning and Instruction*, 75, 101515.
28. Shivaram, A., Chavez, Y., Anderson, E., Fritz, A., Jackson, R., Edwards, L., Powers, S., **Libertus, M.**, Hespos, S. (2021). Brief Interventions Influence the Quantity and Quality of Caregiver-Child Conversations in an Everyday Context. *Frontiers in Developmental Psychology*, 12, 2228.
29. \*Silver, A., Elliott, L., **Libertus, M.** (2021). When beliefs matter most: Examining children's math achievement in the context of parental math anxiety. *Journal of Experimental Child Psychology*, 201, 104992.
30. Bachman, H., Elliott, L., Navarro, M., \*Duong, S., Votruba-Drzal, E., **Libertus, M.** (2020). Triangulating multi-method assessments of parental support for early math development. *Frontiers in Education*, 5, 241.
31. \*Silver, A., Elliott, L., \*\*Imbeah, A., **Libertus, M.** (2020). Understanding the unique contributions of home numeracy, inhibitory control, the approximate number system, and spontaneous focusing on number for children's math abilities. *Mathematical Thinking and Learning*, 22(4), 1-16.
32. **Libertus, M.**, Odic, D., Feigenson, L., Halberda, J. (2020). Visual training of approximate number sense improves auditory number sense and school math ability. *Frontiers in Psychology*, 11, 2085.
33. \*\*Thippana, J., \*Elliott, L., \*\*Gehman, S., Libertus, K., **Libertus, M.** (2020). Parents' Use of Number Talk during Play at Home: Exploring Variability across Activities and Families. *Early Childhood Research Quarterly*, 53, 249-259.
34. Hellgren, K., Jacobson, L., Frumento, P., Bolk, J., Aden, U., **Libertus, M.**, Benassi, M. (2020). Cerebral visual impairment captured with a structured history inventory in extremely preterm

born children aged 6.5 years. *Journal of American Association for Pediatric Ophthalmology and Strabismus*, 24(1), 28.e1-28.e8.

35. \*\*Hanner, E., \*Braham, E., \*Elliott, L., **Libertus, M.** (2019). Increasing Math Talk in Adult-Child Interactions through Grocery Store Signs. *Mind Brain and Education*, 13(2), 110-118.
36. \*Elliott, L., Feigenson, L., Halberda, J., **Libertus, M.** (2019). Bidirectional, longitudinal associations between math ability and approximate number system acuity in childhood. *Journal of Cognition and Development*, 20(1), 56-74.
37. \*Braham, E., \*Elliott, L., **Libertus, M.** (2018). Using Hierarchical Linear Models to Examine Approximate Number System Acuity: The Role of Task Parameters and Participant Characteristics. *Frontiers in Psychology*, 9, 2081.
38. \*Navarro, M., \*Braham, E., **Libertus, M.** (2018). Intergenerational associations of the approximate number system in toddlers and their parents. *British Journal of Developmental Psychology*, 36(4), 521-539.
39. \*Braham, E., **Libertus, M.**, McCrink, K. (2018). Increasing Children's Spontaneous Focus on Number through Guided Parent-Child Interactions in a Children's Museum. *Developmental Psychology*, 54(8), 1492-1498.
40. \*Braham, E., **Libertus, M.** (2018). When Approximate Number Acuity Predicts Math Performance: The Moderating Role of Math Anxiety. *PLoS One*, 13(5), e0195696.
41. Kersey, A., \*Braham, E., Csumitta, K., **Libertus, M.**, Cantlon, J. (2018). No intrinsic gender differences in children's earliest numerical abilities. *npj Science of Learning*, 3(1), 12.
42. Wang, J., **Libertus, M.**, Feigenson, L. (2018). Hysteresis-induced changes in preverbal infants' approximate number precision. *Cognitive Development*, 47, 107-116.
43. \*\*Zheng, P, **Libertus, M.** (2018). The Role of Parental Education and Income on Parents' Academic Beliefs and the Provision of Home Learning Opportunities for 4-8-year old Children. *Journal of Educational and Developmental Psychology*, 8(1), 118-132.
44. \*Liu, R., Schunn, C., Fiez, J., **Libertus, M.** (2018). The integration between non-symbolic and symbolic numbers: Evidence from an EEG study. *Brain and Behavior*, 8, e00938.
45. **Libertus, M.**, Feigenson, L., Halberda, J. (2018). Infants extract frequency distributions from variable approximate numerical information. *Infancy*, 23(1), 29-44.
46. **Libertus, M.**, \*Liu, A., Pikul, O., Jacques, T., Cardoso-Leite, P., Halberda, J., Bavelier, D. (2017). The impact of action videogame training on mathematical abilities in adults. *AERA Open*, 3(4), 1-13.
47. Möhring, W., \*Liu, R., **Libertus, M.** (2017). Infants' speed discrimination: Effects of different ratios and spatial orientations. *Infancy*, 22(6), 762-777.
48. Libertus, K., **Libertus, M.**, Einspieler, C., Marschik, P. (2017). "What" matters more than "Why" - Neonatal behaviors initiate social responses. *Behavioral and Brain Sciences*, 40, e394.
49. **Libertus, M.**, \*Braham, E., \*Liu, R. (2017). Infants discriminate number: Evidence against the prerequisite of visual object individuation and the primacy of continuous magnitude. *Brain and Behavioral Sciences*, 40, e176.

50. \*Braham, E., **Libertus, M.** (2017). Intergenerational Associations in Numerical Approximation and Mathematical Abilities. *Developmental Science*, 20(5), e12436.
51. **Libertus, M.**, Forsman, L., Aden, U., Hellgren, K. (2017). Deficits in Approximate Number System Acuity and Mathematical Abilities in 6.5-year-old Children Born Extremely Preterm. *Frontiers in Psychology*, 8, 1175.
52. \*Elliott, L., \*Braham, E., **Libertus, M.** (2017). Understanding Sources of Individual Variability in Parents' Number Talk with Young Children. *Journal of Experimental Child Psychology*, 159, 1-15.
53. **Libertus, M.**, Odic, D., Feigenson, L., Halberda, J. (2016). The Precision of Mapping Between Number Words and the Approximate Number System Predicts Children's Formal Math Abilities. *Journal of Experimental Child Psychology*, 150, 207-226.
54. Pailian, H., **Libertus, M.**, Feigenson, L., Halberda, J. (2016). Developmental Changes in Visual Short-Term Memory (VSTM) Capacity Between Ages 3 and 8 Years. *Attention, Perception, & Psychophysics*, 78, 1556-1573.
55. Einspieler, C., Bos, A., **Libertus, M.**, Marschik, P. (2016). The general movement assessment helps us to identify preterm infants at risk for cognitive dysfunction. *Frontiers in Psychology*, 7.
56. **Libertus, M.**, Odic, D., Feigenson, L., Halberda, J. (2015). A Developmental Vocabulary Assessment for Parents (DVAP): Validating parental report of vocabulary size in 2-7-year-olds. *Journal of Cognition and Development*, 16(3), 442-454.
57. \*Keller, L. E., **Libertus, M.** (2015). Inhibitory control may not explain the link between approximation and math abilities in kindergarteners from middle class families. *Frontiers in Developmental Psychology*, 6, 685.
58. **Libertus, M.** (2015). The role of intuitive approximation skills for school math abilities. *Mind, Brain, and Education*, 9(2), 112-120.
59. **Libertus, M.**, Feigenson, L., Halberda, J., Landau, B. (2014). Understanding the mapping between numerical approximation and number words: Evidence from Williams syndrome and typical development. *Developmental Science*, 17(6), 905-919.
60. **Libertus, M.**, Marschik, P. B., Einspieler, C. (2014). Number word use in toddlerhood predicts number recall performance at seven years of age. *PLoS ONE* 9(6): e98573.
61. **Libertus, M.**, Starr, A., Brannon, E. (2014). Number trumps area for 7-month-old infants. *Developmental Psychology*, 50(1), 108-112.
62. Starr, A., **Libertus, M.**, Brannon, E. (2013). Number sense in infancy predicts mathematical abilities in childhood. *Proceedings of the National Academy of Sciences*, 110(45), 18116-18120.  
  
*Article was featured in Science, Nature, one of top 100 stories in 2013 in Discover, National Geographic, Washington Post, and on NSF Science 360*
63. **Libertus, M.**, Feigenson, L., Halberda, J. (2013). Numerical approximation abilities correlate with and predict informal but not formal mathematics abilities. *Journal of Experimental Child Psychology*, 116(4), 829-838.
64. Hellgren, K., Halberda, J., Forsman, L., Aden, U., **Libertus, M.** (2013). Compromised approximate number sense in extremely preterm school-aged children. *Developmental Medicine and Child Neurology*, 55(12), 1109-1114.



65. Starr, A., **Libertus, M.**, Brannon, E. (2013). Infants show ratio-dependent number discrimination regardless of set size. *Infancy*, 18(6), 927-941.
66. Feigenson, L., **Libertus, M.**, Halberda, J. (2013). Links between the intuitive sense of number and formal mathematics ability. *Child Development Perspectives*, 7(2), 74-79.
67. Odic, D., **Libertus, M.**, Feigenson, L., Halberda, J. (2013). Developmental change in the acuity of approximate number and area representations. *Developmental Psychology*, 49(6), 1103-1112.
68. **Libertus, M.**, Feigenson, L., Halberda, J. (2013). Is Approximate Number Precision a Stable Predictor of Math Ability? *Learning and Individual Differences*, 25, 126-133.
- One of the most highly cited papers in Learning and Individual Differences during 2014, 2015, and 2016*
69. **Libertus, M.**, Odic, D., Halberda, J. (2012). Intuitive sense of number correlates with math scores on college-entrance examination. *Acta Psychologica*, 141(3), 373-379.
70. Möhring, W., **Libertus, M.**, Bertin, E. (2012). Speed discrimination in 6- and 10-month-old infants follows Weber's Law. *Journal of Experimental Child Psychology*, 111, 405-418.
71. Wu, C.-T., **Libertus, M.**, \*\*Meyerhoff, K., Woldorff, M. (2011). The temporal dynamics of object in visual cortex during the transition from distributed to focused spatial attention. *Journal of Cognitive Neuroscience*, 23(12), 4094-4105.
72. Cantlon, J., Davis, S., **Libertus, M.**, \*\*Kahane, J., Brannon, E., Pelphrey, K. (2011). Intra-parietal white matter development predicts numerical performance in young children. *Learning and Individual Differences*, 21(6), 672-680.
73. **Libertus, M.**, Feigenson, L., Halberda, J. (2011). Preschool acuity of the approximate number system correlates with school math ability. *Developmental Science*, 14(6), 1292-1300.
- One of top 5 downloads for 2013, 2014, 2015; article was featured in New York Times, Science Daily, and on MSNBC*
74. **Libertus, M.**, Brannon, E., Woldorff, M. (2011). Parallels in stimulus-driven oscillatory brain responses to numerosity changes in adults and seven-month-old infants. *Developmental Neuropsychology*, 36(6), 651-667.
75. **Libertus, M.**, Brannon, E. (2010). Stable individual differences in number discrimination in infancy. *Developmental Science*, 13(6), 900-906.
76. **Libertus, M.**, Brannon, E. (2009). Behavioral and neural basis of number sense in infancy. *Current Directions in Psychological Science*, 18(6), 346-351.
77. **Libertus, M.**, \*\*Pruitt, L., Woldorff, M., Brannon, E. (2009). Induced alpha-band oscillations reflect ratio-dependent number discrimination in the infant brain. *Journal of Cognitive Neuroscience*, 21(12), 2398-2406.
78. Cantlon, J., **Libertus, M.**, Pinel, P., Dehaene, S., Brannon, E., Pelphrey, K. (2009). The Neural Development of an Abstract Concept of Number. *Journal of Cognitive Neuroscience*, 21(11), 2217-2229.
79. Cantlon, J., Cordes, S., **Libertus, M.**, Brannon, E. (2009). Numerical Abstraction: It ain't broke. *Behavioral and Brain Sciences*, 32, 331-332.

80. **Libertus, M.**, Brannon, E., Pelphrey, K. (2009). Developmental changes in category-specific brain responses to numbers and letters in a working memory task. *Neuroimage*, 44(4), 1404-1414.
81. Cantlon, J., Cordes, S., **Libertus, M.**, Brannon, E. (2009). Comment on Log or Linear? Distinct Intuitions of the Number Scale in Western and Amazonian Indigene Cultures. *Science*, 323, 38b.
82. Brannon, E., **Libertus, M.**, Meck, W., Woldorff, M. (2008). Electrophysiological measures of time processing in infant and adult brains: Weber's law holds. *Journal of Cognitive Neuroscience*, 20(2), 193-203.
83. **Libertus, M.**, Woldorff, M., Brannon, E. (2007). Electrophysiological evidence for notation independence in numerical processing. *Behavioral and Brain Functions*, 3(1).
84. Schwank, I., Armbrust, S., **Libertus, M.** (2003). Prädikative versus funktionale Denkvorgänge beim Konstruieren von Algorithmen [Predicative versus functional thinking processes while constructing algorithms]. *Zentralblatt für Didaktik der Mathematik* [ZDM The International Journal on Mathematics Education], 35 (3), pp.79-85.

### Publications under review

1. Coulanges, L., Bachman, H., **Libertus, M.**, Votruba-Drzal, E. (under review). Content and Context in Children's Screen Time and Relations to Academic Skills. *Journal of Children and Media*
2. \*Duong, S., Elliott, L., Sidoti, O., Bachman, H., **Libertus, M.**, Votruba-Drzal, E. (under review). Money talks! The role of parents' discussion of money for preschoolers' math knowledge. *Journal of Numerical Cognition*.
3. \*Duong, S., Davis, T., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (under review). It takes two to tango: Exploring the dynamic structures of caregiver-child conversations using recurrence quantification. *The Quantitative Methods for Psychology*.
4. \*Fox, D., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (under review). Diversity of spatial activities and parents' spatial talk complexity predict preschoolers' gains in spatial skills. *Child Development*.
5. Leyva, D., **Libertus, M.**, McGregor, R. (under review). Math Intervention Focused on Family Routines Improves Parental Math Talk and Home Math Activities. *Journal of Applied Developmental Psychology*.
6. \*Ren, X, **Libertus, M.** (under review). Identifying the Neural Bases of Math Competence Based on Structural and Functional Properties of the Human Brain. *Journal of Cognitive Neuroscience*.
7. \*Silver, A., Elliott, L., Ribner, A., **Libertus, M.** (under review). The Benefits of Math Activities Depend on the Skills Children Bring to the Table. *Developmental Psychology*
8. \*Silver, A., **Libertus, M.**, Wang, J. (under review). Registered Report: Does changing the acuity of the approximate number system change children's spontaneous focusing on number? *Developmental Science*
9. Zippert, E., Miller, P., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (under review). Predicting Individual Differences in Preschoolers' Numeracy and Geometry Knowledge: The Role of

Understanding Abstract Relations Between Objects and Quantities. *Journal of Educational Psychology*.

### Publications in preparation

1. \*Liu, R., **Libertus, M.** (in prep). Anterior and posterior EEG activity in non-symbolic number and symbolic number comparison in 7- to 8-year-old children: a multivariate approach.
2. \*Liu, R., Tremel, J., Fiez, J., Durisko, C., Schunn, C., Coutanche, M., **Libertus, M.** (in prep). The integration of symbolic and non-symbolic number representations in the human brain.
3. \*Liu, A., Schunn, C., Fiez, J., **Libertus, M.** (in prep). Adjusting for adults' number estimation biases reveals symbolic integration of double-digit numbers.
4. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (in prep). The neural basis for number processing and its relation to individual differences in adults' mathematical skills.
5. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (in prep.). Integration of symbolic and non-symbolic numerical information in children: Task-dependence and its link to math abilities.
6. \*Silver, A., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (in prep). Comparing mechanisms for number word acquisition in early childhood.

### Book chapters

1. **Libertus, M.**, \*Duong, S., \*Silver, A. (2020). Mathematical Cognition. In: Benson, J.B. (Ed.), *Encyclopedia of Infant and Early Childhood Development, 2nd edition*, Vol. 2, Elsevier, pp. 311–318.
2. Resnick, L., **Libertus, M.**, Schantz, F. (2019). The Future of Dialogic Education: An Opportunity and a Challenge. In: Mercer, N., Wegerif, R., Major, L. (Eds.) *The Routledge International Handbook of Research on Dialogic Education*. Routledge.
3. **Libertus, M.** (2019). Understanding the Link Between the Approximate Number System and Math Abilities. In: Geary, D. C., Berch, D. B., Mann Koepke, K. (Eds). *Cognitive Foundations for Improving Mathematical Learning*. Elsevier.

## PRESENTATIONS

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### Invited Talks and Colloquia

03/2023: Colloquium, University of Maryland, USA  
03/2022: Colloquium, Cornell University, USA  
09/2020: Technion, Israel Institute of Technology, Israel  
05/2019: University of Science and Technology Beijing, China  
03/2018: Colloquium, University of Bologna, Italy  
07/2017: Colloquium, KU Leuven, Belgium  
12/2016: Colloquium, Bucknell University, USA  
10/2016: Developmental Brownbag, Carnegie Mellon University, USA  
04/2016: Neuroscience and Education lab, New York University, USA  
09/2013: Developmental Brownbag, Carnegie Mellon University, USA  
03/2013: JRG-Auswahlsymposia, University of Tübingen, Germany  
03/2013: Workshop on Early Childhood Development, University of Zurich, Switzerland  
02/2012: Colloquium, Stanford University, USA  
02/2012: Developmental Brownbag, Stanford University, USA

01/2012: Colloquium, Peabody College, Vanderbilt University, USA  
 01/2012: Colloquium, Dept. of Psychology and Learning Research and Development Center, University of Pittsburgh, USA  
 11/2011: Regional ERP/EEG Research Meeting, Baltimore, USA  
 06/2011: Colloquium, University of Tübingen, Germany  
 05/2011: Colloquium, University of Gießen, Germany  
 05/2011: Colloquium, Karolinska Institute, Sweden  
 07/2009: Laboratory for Child Development, Johns Hopkins University  
 05/2009: Internal seminar, Institute of Cognitive Neuroscience, University College London, UK  
 05/2009: Colloquium, Centre for Brain and Cognitive Development, Birkbeck College, University of London, UK  
 05/2009: Colloquium, Institute for Empirical Research in Economics, University of Zurich, Switzerland  
 05/2009: Colloquium, Institute of Cognitive Science, University of Osnabrück, Germany  
 09/2007: NeuroMath Workshop, University of Osnabrück, Germany

### Conference Presentations - Oral

\* denotes graduate student mentee; \*\* denotes undergraduate student mentee

1. Gunderson, E., Barner, D., Cheung, P., Cordes, S., Feigenson, L., Hyde, D., Izard, V., Kibbe, M., **Libertus, M.**, Sullivan, J., vanMarle, K. (06/2023). ManyNumbers 1: Conceptual foundations of number word learning in preschoolers. Talk to be presented at the *Mathematical Cognition and Learning Society Meeting, Loughborough, UK.*
2. Hyde, D., Barner, D., Cheung, P., Cordes, S., Feigenson, L., Gunderson, E., Izard, V., Kibbe, M., **Libertus, M.**, Sullivan, J., vanMarle, K. (06/2023). ManyNumbers 2: The nature and development of small set number representation in toddlers. Talk to be presented at the *Mathematical Cognition and Learning Society Meeting, Loughborough, UK.*
3. **Libertus, M.**, Barner, D., Cheung, P., Cordes, S., Feigenson, L., Gunderson, E., Hyde, D., Izard, V., Kibbe, M., Sullivan, J., vanMarle, K. (06/2023). ManyNumbers: Getting involved and opportunities beyond the two foundational studies. Talk to be presented at the *Mathematical Cognition and Learning Society Meeting, Loughborough, UK.*
4. Bachman, H., Elliott, L., Podvysotska, T., **Libertus, M.**, Miller, P., Votruba-Drzal, E. (03/2023). The Home Learning Environment in Toddlerhood: Connections to SES and Early Math and Language Skills. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA*
5. Chen, Y., Alonso, A., Cabrera, N., Urioste Resta, M., Tamis-LeMonda, C., **Libertus, M.** (03/2023). Hispanic Mothers' and Fathers' English-Spanish Code-Switching During Interactions with Toddlers: Relation to Toddlers' Expressive Vocabulary. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
6. Coulanges, L., Bachman, H., **Libertus, M.**, Votruba-Drzal, E. (03/2023). Examining Predictors of Young Children's Screen Time During COVID-19. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
7. Duong, S., Votruba-Drzal, E., Bachman, H., **Libertus, M.** (03/2023). It takes two to tango: Dynamic and reciprocal caregiver-child conversations about numbers and math in a grocery context. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*

8. McGregor, R., Leyva, D., **Libertus, M.** (03/2023). Math Intervention Focused on Family Routines Improves Parental Math Talk. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
9. Miller, P., Elliott, L., Podvysotska, T., Coulanges, L., Ptak, C., \*Duong, S., \*Fox, D., \*Carvalho Pereira, J., Bachman, H., **Libertus, M.**, Votruba-Drzal, E. (03/2023). Measuring the Home Math Environment in the Toddler Years: A Multimethod Approach. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
10. Ribner, A., Huerga, L., **Libertus, M.** (03/2023). Patterns of Skill Development in Preschool Cognitive Training Studies. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
11. Silver, A., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (03/2023). How do children learn number words? Comparing proposed mechanisms for number word acquisition. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
12. McGregor, R., Leyva, D., & **Libertus, M.** (06/2022). Exploring Links Between Styles of Parental Math Language and Children's Math Talk. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
13. \*Silver, A., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (06/2022). Comparing mechanisms for number word acquisition. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
14. Elliott, L., \*Silver, A., Ribner, A., **Libertus, M.** (04/2022). The benefits of math board games depend on the skills children bring to the table. *Meeting of the American Educational Research Association, San Diego, CA.*
15. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (11/2021). The Neural Basis for Number Processing and its Relation to Individual Differences in Adults' Mathematical Skills. *Mathematical Cognition and Learning Society (MCLS) Conference, Online symposium series.*
16. Elliott, L., \*Silver, A., \*\*Imbeah, A., **Libertus, M.** (04/2021). Math skills predict children's spontaneous focusing on number through behavior, not talk. *Mathematical Cognition and Learning Society (MCLS) Conference, Online symposium series.*
17. Reynvoet, B., Ribner, A., Elliott, L., Van Steenkiste, M., Sasanguie, D., **Libertus, M.** (04/2021). Making Sense of the Relation between Number Sense and Math. *Mathematical Cognition and Learning Society (MCLS) Conference, Online symposium series.*
18. **Libertus, M.**, Miller, P., Elliott, L., Bachman, H., Votruba-Drzal, E. (04/2021). Relations among SES and children's approximate number system, number and spatial skills. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
19. \*Duong, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (04/2021). Parents' Sensitivity to Child-Level Factors and the Relation to Parental Questioning During Dyadic Interactions. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
20. \*Silver, A., Elliott, L., **Libertus, M.** (04/2021). Parental math talk is not uniformly beneficial for young children: The moderating role of inhibitory control. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
21. Ribner, A., \*Silver, A., Elliott, L., & **Libertus, M.** (03/2021). Exploring effects of an early math intervention: The importance of parent-child interaction. *Mathematical Cognition and Learning Society (MCLS) Conference, Online symposium series.*

22. Hespos, S., Shivaram, A., Anderson, E., Chavez, Y., Fritz, A., Jackson, R., Edwards, L. Powers, S., **Libertus, M.** (2020). Promoting playful learning using food pantry signs. *SRCD Special Topic Meeting: Learning through Play and Imagination. St Louis, MO, USA (rescheduled due to COVID-19).*
23. Elliott, L., Betancur, L., Bachman, H. J., Votruba-Drzal, E., **Libertus, M.** (06/2020). When time is tight, how do parents make math happen? *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19).*
24. Möhring, W., Ribner, A., Segerer, R., **Libertus, M.**, Kahl, T., Troesch, L., Grob, A. (06/2020). Preschoolers' growth in spatial abilities: Causes and Consequences for later mathematical thinking. *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19).*
25. \*Silver, A., Elliott, L., **Libertus, M.** (06/2020). When beliefs matter most: Examining children's math achievement in the context of parental math anxiety. *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19)*
26. **Libertus, M.**, \*Braham, E., McCrink, K. (08/2019). Increasing Math Talk During Play in a Children's Museum: The Role of Parent and Child Factors. *18<sup>th</sup> Biennial European Association for Research on Learning and Instruction (EARLI) Conference, Aachen, Germany.*
27. \*Silver, A., \*Elliott, L., **Libertus, M.** (06/2019). The Influence of Parent and Child Factors on Preschool-aged Children's Spontaneous Focusing on Number. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
28. \*Elliott, L., \*\*Thippana, J., \*\*Gehman, S., **Libertus, M.** (03/2019). Measuring Parental Math Stimulation for Young Children. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
29. **Libertus, M.**, \*Braham, E., \*Elliott, L., \*\*Hanner, E., Haslinger, A. (06/2018). Understanding variability in parental math talk and its influences on young children's math skills. *6<sup>th</sup> International Workshop on Advanced Learning Sciences, Pittsburgh, PA, USA.*
30. \*Liu, R., \* Braham, E., **Libertus, M.** (11/2017). Symbolic number comparison in 5- to 9-year-old children: Age-related changes in event-related potentials and their relation to formal math abilities. *Annual Meeting of the Society of Neuroscience, Washington, DC, USA.*
31. \*Braham, E., **Libertus, M.**, McCrink, K. (10/2017). Improving Young Children's Spontaneous Focus on Number Through Guided Parent-Child Interactions in a Children's Museum. *Biennial Meeting of the Cognitive Development Society, Portland, OR, USA.*
32. Einspieler, C., Bos, F., **Libertus, M.**, Marschik, P. (10/2017). The general movement assessment helps us identify preterm infants at risk for cognitive dysfunction. *XXXIII International Symposium of the Polish Neonatal Society, Cracow, Poland.*
33. **Libertus, M.** (05/2017). Understanding the Link between the Approximate Number System and Math Abilities: Evidence from Training Studies and Observations of Intergenerational Transmission. *Math Cognition Conference, Nashville, TN, USA.*
34. **Libertus, M.**, \*Elliott, L., \*Braham, E. (04/2017). Parents' Own Number Sense and Math Abilities Explain Variability in Informal Math Talk with Their Children. *Biennial Meeting of the Society for Research in Child Development (SRCD), Austin, TX, USA.*

35. \*Elliott, L., **Libertus, M.** (04/2017). Inhibitory Control and the Approximate Number System: Significant but Separate Predictors of Early Math Abilities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Austin, TX, USA.*
36. Shembel, A., Verdolini Abbott, K., Galera, R., **Libertus, M.** (06/2016). Prospective Study of Voice Therapy in Children: Potential Cognitive Factors. *45<sup>th</sup> Annual Symposium of The Voice Foundation, Philadelphia, PA, USA.*
37. \*Liu, A., Schunn, C., Fiez, J., **Libertus, M.** (07/2015). Symbolic Integration, Not Symbolic Estrangement, For Double-Digit Numbers. *37<sup>th</sup> Annual Meeting of the Cognitive Science Society, Pasadena, CA, USA.*
38. **Libertus, M.**, Hellgren, K., Forsman, L., Aden, U. (03/2015). Deficits in Mathematical Abilities and Approximate Number System Acuity in Children Born Extremely Preterm. *Biennial Meeting of the Society for Research in Child Development (SRCD), Philadelphia, USA.*
39. **Libertus, M.**, Odic, D., Feigenson, L., Halberda, J. (03/2015). Verbal number estimation predicts math ability and mediates the relation between numerical approximation and math ability. *Biennial Meeting of the Society for Research in Child Development (SRCD), Philadelphia, USA.*
40. Pailian, H., **Libertus, M.**, Feigenson, L., Halberda, J. (05/2014). On the dynamic nature of VWM: Separate limits for the storage and manipulation of information. *Vision Sciences Society (VSS) 14<sup>th</sup> Annual Meeting, St. Pete Beach, USA.*
41. Halberda, J., Bavelier, D., Landau, B., Hellgren, K., Forsman, L., Jacques, T., **Libertus, M.** (05/2013). Training of Number Sense transfers broadly. *Vision Sciences Society (VSS) 13<sup>th</sup> Annual Meeting, Naples, USA.*
42. **Libertus, M.**, Feigenson, L., Halberda, J. (04/2013). The Relationship Between Informal and Formal School Math Ability and Children's Basic Numerical Approximation Skills. *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
43. Starr, A., **Libertus, M.**, Brannon, E. (04/2013). Infants show ratio-dependent discrimination regardless of set size. *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
44. Halberda, J., **Libertus, M.**, Feigenson, L. (04/2013). The Approximate Number System (ANS): What is it and how might it be affecting classroom performance. *Annual Meeting of The American Educational Research Association (AERA), San Francisco, USA.*
45. **Libertus, M.**, Halberda, J., Feigenson, L. (04/2011). Approximate Number Discrimination Correlates With Math Abilities in Preschoolers. *Biennial Meeting of the Society for Research in Child Development (SRCD), Montreal, Canada.*
46. **Libertus, M.**, Wu, C., Harris, J., Woldorff, M. (11/2007). Attention can be shifted to a color pop-out prior to face-specific visual processing at that location. *Annual Meeting of the Society for Neuroscience (SfN), San Diego, USA.*
47. **Libertus, M.** (03/2007). Neuronale Marker der Zahlenverarbeitung in Säuglingen und Kindern. [Neural markers of number processing in infants and children]. *Gemeinsame Jahrestagung der Deutschen Mathematiker-Vereinigung und der Gesellschaft der Didaktik für Mathematik [Joint annual meeting of the German Association for Mathematicians and the Society for Mathematical Education], Berlin, Germany.*



48. Brannon, E., Cantlon, J., Cordes, S., Jordan, K., **Libertus, M.**, MacLean, E., & Suanda, U. (11/2006). Comparative and developmental approach to studying nonverbal numerical cognition. *Annual meeting of the Psychonomic Society, Houston, TX.*
49. **Libertus, M.** (06/2006). Electrophysiological correlates of symbolic vs non-symbolic number magnitude. *Numeracy and brain development (Numbra) Summer School, Finland.*
50. **Libertus, M.**, Armbrust, S. (09/2002). Prädikative versus funktionale Denkvorgänge beim Konstruieren von Algorithmen [Predicative versus functional thinking processes while constructing algorithms]. *Young Scientists Session, 43<sup>rd</sup> Conference of the German Psychological Society (DGPs), Berlin, Germany.*
51. Armbrust, S., Schwank, I., **Libertus, M.** (09/2002). Augenblicksbewegungen beim Lösen von Matrizenaufgaben (QuaDiPF) [Eye-movements while solving matrices tasks (QuaDiPF)]. *43<sup>rd</sup> Conference of the German Psychological Society (DGPs), Berlin, Germany.*

### Conference Presentations - Posters

\* denotes graduate student mentee; \*\* denotes undergraduate student mentee

1. \*Carvalho Pereira, J., Elliott, L., \*Duong, S., \*\*Kothari, D., Lopiccolo, D., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2023). Are Some Math Talk Types More/Less Related to Concurrent Math Skills? Examining Preschoolers' Quantifier Talk. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
2. \*Carvalho Pereira, J., Elliott, L., Miller, P., Montue, T., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2023). A Novel Method for Directly Measuring Toddlers' Self-Regulation Skills Remotely: The Find Bear Task. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
3. \*Fox, D., Votruba-Drzal, E., Bachman, H., **Libertus, M.** (2023). Assessing Individual Differences in Toddlers' Spatial Cognition Using a Modified Test of Spatial Assembly (TOSA). *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
4. \*\*McNeil, K., \*Silver, A., **Libertus, M.** (2023). Spontaneous mathematical information-seeking supports children's math development. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
5. \*\*Silk, S., \*Fox, D., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2023). Toddlers' expressive spatial language predicts growth in toddlers' spatial cognition. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
6. Huerga, L., Ribner, A., **Libertus, M.** (2023). Effect of teacher expectations on preschool math skill development. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
7. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (2023). Integration of symbolic and non-symbolic numerical information in children: Task-dependence and its link to math abilities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*
8. \*Duong, S., \*Carvalho Pereira, J., Lopiccolo, D., Votruba-Drzal, E., Bachman, H., **Libertus, M.** (2023). Beneath counts: Exploring the dynamics of caregiver-child conversations about numbers and math in semi-structured activities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA.*



9. Swirbul, M., \*Silver, A., **Libertus, M.**, Cabrera, N., Tamis-LeMonda, C. (2023). Numbers and Shapes with Mom and Dad: Math Talk Between Toddlers and Their Parents. *Biennial Meeting of the Society for Research in Child Development (SRCD), Salt Lake City, UT, USA*
10. Arunachalam, S., Luyster, R., Stone, C., Bergelson, E., Kline, M., Frank, M., Lew-Williams, C., Halladay, A., Devito, M., **Libertus, M.**, Sheinkopf, S., Landa, R., Jeste, S., Tenenbaum, E. (2023). Remote methods for assessing receptive language in infancy – comparison of looking-while-listening and parent-report. *Meeting on Language in Autism, Durham, NC, USA.*
11. \*Silver, A., \*\*Custodio, M., Tamis-LeMonda, C., Cabrera, N., **Libertus, M.** (2022). Associations between toddlers' number and spatial skills. *Biennial International Congress of Infant Studies, Ottawa, Ontario, Canada.*
12. \*Silver, A., Elliott, L., Miller, P., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Exploring relations between socioeconomic status and toddlers' number knowledge. *Biennial International Congress of Infant Studies, Ottawa, Ontario, Canada.*
13. \*Carvalho Pereira, J., \*Duong, S., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Toddlers' Math Talk in Response to Parents' Math-Related Prompts, but not Statements, Predicts Early Numeracy. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
14. \*Duong, S., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Variation in parents' number talk with their preschool-aged children: A cluster-analytic approach. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
15. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (2022). Integration of Symbolic and Non-symbolic Numerical Information in Children: Task-Dependence and its Link to Math Abilities. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
16. \*Silver, A., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Stability in toddlers' number word comprehension between 2 and 3 years. *Mathematical Cognition and Learning Society (MCLS) Conference, Antwerp, Belgium.*
17. \*Silver, A., \*\*McNeil, K., \*\*Gruber, J., \*\*Ruckenstein, L., \*\*Browne, M., \*\*Pal, G., \*\*Convery, C., \*\*Marlin, T., **Libertus, M.** (2022). Patterns of number elicitation in parents and children in the lab and at home. *Biennial Meeting of the Cognitive Development Society, Madison, WI.*
18. \*\*McNeil, K., \*Silver, A., **Libertus, M.** (2022). Children's use of math elicitation supports their own math learning. *Biennial Meeting of the Cognitive Development Society, Madison, WI.*
19. Masek, L., Swirbul, M., Suh, D., \*Silver, A., Chen, Y., Ferraro, J., Mendelsohn, A., Cabrera, N., **Libertus, M.**, Tamis-LeMonda, C. (2022). Activity context and parental language input support toddler math talk during play. *Biennial Meeting of the Cognitive Development Society, Madison, WI.*
20. \*Fox, D., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Do parents' spatial talk and spatial activities matter for preschoolers' spatial skills? *Biennial Meeting of the Cognitive Development Society, Madison, WI.*

21. \*Duong, S., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2022). Exploring clusters of parents engaging in number talk with their preschool-aged children and the relation to children's math skills. *Biennial Meeting of the Cognitive Development Society, Madison, WI.*
22. McGregor, R., Leyva, D., **Libertus, M.** (2022). Subdomain-specific relations between home math activities and 4-year-old children's math skills. *Biennial Meeting of the Cognitive Development Society, Madison, WI.*
23. Coulanges, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2021). The influence of content and context in children's learning through screen-based media. *Annual Technology, Mind, and Society conference (virtual meeting).*
24. \*Ren, X., Coutanche, M., Fiez, J., **Libertus, M.** (2021). The neural basis for number processing and its relation to individual differences in adults' mathematical skills. *Society for Neuroscience (virtual meeting).*
25. \*Duong, S., \*Fox, D., \*\*Gordner, S., Bachman, H., Votruba-Drzal, E., & **Libertus, M.** (2021). Coding and analyzing the sequential nature of parent-child interactions during semi-structured play. *International Conference on Interactivity, Language, and Cognition: Integrating Quantitative and Qualitative Methods in the Cognitive and Language Sciences (virtual meeting).*
26. \*Ren, X., \*Liu, R., Coutanche, M., Fiez, J., **Libertus, M.** (2021). Numerical integration between the exact and approximate number systems: Evidence for task-dependence and its link to math abilities in adults. *7<sup>th</sup> Annual Brain Initiative Investigators Meeting (virtual meeting).*
27. Chen, Y., Mejia, V., \*Silver, A., Ferraro, J., Smith, D., Cabrera, N., Tamis-LeMonda, C., **Libertus, M.** (2021). Variability in Toddlers' Learning Environments With Mothers and Fathers in Diverse Families. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
28. Sidoti, O., \*Duong, S., Laird, M., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2021). Variations in parental talk about numbers and money during pretend play with 4-year-olds. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
29. Coulanges, L., Bachman, H., **Libertus, M.**, Votruba-Drzal., E. (2021). Educational screen time exposure and children's literacy and numeracy skills. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
30. \*Silver, A., \*Braham, E., Elliott, L., Tamis-LeMonda, C., Cabrera, N., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2021). Measuring Emerging Number Knowledge in Toddlers. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
31. Kammerzell, J., \*Duong, S., Heywood, N., Isaacson, M., **Libertus, M.**, Votruba-Drzal, E., Bachman, H. (2021). Exploring Relations between Parent and Child Factors and Parental Praise in Preschool-Aged Children. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
32. \*Duong, S., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2021). Minute-by-minute variations in parental number talk and their implications for coding parent-child interactions. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*
33. \*Silver, A., \*\*Convery, C., \*\*Marlin, T., **Libertus, M.** (2021). Parental math talk to preschoolers is most helpful to responsive children. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting).*

34. Montue, T., Elliott, L., Heywood, N., Podvysotska, T., Miller, P., Bachman, H., **Libertus, M.**, Votruba-Drzal, E. (2021). Differential experiences of financial strain in response to COVID-19. *Biennial Meeting of the Society for Research in Child Development (SRCD) (virtual meeting)*.
35. \*Duong, S., **Libertus, M.** (2020). Uncertainty resolution in numerosity comparison: The moderating role of math ability. *Society for Judgment and Decision Making (JDM) (virtual meeting)*.
36. Coulanges, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2020). Digital media use and early learning. *National Council on Family Relations (NCFR), St. Louis, MO, USA (virtual meeting)*.
37. Bachman, H., Elliott, L., Navarro, M., \*Duong, S., Votruba-Drzal, E., **Libertus, M.** (2020). Triangulating multi-method assessments of parental support for early math development. *Submitted to National Council on Family Relations (NCFR), St. Louis, MO, USA (virtual meeting)*.
38. \*\*Convery, C., \*Silver, A., \*\*Marlin, T., **Libertus, M.** (2020). Parental elicitation of math concepts is most beneficial for preschoolers' math performance when children are responsive. *Home Mathematics Environment Virtual Conference*.
39. \*Silver, A., Elliott, L., **Libertus, M.** (2020). Parental math talk is not uniformly beneficial for young children: The moderating role of children's executive functioning. *Home Mathematics Environment Virtual Conference*.
40. Elliott, L., Bachman, H., Miller, P., Votruba-Drzal, E., **Libertus, M.** (2020). Differential predictions of formal and informal math activities at home. *Home Mathematics Environment Virtual Conference*.
41. \*Duong, S., Elliott, L., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2020). Micro-genetic exploration of variations in number talk during brief structured parent-child interactions. *Home Mathematics Environment Virtual Conference*.
42. Feinstein, H., **Libertus, M.**, Awan, S., Galera, R., Verdolini Abbott, K. (2020). Cognitive Influences in Pediatric Voice Treatment- a Preliminary Investigation. *Submitted to American Speech-Language-Hearing Association Convention, San Diego, CA, USA (cancelled due to COVID-19)*.
43. \*Silver, A., \*\*Marlin, T., \*\*Convery, C., Elliott, L., **Libertus, M.** (2020). Factors predicting parental math input with their preschool-aged child. *Interacting Brains: Adult-Child Interaction from Multiple Perspectives – Online Conference*.
44. \*Duong, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2020). Qualitative differences in parental questioning during dyadic interactions and the relation to 4-year-old children's math abilities. *Interacting Brains: Adult-Child Interactions from Multiple Perspectives – Online Conference*.
45. Koch, G., Durisko, C., \*Liu, R., **Libertus, M.**, Fiez, J., Coutanche, M. (2020). Neural representations of number across semantic, phonological, visual, and manual formats. *BRAIN Initiative Investigators Meeting, Bethesda, MD, USA (virtual meeting)*.
46. Miller, P., Bachman, H., Betancur, L., Kammerzell, J., **Libertus, M.**, Votruba-Drzal, E. (2020). The Role of Play in Self-Regulation and Early Academic Development: Differences by SES. *SRCD Special Topic Meeting: Learning through Play and Imagination. St Louis, MO, USA (rescheduled due to COVID-19)*.

47. \*Silver, A. M., Smith, D., \*Braham, E., Libertus, K., **Libertus, M.** (2020). Toddlers map number words to quantities, but only approximately. *International Congress of Infant Studies Biennial Congress, Glasgow, Scotland (cancelled due to COVID-19)*.
48. \*Silver, A. M., Benassi, M., **Libertus, M.** (2020). The development of visual form and motion discrimination over the first year of life. *International Congress of Infant Studies Biennial Congress, Glasgow, Scotland (cancelled due to COVID-19)*.
49. Chen, Y., Mejia, V., Fuentes, H., Suh, D., \*Silver, A., Mendelsohn, A., **Libertus, M.**, Tamis-LeMonda, C., Cabrera, N. (2020). Variability in early learning environments: Fathers, mothers, and toddlers from diverse families. *International Congress of Infant Studies Biennial Congress, Glasgow, Scotland (cancelled due to COVID-19)*.
50. \*Duong, S., Bachman, H., Votruba-Drzal, E., & **Libertus, M.** (2020). 'What's after six?': Parental math questions relate to 4-year-old children's math skills. *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19)*.
51. Elliott, L., Bachman, H., Navarro, M., Betancur, L., Votruba-Drzal, E., **Libertus, M.** (2020). Contextual predictors of math support: Comparing measures of math at home. *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19)*.
52. \*Silver, A., Elliott, L., **Libertus, M.** (2020). Frequent math activities are only helpful for preschool-aged children who have acquired some foundational number knowledge. *Mathematical Cognition and Learning Society (MCLS) Conference, Dublin, Ireland (cancelled due to COVID-19)*.
53. \*\*Imbeah, A., Elliott, L., \*Silver, A., **Libertus, M.** (2019). Do actions speak louder than words? Measuring children's focusing on number. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
54. Ribner, A., Elliott, L., \*Silver, A., **Libertus, M.** (2019). Exploring effects of an early math intervention: The importance of parent-child interaction. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
55. \*Duong, S., \*\*Pitulski, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2019). What's in a question? Parents' questions in dyadic interactions and the relation to 4-year-old children's math abilities. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
56. \*Silver, A., \*\*Marlin, T., Elliott, L., **Libertus, M.** (2019). Factors predicting parental math input with their preschool-aged child. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
57. \*Silver, A., \*\*Convery, C., Elliott, L., **Libertus, M.** (2019). Executive functioning moderates the association between parental elicitation of math concepts and preschoolers' math performance. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
58. \*\*Hughes, J., Elliott, L., Betancur, L., \*\*Lemmon, M., Blatt, L., Kammerzell, J., Votruba-Drzal, E., Bachman, H., **Libertus, M.** (2019). Using time diaries to measure parental support for spatial skills. *Biennial Meeting of the Cognitive Development Society, Louisville, KY, USA*.
59. Koch, G., \*Liu, R., **Libertus, M.**, Fiez, J., Coutanche, M. (2019). Neural Representations of Number across Semantic, Phonological, Visual, and Manual formats. *Society for Neuroscience, Chicago, IL, USA*.

60. \*Liu, R., Koch, G., Coutanche, M., Fiez, J., **Libertus, M.** (2019). Representing numerical information across different formats in the adult brain. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
61. \*\*Williams, T., \*Silver, A., Libertus, K., **Libertus, M.** (2019). Influences of Stimulus Complexity on Infant Number Discrimination: Shapes vs. Faces. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
62. \*Duong, S., \*\*Pitulski, S., Bachman, H., Votruba-Drzal, E., **Libertus, M.** (2019). Measuring the Quality of Parent-Child Interactions and the Relation to Preschool-Aged Children's Math Skills. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
63. \*Braham, E., \*\*Dillaha, A., **Libertus, M.** (2019). How Preschool Teachers Use Math Talk Across Different Instructional Times and Activities. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
64. \*\*Patronick, J., \*Elliott, L., **Libertus, M.** (2019). Maternal Gender Biases in Early Exposure to Mathematics. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
65. \*Duong, S., **Libertus, M.** (2019). Children's Math Abilities and the Relation to Risky Decision Making: A Study Proposal. *Mathematical Cognition and Learning Society (MCLS) Conference, Ottawa, Canada.*
66. **Libertus, M.**, Coutanche, M., Fiez, J., \*Koch, G., \*Liu, R. (2019). Neural integration of visual and semantic number knowledge in 4th graders and adults. *BRAIN Initiative Investigators Meeting, Washington, DC, USA.*
67. \*Braham, E., McCrink, K., **Libertus, M.** (2019). Play Prompts for Parents in Children's Museums Increase Children's Exposure to Math Talk. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
68. \*\*Imbeah, A., \*Elliott, L., **Libertus, M.** (2019). Relations between Spontaneous Focusing on Number, Non-symbolic Number Processing, and Math Abilities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
69. \*Elliott, L., \*\*Zheng, P., **Libertus, M.** (2019). Individual Differences in Parental Support for Math and Literacy in Early Childhood. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
70. \*\*Thippana, J., \*Elliott, L., \*\*Gehman, S., **Libertus, M.** (2019). Examining Individual Variability in Parental Number Talk During Math Activities at Home. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
71. \*\*Gehman, S., \*Elliott, L., \*\*Thippana, J., **Libertus, M.** (2019). Toys and Number Talk Elicitation: A Gendered Perspective. *Biennial Meeting of the Society for Research in Child Development (SRCD), Baltimore, MD, USA.*
72. \*Braham, E., McCrink, K., **Libertus, M.** (2018). Characteristics of Parents and their Children Explain Differences in Math Talk at a Children's Museum. *6<sup>th</sup> Biennial International Mind, Brain, and Education Society (IMBES) Conference, Los Angeles, CA, USA.*
73. \*Braham, E., \*\*Hanner, E., \*Elliott, L., **Libertus, M.** (2018). Supermarket Signs Promote Math Talk among Adults and Young Children. *6<sup>th</sup> Biennial International Mind, Brain, and Education Society (IMBES) Conference, Los Angeles, CA, USA.*

74. \*Liu, R., \*Braham, E., **Libertus, M.** (2018). Symbolic and non-symbolic number comparisons in children rely on different brain regions: an event-related potentials (ERP) study. *6<sup>th</sup> Biennial International Mind, Brain, and Education Society (IMBES) Conference, Los Angeles, CA, USA.*
75. \*Liu, R., \*Braham, E., **Libertus, M.** (2018). Symbolic and non-symbolic number comparison in children: an EEG study. *6th International Workshop on Advanced Learning Sciences, Pittsburgh, PA, USA.*
76. \*Braham, E., McCrink, K., **Libertus, M.** (2018). Creating Math-Related Parent-Child Interactions in a Children's Museum. *6th International Workshop on Advanced Learning Sciences, Pittsburgh, PA, USA.*
77. Van Steenkiste, M., **Libertus, M.**, Reynvoet, B., Sasanguie, D. (2018). Getting to the bottom of the link between numerosity processing and mathematical achievement. *Groupe de contact "Numbers and the Brain", Brussels, Belgium.*
78. \*\*Thippana, J., \*Elliott, L., **Libertus, M.** (2017). What Influences Variability in Parents' Number Talk in the Lab and at Home? *Biennial Meeting of the Cognitive Development Society, Portland, OR, USA.*
79. \*Elliott, L., Feigenson, L., Halberda, J., **Libertus, M.** (2017). Bidirectional, Longitudinal Associations between Math Ability and Approximate Number System Acuity in Childhood. *Math Cognition Conference, Nashville, TN, USA.*
80. \*Braham, E., \*Liu, R., **Libertus, M.** (2017). Variability in Math Talk During Parent-Child Interactions: The Role of Parents' Math Ability and Approximate Number System Acuity. *Biennial Meeting of the Society for Research in Child Development (SRCD), Austin, TX, USA.*
81. \*Braham, E., **Libertus, M.** (2016). Math anxiety moderates the relation between approximate number acuity and math performance. *International Mind Brain and Education Society Conference, Toronto, Canada.*
82. \*Liu, R., \*Liu, A., Schunn, C., Fiez, J., **Libertus, M.** (2016). The integration between non-symbolic and symbolic numbers and its relation to math ability. *International Mind Brain and Education Society Conference, Toronto, Canada.*
83. \*Braham, E., **Libertus, M.** (2016). Math talk variability in preschool classrooms: The role of teachers' abilities and beliefs. *International Mind Brain and Education Society Conference, Toronto, Canada.*
84. \*Liu, R., \*Liu, A., Schunn, C., Fiez, J., **Libertus, M.** (2016). Automatic integration between non-symbolic and symbolic numbers in adults. *Math Cognition Conference, Fort Worth, TX, USA.*
85. \*Liu, R., Schunn, C., Fiez, J., **Libertus, M.** (2016). Spontaneous integration between the representation of non-symbolic and symbolic numbers. *Annual Meeting of the Cognitive Neuroscience Society (CNS), New York, USA.*
86. \*Braham, E., \*Navarro, M., **Libertus, M.** (2015). Intergenerational Transmission of Numerical Ability: Evidence from Toddlerhood and Middle Childhood. *Biennial Meeting of the Cognitive Development Society, Columbus, USA.*
87. \*Liu, R., Möhring, W., **Libertus, M.** (2015). The ratio and orientation effect in infants' and adults' speed discrimination. *Biennial Meeting of the Cognitive Development Society, Columbus, USA.*

88. Wang, J., **Libertus, M.**, Feigenson, L. (2015). Hysteresis-induced changes in infants' approximate number precision. *Biennial Meeting of the Cognitive Development Society, Columbus, USA.*
89. \*Braham, E., **Libertus, M.** (2015). Parental influences on children's numerical and mathematical abilities. *Annual Meeting of the Jean Piaget Society, Toronto, Canada.*
90. \*Keller, L., **Libertus, M.** (2015). Inhibitory control does not explain the link between approximation and math abilities in children. *Annual Meeting of the Jean Piaget Society, Toronto, Canada.*
91. \*Braham, E., **Libertus, M.** (2015). Intergenerational Associations in Approximate Number System Acuity and Mathematical Abilities. *Math Cognition Conference, St. Louis, MO, USA.*
92. \*Braham, E., **Libertus, M.** (2015). The Unique Contributions of Children's Numerical Approximation Skills for Various Math Abilities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Philadelphia, USA.*
93. \*Braham, E., Libertus, K., **Libertus, M.** (2015). Information Processing Patterns During Approximate Number Comparisons in Preschoolers and Adults: An Eye-tracking Study. *Biennial Meeting of the Society for Research in Child Development (SRCD), Philadelphia, USA.*
94. \*Keller, L., **Libertus, M.** (2015). Examining the Importance of Child- and Parent-Level Cognitive Factors in Predicting Children's Early Math Abilities. *Biennial Meeting of the Society for Research in Child Development (SRCD), Philadelphia, USA.*
95. **Libertus, M.**, Halberda, J., Feigenson, L. (2014). Six-month-old Infants can Track Frequency Distributions of Numerosities. *19<sup>th</sup> Biennial International Conference on Infant Studies (ICIS), Berlin, Germany.*
96. **Libertus, M.**, Feigenson, L., Halberda, J. (2013). On the Stability of Individual Differences in Children's Numerical Approximation Skills. *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
97. Odic, D., **Libertus, M.**, Feigenson, L., Halberda, J. (2013). The quantity of quantity: are visual area and number represented by one system, or two? *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
98. Pailian, H., **Libertus, M.**, Feigenson, L., Halberda, J. (2013). Developmental Changes in Visual Short-Term Memory (VSTM) Capacity Between Ages 3 and 8 Years. *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
99. Pailian, H., **Libertus, M.**, Feigenson, L., Halberda, J. (2013). Measuring Individual Differences in Children's Visual Short-Term Memory Capacity using the Flicker Paradigm. *Biennial Meeting of the Society for Research in Child Development (SRCD), Seattle, USA.*
100. **Libertus, M.**, Starr, A., Brannon, E. (2012). Infants' sensitivity to changes in number versus surface area. *18<sup>th</sup> Biennial International Conference on Infant Studies (ICIS), Minneapolis, USA.*
101. Odic, D., **Libertus, M.**, Feigenson, L., Halberda, J. (2012). The development of number and area acuity in young children. *18<sup>th</sup> Biennial International Conference on Infant Studies (ICIS), Minneapolis, USA.*

102. Starr, A., **Libertus, M.**, Brannon, E. (2012). Small number discrimination in infancy: A case for approximate number representations. *18<sup>th</sup> Biennial International Conference on Infant Studies (ICIS), Minneapolis, USA.*
103. **Libertus, M.**, Feigenson, L., Halberda, J. (2011). Approximate Number Discrimination Predicts Later Math Ability in Preschoolers. *Seventh Biennial Meeting of the Cognitive Development Society, Philadelphia, USA.*
104. Libertus, K., **Libertus, M.** (2011). Similarities And Differences In Approximate Numerical Comparisons Between Children and Adults As Revealed By Eye Gaze. *Seventh Biennial Meeting of the Cognitive Development Society, Philadelphia, USA.*
105. **Libertus, M.**, Libertus, K. (2011). Differences in Strategies During Approximate Numerical Comparisons as Revealed by Eye-gaze Measures. *2011 Association for Psychological Science Annual Convention, Washington, DC, USA.*
106. **Libertus, M.**, Stevenson, A., Odic, D., Feigenson, L., Halberda, J. (2011). The Developmental Vocabulary Assessment for Parents (DVAP): A Novel Tool to Measure Vocabulary Size in 3- to 5-year-old Children. *Biennial Meeting of the Society for Research in Child Development (SRCD), Montreal, Canada.*
107. Möhring, W., **Libertus, M.**, Bertin, E. (2011). Speed Discrimination in 6- and 10-month-old Infant is Ratio-Dependent. *Biennial Meeting of the Society for Research in Child Development (SRCD), Montreal, Canada.*
108. **Libertus, M.**, Halberda, J., Feigenson, L. (2011). Approximate Number Discrimination Correlates With Math Abilities in Preschoolers. *Johns Hopkins 3<sup>rd</sup> Annual Postdoc Symposium, Baltimore, USA.*
109. **Libertus, M.**, Brannon, E. (2010). Behavioral Evidence for a Shared Mechanism of Number and Size Discrimination in Early but not Late Infancy. *1<sup>st</sup> Homewood Postdoctoral Poster Competition, Baltimore, USA.*
110. **Libertus, M.**, Brannon, E. (2010). Evidence for a shared system for number and area but not color discrimination in infancy. *24<sup>th</sup> Attention & Performance Meeting, Abbatte des Vaux de Cernay, France.*
111. Möhring, W., **Libertus, M.**, Bertin, E. (2010). Die Diskrimination von Geschwindigkeiten im Säuglingsalter. [Speed discrimination in infancy]. *8. LizentiandInnen- und DoktorandInnen-Kongress des Psychologischen Institutes der Universität Zürich (LiDoKo), Zürich, Schweiz. [8<sup>th</sup> Congress for Masters and PhD students at the Institute for Psychology of the University of Zurich, Switzerland].*
112. **Libertus, M.**, Brannon, E., Woldorff, M. (2010). Time course of stimulus-driven oscillatory synchronization and adaptation to numerical changes. *Annual Meeting of the Cognitive Neuroscience Society (CNS), Montreal, Canada.*
113. **Libertus, M.**, Brannon, E. (2010). Developmental trajectory of the relationship between numerical discrimination and other cognitive abilities in infancy. *17<sup>th</sup> Biennial International Conference on Infant Studies (ICIS), Baltimore, USA.*
114. **Libertus, M.**, Brannon, E. (2009). Evidence for Weber's Law in Infants' Numerical Discriminations From A New Change Detection Paradigm. *Biennial Meeting of the Society for Research in Child Development (SRCD), Denver, USA.*



115. **Libertus, M.**, Brannon, E., Woldorff, M. (2009). Stimulus-driven oscillatory responses to numerical changes: a novel frequency-tagging EEG paradigm. *Annual Meeting of the Cognitive Neuroscience Society (CNS), San Francisco, USA.*
116. **Libertus, M.**, Brannon, E., Pelphrey, K. (2008). Working memory for numbers, letters, and faces in 8-year-old children and adults. *Annual Meeting of the Cognitive Neuroscience Society (CNS), San Francisco, USA.*
117. **Libertus, M.**, Pruitt, L., Woldorff, M., Brannon, E. (2007). Electrophysiological markers of number processing in 7-month-old infants. *Numeracy and Brain Development (Numbra) Summer School, Greece.*
118. Cantlon, J., Davis, S., **Libertus, M.**, Brannon, E., Pelphrey, K. (2007). The Integrity of White Matter Pathways and Numerical Cognition in Adults and Young Children. *Annual Meeting of the Organization of Human Brain Mapping, Chicago, USA.*
119. Cantlon, J., **Libertus, M.**, Brannon, E., Pelphrey, K. (2007). The development of abstract numerical processing in parietal cortex. *Annual Meeting of the Vision Sciences Society, Sarasota, USA.*
120. **Libertus, M.**, Pruitt, L., Woldorff, M., Brannon, E. (2007). Electrophysiological markers of number processing in 7-month-old infants. *Annual Meeting of the Cognitive Neuroscience Society (CNS), New York, USA.*
121. Cantlon, J., **Libertus, M.**, Brannon, E., Pelphrey, K. (2007). Symbolic & Non-symbolic Number in the Developing Brain. *Annual Meeting of the Cognitive Neuroscience Society (CNS), New York, USA.*
122. **Libertus, M.**, Libertus, K., Suanda, S., Woldorff, M., Meck, W., Brannon, E. (2007). Behavioral and Neurophysiological Correlates of Interval Timing in Human Infants Follow Weber's Law. *Biennial Meeting of the Society for Research in Child Development (SRCD), Boston, USA.*
123. **Libertus, M.**, Woldorff, M., Brannon, E. (2006a). Electrophysiological Correlates of the Numerical Distance Effect. *5<sup>th</sup> Forum of European Neuroscience, Vienna, Austria.*
124. **Libertus, M.**, Woldorff, M., Brannon, E. (2006b). Electrophysiological correlates of number comparisons. *Annual Meeting of the Cognitive Neuroscience Society, San Francisco, USA.*
125. Libertus, K., **Libertus, M.**, Woldorff, M., Meck, W., Brannon, E. (2005). Behavioral and neurophysiological correlates of time processing in human infants. *Annual Meeting of the Society for Neuroscience, Washington, D.C., USA.*
126. Brannon, E., **Libertus, M.**, Meck, W., Woldorff, M. (2005). Neurophysiological correlates of time processing are modulated by interval differences in human infants and adults. *Annual Meeting of the Cognitive Neuroscience Society, New York, USA.*
127. **Libertus, M.** (2004). Unterschiede in Eigenschaftspräferenzen bei prädikativem versus funktionalem Problemlösen. [Differences in preferences for object features in the context of predicative versus functional problem solving]. *44<sup>th</sup> Conference of the German Psychological Society, Göttingen, Germany.*

## TEACHING & MENTORING

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### Teaching

#### University of Pittsburgh

Fall 2022:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.78 out of 5)
Spring 2022:	Cognitive Development (PSY 2330, graduate level, overall teaching effectiveness: 5.00 out of 5)
Fall 2021:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.78 out of 5)
Spring 2021:	Cognitive Development (PSY 2330, graduate level, overall teaching effectiveness: 4.43 out of 5)
Spring 2021:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.60 out of 5)
Fall 2020:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.79 out of 5)
Fall 2019:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.64 out of 5)
Fall 2018:	Cognitive Development (PSY 2330, graduate level, overall teaching effectiveness: 4.64 out of 5)
Fall 2017:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.59 out of 5)
Spring 2017:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.36 out of 5)
Fall 2016:	Cognitive Development (PSY 2330, graduate level, overall teaching effectiveness: 3.78 out of 5)
Spring 2016:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.73 out of 5)
Fall 2015:	Mind, Brain & Education (PSY 1054, advanced undergraduate level, overall teaching effectiveness: 4.86 out of 5) Human Developmental Neuroscience (PSY 2376, graduate level, overall teaching effectiveness: 4.7 out of 5)
Spring 2015:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.47 out of 5)
Fall 2014:	Cognitive Development (PSY 2330, graduate level, overall teaching effectiveness: 4.85 out of 5)
Fall 2013:	Cognitive Development (PSY 1330, advanced undergraduate level, overall teaching effectiveness: 4.63 out of 5)

#### Duke University

Summer 2007:	Developmental Psychology (PSY 97, undergraduate level)
Spring 2007:	Teaching and Research Ethics (graduate student seminar)

### Postdoctoral mentoring

Erica Zippert	2022 - present
Leanne Elliott	2019 – 2022
Current position: Researcher, American Institutes for Research	
Andrew Ribner	2019 - present
National Research Service Award (1F32HD102106-01), 06/2020-05/2023	

## Graduate student mentoring

### Primary advisor

Jorge Carvalho Pereira	Developmental Psychology University of Pittsburgh Arts & Sciences Fellowship, Fall 2021 LRDC Director's Fellowship, Fall 2022 NICHD Diversity Supplement, 01/2023 – 04/2024	2021 - present
Danielle Fox	Cognitive Psychology	2021 - present
Xueying Ren	Cognitive Psychology	2019 - present
Shirley Duong	Cognitive Psychology National Science Foundation Graduate Research Fellowship, 2019-2022	2018 - present
Alex Silver	Cognitive Psychology Tim Post Award for Research Excellence, 2022 Dr. Ruth L. Meyers Award for Mentoring Excellence, 2021 LRDC Graduate Student Research Grant, 2020 Behavioral Brain Research Training Fellowship, 2019-2021	2018 - present
Ruizhe Liu	Cognitive Psychology Current position: Postdoctoral fellow, Stanford University	2014 - 2020
Emily Braham	Cognitive Psychology Current position: Research Associate, Education Development Center Previous position: Evaluation Manager, Boston Children's Museum Elizabeth Baranger Excellence in Teaching Award, 2019 Andrew Mellon Predoctoral Fellowship, 2018-2019 Tim Post Award for Research Excellence, 2017 Dr. Ruth L. Meyers Award for Mentoring Excellence, 2017 Grant for Research in Diversity, 2017 Mentor-Mentee Course Transformation Grant, 2017 Mini-Grant Award for Research on Diversity, 2016 Behavioral Brain Research Training Fellowship, 2015-2016	2013 - 2019

### Milestone committee member – University of Pittsburgh

Erin Duricy	Neuroscience, Dissertation	2022 - present
Joshua Schneider	Developmental Psychology, Dissertation	2022 - present
Rebecca McGregor	Developmental Psychology, Masters	2021 - 2022
Ran An	Developmental Psychology, Masters	2021 - 2022
Linsah Coulanges	Developmental Psychology, Masters	2021 – 2022
Debbie Bitran	Developmental Psychology, Masters	2020 - present
Griffin Koch	Cognitive Psychology, Masters	2019 - 2020
Kevin Soo	Cognitive Psychology, Dissertation	2018 - 2019
Allison Liu	Cognitive Psychology, Dissertation	2017 - 2018
Kathryn Hauschild	Developmental Psychology, Dissertation	2017 - 2018
Dana Rosen	Clinical-Developmental Psychology, Masters & Specialty exam, Dissertation	2015 - 2019
Bart Larsen	Cognitive Psychology, Specialty exam	2016
Leanne Elliott	Developmental Psychology, Specialty exam, Dissertation	2016 - 2019

### External milestone committee member

Hagar Feinstein	Dissertation committee, University of Delaware	2021 - 2023
Marta Fedele	PhD mid-term evaluation, KU Leuven, Belgium	2021
Dan Suh	Dissertation committee, New York University	2021

## Mentoring committee member

Darcy Smith	Developmental Psychology	2023 - present
Jessica Macaluso	Cognitive Psychology	2021 - present
Rebecca McGregor	Developmental Psychology	2020 - present
Debbie Bitran	Cognitive & Developmental Psychology	2019 - present
Ciara Willett	Cognitive Psychology	2017 - 2022
Nabila Jamal Orozco	Cognitive and Developmental Psychology	2016 - present
Kevin Soo	Cognitive Psychology	2014 - 2019
Regina Calloway	Cognitive Psychology	2014 - 2019
Laura Betancur	Developmental Psychology	2014 - 2020
Joshua Tremel	Cognitive Psychology	2014 - 2016
Brendan Barstow	Cognitive Psychology	2014 - 2105
Xiaoping Fang	Cognitive Psychology	2013 - 2019

## Post-baccalaureate student mentoring

Monica Navarro	Hot Metal Bridge Program (now PhD student at the University of Pittsburgh)	2014 – 2015
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## Undergraduate student mentoring

### Bachelor of Philosophy students – University of Pittsburgh

Kalina McNeil	Psychology	2023
	University Honors College Research Fellowship, Spring 2022	
	Chancellor's Undergraduate Research Fellowship, Fall 2022	
Sivan Lurie	Psychology	2023
	University Honors College Research Fellowship, Spring 2022	
	Brackenridge Research Fellowship, Summer 2022	
Chelsea Carver	Psychology	2022
	Brackenridge Research Fellowship, Summer 2020	
	Chancellor's Undergraduate Research Fellowship, Fall 2021	
Olivia Knecht	Psychology	2021
	University Honors College Research Fellowship, Fall 2020	
Caitlin Convery	Psychology	2021
	Chancellor's Undergraduate Research Fellowship, Spring 2021	
	THINK Fellowship, Fall 2019	
Adwoa Imbeah	Psychology & Africana Studies major	2020
	Curiosity Grant, Fall 2019	
	THINK Fellowship, Fall 2019	
	LRDC Summer Research Internship, Summer 2019	
	Summer Undergraduate Research Award, Summer 2018	
Abigail Dillaha	Neuroscience & Psychology major	2018
	Chancellor's Undergraduate Research Fellowship, Fall 2017	
	Brackenridge Research Fellowship, Spring 2016	
Peter Zheng	Business, Economics, Political Science & Psychology major	2018
	Brackenridge Research Fellowship, Fall 2017	
	PsychDRIVE Undergraduate Research Fellowship, Summer 2017	
	Chancellor's Undergraduate Research Fellowship, Spring 2017	
	Chancellor's Undergraduate Teaching Fellowship, Spring 2017	
	Humanities, Arts, and Social Sciences Research Fellowship, Fall 2016	

Erinn Hanner	Psychology & Studio Arts major Chancellor's Undergraduate Research Fellowship, Fall 2017	2017
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**Bachelor of Philosophy committee member – University of Pittsburgh**

Sarah Lazarro	Neuroscience & Psychology major	2018
Brenna Mauro	Psychology	2017

**Honors thesis students – University of Pittsburgh**

Sasha Hofman	Psychology Chancellor's Undergraduate Research Fellowship, Fall 2021	2021
Anisha Venkatesh	Psychology Chancellor's Undergraduate Research Fellowship, Fall 2019 University Honors College Research Fellowship, Spring 2020	2020
Thomas Marlin	Psychology Chancellor's Undergraduate Research Fellowship, Spring 2020	2020
Wyatt Macejka	Psychology Chancellor's Undergraduate Research Fellowship, Fall 2017 Brackenridge Research Fellowship, Summer 2017 PsychDRIVE Undergraduate Research Fellowship, Summer 2017	2018
Jamie Patronick	Psychology	2018
Onnaleah Trentini	Neuroscience	2018
Ashley Whited	Neuroscience	2018
Joy Cui	Neuroscience Chancellor's Undergraduate Research Fellowship, Spring 2017 Brackenridge Research Fellowship, Summer 2016	2017
Sierra Struble	Neuroscience	2017
Jyothirmayi Thippana	Neuroscience	2017
Melanie Matyi	Neuroscience Chancellor's Undergraduate Research Fellowship, Fall 2016 Brackenridge Research Fellowship, Summer 2016	2016

**Honors thesis committee member – University of Pittsburgh**

2022-23:	Tran Luu
2021-22:	Noah Cenkner, Owen Marty, Agnes Reyes
2020-21:	Brenna Owens, Maya Maurer

**Directed Research in Psychology or Neuroscience – University of Pittsburgh**

- |                          |                |
|--------------------------|----------------|
| 1. Naomi Brotman         | 2023 - present |
| 2. Marie Fourakis        | 2023 - present |
| 3. Reagan James          | 2023 - present |
| 4. Abigail Liebe         | 2023 - present |
| 5. Abigail Sites         | 2023 - present |
| 6. Bianca Rana           | 2023 - present |
| 7. Julia Curran          | 2022 - present |
| 8. Megan Fay             | 2022 - present |
| 9. Sydney Gilmore        | 2022 - present |
| 10. Madison Gilman       | 2022 - present |
| 11. Anushka Bodahanapati | 2022 - present |
| 12. Tina Zhang           | 2022 - present |
| 13. Grace Kearney        | 2022 - present |

14. Kirsten Ho	2022 - present
15. Zoe Ofori-Atta	2022 - present
16. Maximillian Heiser	2022 - present
17. Jerusha George	2022 - present
18. Ana Larez	2022 - present
19. Namita Mahajan	2022 - present
Frederick Honors College Research Fellowship, Spring 2023	
20. Diva Kothari	2022 - present
21. Brandi Ramcoober	2022 - present
22. Aaron Johnson	2022
23. Heather Booth	2021 - 2022
24. Jessica Lanning	2021 - present
25. Melanie Custodio	2021 - 2022
ICIS Undergraduate Travel Award, July 2022	
26. Julien Gruber	2021 - 2022
27. Nandini Rastogi	2021 - present
28. Laura Ruckenstein	2021 - 2022
29. Anna Stover	2021
30. Laura Pickert	2021 - 2022
31. Kelsey Phillips	2021 - 2022
32. Vanshika Narala	2021 - 2022
Chancellor's Undergraduate Research Fellowship, Fall 2021	
33. Laura Funk	2021 - 2022
34. Gurleen Pal	2021 - 2022
35. Sierra Vogel	2020 - 2021
36. Morgan Misko	2020
37. Grace Savon	2020 - 2021
38. Lucia Huerga	2020 - present
39. Junyi "Chloe" Gong	2019 - 2020
40. Victoria Santiago	2019 - 2021
41. Sydney Gordner	2019 - 2021
42. Andrew Mills	2019 - 2021
43. Brooke O'Hare	2019 - 2020
Chancellor's Undergraduate Research Fellowship, Spring 2020	
44. Sierra Armstrong	2019 - 2020
University Honors College Research Fellowship, Fall 2020	
45. Erin McChesney	2019
46. Maggie Browne	2019 - 2021
47. Catherine Powell	2019
48. Rhiannon Stangl	2019 - 2021
Chancellor's Undergraduate Research Fellowship, Spring 2020	
49. Morgan Lemmon	2018 - 2019
50. Jocelyn Hughes	2018 - 2020
Summer Undergraduate Research Award, Summer 2019	
Chancellor's Undergraduate Research Fellowship, Spring 2020	
51. Aeliya Ahmed	2018 - 2021
52. Sarah Pitulski	2018 - 2021
Chancellor's Undergraduate Research Fellowship, Fall 2019	
53. Dara Czernikowski	2018 - 2019
54. Michaela Barley	2018
55. Shannon O'Leary	2018
56. Christine Shine	2018 - 2019
57. Kian Tabatabai	2018 - 2020

58. Chelsea Wyche	2018 - 2021
59. Georgia Williams	2018
60. Eliza Luxbacher	2018
61. Mia Nall	2018
62. Brianna Stein	2018 - 2019
63. Delaney Regan	2018
64. Erica Schweitzer	2018 - 2019
65. Donald Deep	2018 - 2019
66. Sarah Gehman	2017 - 2019
Brackenridge Research Fellowship, Summer 2018	
67. Miriam Bols	2017 - 2018
68. Taylor Williams	2017 - 2021
69. Azeen Athar	2017
70. Daniel Crawford	2017
Brackenridge Research Fellowship, Fall 2017	
71. Stephanie Quinones	2017 - 2018
Chancellor's Undergraduate Research Fellowship, Spring 2018	
72. Aditi Sharma	2017 - 2018
73. Simran Gill	2017
74. Elias Rappaport	2017
75. Kelly Staples	2017
76. Michelle Gamburg	2016 - 2019
Brackenridge Research Fellowship, Spring 2018	
77. Sonya Naik	2016 - 2017
78. Emily Pullman	2016 - 2017
79. Mahima Rajan	2016 - 2019
THINK Research Fellowship, Spring 2019	
80. Xiaoyun Xu	2016 - 2017
81. Kayla Banner	2015 - 2016
82. Dana Cohen	2015
83. Lydia Grubic	2015 - 2016
84. Sejla Jukic	2015 - 2017
PsychDRIVE Undergraduate Research Fellowship, Summer 2017	
85. Shreya Kolar	2015 - 2018
86. Carolyn Kotkiewicz	2015
87. Alexandra Lawall	2015 - 2016
88. Sarah Lazarro	2015 - 2016
89. Jenny Ly	2015 - 2016
90. Paige McLaughlin	2015 - 2017
91. Gabrielle Simon	2015 - 2016
92. Dominic Violi	2015 - 2016
93. Charles Yang	2015 - 2017
94. Laxmikausthubha Yaratha	2015 - 2016
95. Trevor Zwaan	2015 - 2016
DeVito-Lipner Family Student Fund, Spring 2016	
96. Eva Dice	2014 - 2015
DeVito-Lipner Family Student Fund, Spring 2015	
97. Amanda Hopcroft	2014
98. Rebecca Laher	2014 - 2015
99. Permveer Longia	2014 - 2015
100. Eliana Munro	2014 - 2015
DeVito-Lipner Family Student Fund, Spring 2015	
Spring Undergraduate Research Award, Spring 2015	



101.	Megan Raymond	2014
102.	Deborah Scialabba	2014
103.	Leah Siegel	2014
104.	Amy Veasey	2014 - 2016
105.	Serena Virgi	2014 - 2015

### **Internship mentor – Learning Research and Development Center or Department of Psychology, University of Pittsburgh**

**2022: Samantha Silk**

2021: Kristi Blanco

2019: Adwoa Imbeah

2018: Georgia Williams, Chelsea Wyche

2017: Alexandra Danlag

### **Research mentor – Johns Hopkins University**

2010 – 2013: Internship advisor at Johns Hopkins University (Rebecca Zhu, Cambria Litsey, Samantha Tuepker, Michelle Pargament, Geena Frumkin, Matthew Pulaski, Stephanie Caronna, Misti Jeffers, Brent Rappaport, Ruxue Shao, Lina Montoya, Karen Ho, Sean Ostro, Selin Zeytinoglu)

### **Research mentor – Duke University**

2009: Frances Degen Horowitz Millennium Scholars mentor, Society for Research in Child Development

2008 – 2009: Independent study mentor at Duke University (Melissa Mang, Priya Patel)

2006 – 2010: Honors theses mentor at Duke University (Diana Hancock, Priya Patel, Tina Liang, Laura Pruitt)

2006 – 2008: Vertical Integration Program mentor at Duke University (Priya Patel, Melissa Mang, Stacey Blase, Lauren Marx, Laura Pruitt)

2005: NSF Mechanisms of Behavior Program mentor at Duke University (Anna Nehring)

## **SERVICE**

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### **Journal editorial board**

**2022 – present: Associate editor, Child Development**

2020 – present: Editorial board, Journal of Experimental Child Psychology

### **Ad hoc journal reviewing**

Acta Psychologica

Behavioral and Brain Sciences

Biological Psychology

Brain and Cognition

British Journal of Developmental Psychology

British Journal of Educational Psychology

Cerebral Cortex

Child Development

Cognition

Cognitive Science

Cognitive Neuropsychology

Current Biology

Developmental Cognitive Neuroscience

Developmental Psychobiology

Developmental Science

Early Childhood Research Quarterly

Educational Psychology

European Journal of Neuroscience

European Journal of Psychology of Education

Experimental Brain Research



Frontiers in Developmental Psychology  
 Human Brain Mapping  
 International Journal of Psychophysiology  
 Journal of Applied Research in Intellectual Disabilities  
 Journal of Behavioral Decision Making  
 Journal of Cognition and Development  
 Journal of Cognitive Neuroscience  
 Journal of Cognitive Psychology  
 Journal of Experimental Child Psychology  
 Journal of Experimental Psychology: General  
 Journal of Experimental Psychology: Human Perception and Performance  
 Journal of Experimental Psychology: Learning, Memory & Cognition  
 Journal of Numerical Cognition  
 Journal of Pediatric Neurology  
 Learning and Individual Differences  
 Memory & Cognition  
 NeuroImage

Neuropsychologia  
 Neuroscience Letters  
 Perception  
 Philosophical Psychology  
 Philosophical Transactions B  
 PLoS One  
 Proceedings of the National Academy of Sciences  
 Prospects (UNESCO's quarterly review of comparative education)  
 Psychological Research  
 Psychological Science  
 Psychonomic Bulletin & Review,  
 Psychophysiology  
 Quarterly Journal of Experimental Psychology  
 Research in Developmental Disabilities  
 Scientific Reports  
 Zeitschrift für Psychologie (Journal of Psychology)

### **Grant reviewing**

2022: National Institutes of Health F01B Fellowship Study section

Action Medical Research for Children, United Kingdom (2019)  
 American Institute of Biological Sciences (2021)  
 Deutsche Forschungsgemeinschaft (DFG), Germany (2019)  
 European Research Council (2019, 2022)  
 Institut D'Etudes Avancees de Paris (Paris Institute for Advanced Study), France (2021)  
 Israel Science Foundation (ISF), Israel (2021)  
 National Science Foundation, USA (2014, 2015, 2016, 2017, 2019, 2020, 2021)  
 Nuffield Foundation, United Kingdom  
 Research Foundation Flanders (FWO), Belgium  
 Swiss National Science Foundation, Switzerland

### **Conference organization**

2022: International Congress of Infant Studies, Program co-chair, Ottawa, Canada  
 2018: 6<sup>th</sup> International Workshop on Advanced Learning Sciences, Steering committee, Learning Research and Development Center, University of Pittsburgh

### **Conference reviewing**

2022: Annual Meeting of the Mathematical Cognition and Learning Society  
 2018: Biennial Meeting of the Society for Research in Child Development  
 2017: Cognitive Development Society meeting  
 2016: 38<sup>th</sup> Annual Meeting of the Cognitive Science Society  
 2015: 20<sup>th</sup> Biennial International Conference on Infant Studies  
 2015: 37<sup>th</sup> Annual Meeting of the Cognitive Science Society  
 2011: 22<sup>nd</sup> Biennial Meeting of the International Society for the Study of Behavioural Development

## **Society leadership**

- 2023 – present: Conference manager and executive board member, Mathematical Cognition and Learning Society (MCLS)  
2020 – 2022: Communications officer and executive board member, Mathematical Cognition and Learning Society (MCLS)

## **Professional memberships**

Cognitive Development Society (CDS), Cognitive Neuroscience Society (CNS), International Mind Brain & Education Society (IMBES), International Society on Infant Studies (ISIS), Mathematical Cognition and Learning Society (MCLS), Society for Research in Child Development (SRCD)

## **Departmental and university service**

- 2023 – present: Chair, Developmental Psychology Program, Dept. of Psychology, University of Pittsburgh  
2023: Panelist, 6<sup>th</sup> Annual Mentoring and Advising Summit, Univ. of Pittsburgh  
2023 – present: Learning Sciences Transcript Distinction committee, Learning Research and Development Center, University of Pittsburgh  
2022 – 2023: Faculty search committee, Dept. of Psychology, University of Pittsburgh  
2020 – 2022: Executive committee, Learning Research and Development Center, University of Pittsburgh  
2020 – present: Chair, Colloquium and Events Committee, Dept. of Psychology, University of Pittsburgh  
2019: Tim Post Award committee, Dept. of Psychology, University of Pittsburgh  
2019: BRIDGE Center Development Fund evaluation committee, Carnegie Mellon University and University of Pittsburgh  
2018 – 2020: Space committee, Learning Research and Development Center, University of Pittsburgh  
2018 – 2019: Executive committee, Learning Research and Development Center, University of Pittsburgh  
2018/19, 2020/21: Executive committee, Dept. of Psychology, University of Pittsburgh  
2018 – present: Faculty organizer, Cognitive Program Talk Series, University of Pittsburgh  
2018 – 2019: Colloquium committee, Dept. of Psychology, University of Pittsburgh  
2018 & 2019: Faculty search committee, Dept. of Psychology, University of Pittsburgh  
2016 – 2019: Faculty Grants Committee, Dietrich School of Arts and Sciences, University of Pittsburgh  
2016 – 2019: Co-chair, Communications Committee, Learning Research and Development Center, University of Pittsburgh  
2016 – 2017: Faculty organizer, Cognitive Brownbag Seminar, University of Pittsburgh  
2014 & 2015: Faculty search committee, Learning Research and Development Center, University of Pittsburgh  
2014 – 2015: Colloquium committee, Dept. of Psychology, University of Pittsburgh  
2013: Faculty search committee, Dept. of Psychology, University of Pittsburgh  
2007 – 2010: Co-organizer Developmental Brownbag Series  
Department of Psychology and Neuroscience, Duke University  
2005 – 2007: International House Orientation Peer for international graduate students

## OTHER INFORMATION

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### Collaborators

2010 – present:	Ulrika Aden	Karolinska Institute, Sweden
2016 – present:	Heather Bachman	University of Pittsburgh, USA
2019 – present:	David Barner	University of California San Diego, USA
2013 – present:	Mariagrazia Benassi	University of Bologna, Italy
2016 – present:	Natasha Cabrera	University of Maryland, College Park, USA
2019 – present:	Sara Cordes	Boston College, USA
2016 – present:	Marc Coutanche	University of Pittsburgh, USA
2013 – present:	Julie Fiez	University of Pittsburgh, USA
2019 – present:	Elizabeth Gunderson	Temple University, USA
2010 – present:	Kerstin Hellgren	Karolinska Institute, Sweden
2019 – present:	Tzipi Horowitz-Kraus	Technion, Israel Institute of Technology, Israel
2019 – present:	Daniel Hyde	University of Illinois Urbana-Champaign, USA
2019 – present:	Diana Leyva	University of Pittsburgh, USA
2019 – present:	Einat Metzuyanin	Technion, Israel Institute of Technology, Israel
2010 – present:	Wenke Möhring	University of Fribourg, Switzerland
2010 – present:	Darko Odic	University of British Columbia, Canada
2017 – present:	Bert Reynvoet	KU Leuven, Belgium
2017 – present:	Delphine Sasanguie	KU Leuven, Belgium
2019 – present:	Jessica Sullivan	Skidmore College, USA
2016 – present:	Catherine Tamis-LeMonda	New York University, USA
2020 – present:	Elena Tenenbaum	Duke University, USA
2019 – present:	Kristy vanMarle	University of Missouri, USA
2013 – present:	Katherine Verdolini Abbott	University of Delaware, USA
2016 – present:	Elizabeth Votruba-Drzal	University of Pittsburgh, USA
2022 – present:	Jenny Wang	Rutgers University, USA