

Alexa Ellis

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EDUCATION

Ph.D. , Combined Program in Education and Psychology University of Michigan <i>Dissertation Title: The Role of Classroom Instruction in the Development of Early Number Skills</i>	2020
M.S. , Developmental Psychology University of Michigan	2015
B.A. , Major: Psychology, Minor: French University of Michigan	2014

ACADEMIC POSITIONS

Postdoctoral Research Associate , Human Development and Family Studies Purdue University	2020-Present
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EXTRAMURAL FUNDING

Heising-Simons Foundation , Grant #2021-2596 (\$775,809). Title: Promoting Math Language in Dual Language Learners Through Picture Books: Evaluating Technological Supports for Dialogic Reading Role: Co-Investigator	2021-2023
National Science Foundation , Graduate Research Fellowship (\$138,000) Award Number: 2016225239	2015-2020

FELLOWSHIPS, AWARDS, AND HONORS

AERA NSF Statistical Institute Award (Travel and Accommodation)	2020
Dissertation Writing Group Leader at the Sweetland Center for Writing (\$300)	2019
Pillsbury Graduate Research Award (\$2,000)	2019
Math Cognition Conference Travel Award (\$300)	2016
fNIRS Workshop Travel Award (\$500)	2015
The Michael J. Vizas Graduate Practicum Fund (\$2,000)	2014

PEER-REVIEWED PUBLICATIONS

- Ahmed, S.F., **Ellis, A.**, Ward, K.P., Chaku, N., & Davis-Kean, P.E. (2022) Working memory development from early childhood to adolescence using two nationally representative samples. *Developmental Psychology* [[preprint](#), [preregistration](#)]
- Cosso, J.*, **Ellis, A.**, O'Rear, C. D., Zippert, E. L., Schmitt, S. A., & Purpura, D. J. (2022). Conceptualizing the factor structure of parents' math anxiety and associations with children's mathematics skills. *Annals of the New York Academy of Sciences*.
<https://doi.org/10.1111/nyas.14736>
- Purpura, D. J., O'Rear, C. D., **Ellis, A.**, Logan, J. A. R., King, Y. A., Westerberg, L., Cosso, J., Zippert, E. L., Napoli, A. R., Hornburg, C. B., Schmitt, S. A., & Dobbs-Oates, J. (*Registered Report*). Unique and Combined Effects of Quantitative Mathematical Language and Numeracy Instruction

Within a Picture Book Intervention. IPA accepted for publication at *Journal of Educational Psychology*. [[In Principle Acceptance](#)]

Ellis, A., Susperreguy, M. I., Purpura, D. J., & Davis-Kean, P. E. (2021). Conceptual Replication and Extension of the Relation Between the Number Line Estimation Task and Mathematical Competence Across Seven Studies. *Journal of Numerical Cognition*, 7(3), 435-452.

<https://doi.org/10.5964/jnc.7033>

Davis-Kean, P. E., Domina, T., Kuhfeld, M., **Ellis, A.**, & Gershoff, E. T. (2021). It Matters How You Start: Early Numeracy Mastery Predicts High School Math Course-Taking and College Attendance. *Infant and Child Development*, e2281. <https://doi.org/10.1002/icd.2281>

Ellis, A., Ahmed, S. F., Zeytinoglu, S., Isbell, E., Grammer, J.K., Gehring, W. J., Calkins, S. D., Leerkes, E. M., Morrison, F. J. & Davis-Kean, P. E. (2021). Reciprocal associations between executive function and academic achievement: A conceptual replication of Schmitt et al. (2017). *Journal of Numerical Cognition*, 7(3), 453-472. <https://doi.org/10.5964/jnc.7047>

Hornburg, C. B., Borriello, G. A., Kung, M., Lin, J., Litkowski, E., Cosso, J., **Ellis, A.**, King, Y. A., Zippert, E., Cabrera, N. J., Davis-Kean, P., Eason, S. H., Hart, S. A., Iruka, I. U., LeFevre, J.-A., Simms, V., Susperreguy, M. I., Cahoon, A., Chan, W. W. L., ... Purpura, D. J. (2021). Next Directions in Measurement of the Home Mathematics Environment: An International and Interdisciplinary Perspective. *Journal of Numerical Cognition*, 7(2), 195-220.

<https://doi.org/10.5964/jnc.6143>

Davis-Kean, P. E., & **Ellis, A.** (2019) An overview of issues in infant and developmental research for the creation of robust and replicable science. *Infant Behavior and Development*, 57, 101339. <https://doi.org/10.1016/j.infbeh.2019.101339>

Ellis, A., Hu, X., Smith, C., Davis-Kean, P. E., & Kovelman, I. (2018). Sharing as a model for understanding division. *Neuroreport*, 29(11), 88- 893.

<https://doi.org/10.1097/WNR.0000000000001050>

BOOK CHAPTERS

O'Rear, C. D., Zippert, E. L., Ehrman, P., **Ellis, A.**, Purpura, D. J. (2022). Based Design and Use of Picture Books to Promote Children's Early Mathematical Learning: A Conceptual Model. In *Handbook of Research on Innovative Approaches to Early Childhood Development and School Readiness* (pp. 602-636). IGI Global.

Ellis, A., Westerberg, L., King, Y. A., Eason, S. H., Connor, D. O., & Purpura, D. J. (2022). To Home Literacy and Beyond: Discussing Subdomains of the Home Learning Environment. In *Handbook of Research on Innovative Approaches to Early Childhood Development and School Readiness* (pp. 212-241). IGI Global.

Miller, A., **Ellis, A.**, & Domoff, S. (2016). Food Talk in Families. In *Socializing Children Through Language* (pp. 147-176). Academic Press. <https://doi.org/10.1016/B978-0-12-803624-2.00006-0>

MANUSCRIPTS AND CHAPTERS UNDER REVIEW

* denotes student

Ellis, A., Cosso, J.*, Duncan, R. J., Susperreguy, M. I., Simms, V., & Purpura, D. J. (*under review*). International Comparisons of the Home Mathematics Environment and Academic Achievement. [[preregistration](#)]

Ribner, A., Ahmed, S. F., Miller-Cotto, D., **Ellis, A.** (*revise and resubmit*). The role of executive function in shaping the longitudinal stability of math achievement during early elementary grades. [[preprint](#)]

TECHNICAL PUBLICATIONS

Teaching and Mentoring Open Science. *Society for Improving Psychological Science*. <https://osf.io/jux4t/>
DOI 10.17605/OSF.IO/JUX4T

PUBLISHED DATA

Ellis, A., King, Y. A., Westerberg, L., O'Rear, C. D., Hornburg, C. B., McElveen, T. L., Zippert, E. L., Cosso, J., Grimm, S. B., Ehrman, P. C., & Purpura, D. J. (2022). *Early Home Learning Environment*. LDbase. <https://doi.org/10.33009/ldbase.1644347317.4c34>

Ellis, A. (2020). *HomeBank English Ellis Corpus*. TalkBank. <https://doi.org/10.21415/CXHA-CM62>

PRESENTATIONS

* denotes student

Ellis, A., Cosso, J.*, Duncan, R. J., Susperreguy, M. I., Simms, V., & Purpura, D. J. (March 2022; [Paper](#)). Assessing the Measurement of the Home Mathematics Environment Across Countries in the TIMSS 2019. *The Mathematical Cognition and Learning Society*. Conference virtual due to COVID-19.

King, Y. A.*, Zippert, E., **Ellis, A.**, O'Rear, C. D., Lin, J., & Purpura, D. J. (February 2022; [Paper](#)). Accuracy of Parent and Teacher Ratings of Preschoolers' Specific Mathematics Skills. *The Mathematical Cognition and Learning Society*. Conference virtual due to COVID-19.

Cosso, J.*, **Ellis, A.**, O'Rear, C. D., Zippert, E. L., Schmitt, S. A., & Purpura, D. J. (October 2021; [Paper](#)). Conceptualizing the Factor Structure of Parents' Math Anxiety and Associations with Children's Mathematics Skills. *The Mathematical Cognition and Learning Society*. Conference virtual due to COVID-19.

Ellis, A. & Davis-Kean, P.E. (April 2021; [Paper](#)). Examining the measurement and contribution of kindergarten mathematics instruction. *Society for Research in Child Development*. Twin Cities, MN, USA. Conference virtual due to COVID-19.

Westerberg, L.*, Zippert, E., **Ellis, A.**, O'Rear, C.D., Cosso, J., King, Y., Purpura, D.J. (April 2021; Poster) Talk Spatial to Me: Developing a Broad Measure of Receptive Spatial Vocabulary. *Society for Research in Child Development*. Twin Cities, MN, USA. Conference virtual due to COVID-19.

Ellis, A., Ahmed, S. F., Zeytinoglu, S., Isbell, A., Calkins S. D., Leerkes E. M., Grammer, J. K., Gehring, W., Morrison, F. J. & Davis-Kean, P. (April 2021; [Paper](#)). Reciprocal associations between executive function and math achievement: A conceptual replication of Schmitt et al. (2017). *Society for Research in Child Development*. Twin Cities, MN, USA. Conference virtual due to COVID-19.

Kapustka, J.* & **Ellis, A.** (October 2020; [Poster](#)). Exploring the Relations Between the Home Mathematics Environment and Direct and Indirect Numeracy Assessments. *Home Mathematics Environment Virtual Conference Funded by the National Science Foundation*. West Lafayette, IN, USA. Conference virtual due to COVID-19.

- Kim, M.H., Davis-Kean, P.E., **Ellis, A.**, Woods, A.D. (June 2020; [Unconference](#)). Teaching and Mentoring Open Science. *Society for Improving Psychological Science*. Victoria, BC, Canada. Conference virtual due to COVID-19.
- Addie, A.*, **Ellis, A.**, & Davis-Kean, P.E. (May 2020; [Poster](#)). How Do Kindergarten Teachers Use Emotional Prosody in Their Classrooms? *32nd Annual Association for Psychological Science Convention*. Chicago, IL, USA. Conference virtual due to COVID-19.
- Kapustka, J.*, **Ellis, A.**, & Davis-Kean, P.E. (May 2020; [Poster](#)). The Contribution of Integrated Math Instruction in Kindergarten Classrooms. *32nd Annual Association for Psychological Science Convention*. Chicago, IL, USA. Conference virtual due to COVID-19.
- Ellis, A.**, & Davis-Kean, P.E. (June 2019; [Data Blitz Presentation](#)). What are we missing in math assessments? Validating an IRT based math assessment in kindergarteners. *The Math Cognition and Learning Society*. Ottawa, ON, Canada.
- Ellis, A.** (June 2019; [Preregistered Poster](#)). The Utility of Audio Recordings for Examining Kindergarten Math Instruction. *The Math Cognition and Learning Society*. Ottawa, ON, Canada.
- Luboyeski, A.*, **Ellis, A.**, & Davis-Kean, P.E. (April 2019; [Poster](#)). Teacher Beliefs and Practices in Teaching Mathematics in Kindergarten. *Undergraduate Research Opportunity Program Research Symposium*. Ann Arbor, MI, USA.
- Ellis, A.**, Ahmed, S.F., Davis-Kean, P.E., & Morrison, F.J. (September 2018; [Poster](#)). Which Comes First? Causal Relations Between Early Executive Function and Math Achievement. *International Mind, Brain, Education Society Conference*. Los Angeles, CA, USA.
- Davis-Kean, P.E., Domina, T., Kuhfield, M., **Ellis, A.**, & Gershoff, E.T. (April 2018; [Poster](#)) Preschool Math Skills Impact Future Achievement. *The Math Cognition and Learning Society First Conference*. Oxford, England.
- Ahmed, S. F., **Ellis, A.**, Waters, N. E., Wang, Y., & Morrison, F. J. (October 2017; [Poster](#)) Understanding the structure of executive function in young children using lab, classroom-based and electrophysiological assessments. *The Cognitive Development Society*. Seattle, WA, USA.
- Mason, S.*, Shaik, A.*, Bullen, J.*, **Ellis, A.**, Smith, C., Kovelman, I., & Davis-Kean, P. (April 2017; [Poster](#)) Children's use of quantitative reasoning in sharing. *Undergraduate Research Opportunity Program Research Symposium*. Ann Arbor, MI, USA.
- Ellis, A.**, Hu, X., Armstrong, M.*, Bullen, J.*, Smith, C.E., Davis-Kean, P.E., & Kovelman, I. (October 2016; [Poster](#)) Shining light on the brain bases of division and mathematical competence. *International Mind Brain and Education Society*. Toronto, ON, Canada.
- Miller, A. L., **Ellis, A.**, Domoff, S.E. (May 2016; [Paper](#)) Food Talk in Families, *Association for Psychological Science*. Chicago, IL, USA.
- Tighe, L., **Ellis, A.** (May 2016; [Poster](#)) Where Are You Now? The Impact of High School STEM Interest on Later Life Outcomes. *Association for Psychological Science*. Chicago, IL, USA.

Ellis, A., Davis-Kean, P.E., Kovelman, I. (May 2016; [Poster](#)) Sharing and Division: An fNIRS Study. *Math Cognition Conference*. Fort Worth, TX, USA.

Couvreur, R.*, Bullen, J.*, Armstrong, M.*, **Ellis, A.**, Smith, C., Davis-Kean, P., & Kovelman, I. (April 2016; Poster) Is sharing related to children's emerging math abilities? *Undergraduate Research Opportunity Program Research Symposium*. Ann Arbor, MI, USA.

Bullen, J.*, Couvreur, R.*, Armstrong, M.*, **Ellis, A.**, Smith, C., Davis-Kean, P., & Kovelman, I. (April 2016; Poster) Children's emergent math and sharing abilities. *Psychology Research Forum*. Ann Arbor, MI, USA.

Ellis, A., Armstrong, M.*, Ip, K., Hsu, L., Smith, C.E., Kovelman, I., & Davis-Kean, P. E. (May 2015; [Poster](#)) fNIRS Study of an Innovative Social Division Task in Adults. *Association for Psychological Science*. New York, NY, USA.

Metwally, C.*, McMann, C.*, **Ellis, A.**, Armstrong, M.*, Ip, K., Smith, C.E., Kovelman, I., Davis-Kean, P. E. (April 2015; Poster) The Developing Math Brain. *Undergraduate Research Opportunity Program Research Symposium*. Ann Arbor, MI, USA.

Ellis, A., Armstrong, M.*, Ip, K., Hsu, L., Rivera Quiñones, R.*, Smith, C.E., Kovelman, I., & Davis-Kean, P. E. (March 2015; [Poster](#)) The Developing Math Brain: Social Division for Children. *Society for Research in Child Development*. Philadelphia, PA, USA.

Ellis, A., Armstrong, M.*, Ip, K., Hsu, L., Smith, C.E., Davis-Kean, P. E., & Kovelman, I. (October 2014; [Poster](#)) fNIRS Study of Numerical Cognition in Adults. *Society for Functional Near-Infrared Spectroscopy Conference*. Montréal, ON, Canada.

Rivera Quiñones, R.*, **Ellis, A.**, Ip, K., Hsu, L., Armstrong, M.*, Smith, C.E., Davis-Kean, P. E., & Kovelman, I. (July 2014; Poster) Early division ability as a strong indicator for later mathematical ability. *Summer Research Opportunity Program Research Roundtable and Symposium*. Ann Arbor, MI, USA.

Desai, N.*, Bullen, J.*, **Ellis, A.**, Armstrong, M.*, Ip, K., Hsu, L., & Kovelman, I. (May 2014; Poster) Who's Nicer? Allocation sharing task revealed early signs of division skills in preschoolers. *Undergraduate Research Opportunity Program Research Roundtable and Symposium*. Ann Arbor, MI, USA.

INVITED PRESENTATIONS

Ellis, A. (2020, November) Introduction to Cross-Lagged Panel Models. Guest Lecture in HDFS 961 at Michigan State University. East Lansing, MI, USA.

Ellis, A. (2019, November) Math Acquisition. Guest Lecture in Psych 454 at the University of Michigan. Ann Arbor, MI, USA.

Ellis, A. (2019, March). Examining Reciprocal Relations between Early Executive Function Components and Math Achievement. Combined Program in Education and Psychology Colloquium. Ann Arbor, MI, USA.

Ellis, A. (2018, February). Math Acquisition. Guest Lecture in Psych 454 at the University of Michigan. Ann Arbor, MI, USA.

Ellis, A. (2017, February). Shedding Light on Precursors to Division. Combined Program in Education and Psychology Colloquium. Ann Arbor, MI, USA.

TEACHING EXPERIENCE

Instructor of Record

HDFS 406: Mathematics in Preschool and Primary Grades	Spring 2022
Educ 391: Educational Psychology and Human Development	Fall 2018

Graduate Course Teaching Assistant

Educ 803: Structural Equation Modeling	Winter 2017
Educ 707: Psychometrics	Fall 2016

Graduate Student Instructor

Psych 111: Introduction to Psychology	Winter 2017
Psych 303: Research Methods in Psychology	Fall 2016
Psych 250: Introduction to Developmental Psychology	Winter 2016
Psych 240: Introduction to Cognitive Psychology	Winter 2015

METHODOLOGICAL TRAINING

“Development of Mathematics Competencies in Early Childhood” AERA NSF Institute on Statistical Analysis in Laguna Beach, CA, USA with Drs. Doug Clements, Nancy Jordan, and Barbara Schneider (February 23-February 27, 2020)

“Longitudinal Multilevel Modeling” Workshop in Pittsburgh, PA, USA with Dr. Aidan Wright (July 24-July 26, 2019)

“R for Social Scientists” Workshop in Pittsburgh, PA, USA with Dr. Jeffrey Girard (July 22-July 24, 2019)

MENTORSHIP EXPERIENCE

Graduate Students directly mentored, Purdue University

<i>Jimena Cosso (Fifth year PhD Student)</i>	2020-Present
<i>Patrick Ehrman (First year PhD Student)</i>	2021-Present

Undergraduate Research Assistants, University of Michigan

<i>Atiya Addie (PhD Student at University of Michigan with Nicole Gardner-Neblett)</i>	2019-2021
<i>Joseph Kaputska (English Teacher in Spain)</i>	2019-2020
<i>Asia Luboyeski (Undergraduate at University of Michigan)</i>	2018-2019
<i>Jennifer Bullen (PhD Student at University of California Davis with Peter Mundy)</i>	2015-2017
<i>Melanie Armstrong (Medical Student at Northwestern University)</i>	2014-2016

Michigan Association of Psychological Scholars, <i>Co-Chair</i> , University of Michigan	2017-2019
<i>Graduate student mentor for two Michigan undergraduate psychology students each year</i>	

PROFESSIONAL SERVICE

TO THE FIELD

Co-President

Mathematical Cognition and Learning Society Trainee Board	2021-Present
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Communications Chair 2018-2020
International Mind Brain and Education Society

Special Issue Editor 2021-Present
Registered Reports with Secondary Developmental Data in *Infant and Child Development*

Conference Organizer Summer 2021
International Mind Brain and Education Society 2021 Virtual Conference

Ad-Hoc Reviewer
Child Development; Journal of Educational Psychology; Developmental Psychology; Journal of Experimental Child Psychology; Journal of Applied Developmental Psychology; Mathematical Thinking and Learning Journal; Journal for Research on Adolescence; Pediatrics; PLOS One

TO PURDUE UNIVERISTY

ReproducibiliTea Journal Club 2020-Present
Founder and Co-organizer

Early Childhood Research to Practice Quarterly Publication 2020-Present
Co-organizer and Author

TO THE UNIVERSITY OF MICHIGAN

Combined Program in Education and Psychology, University of Michigan 2018-2019
Admissions Committee Member

Testing Accommodations Center, Ann Arbor, Michigan 2016-2020
Proctor for students with disabilities enrolled at the University

Combined Program in Education and Psychology, University of Michigan 2016-2018
Recruitment Committee Member

Combined Program in Education and Psychology, University of Michigan 2015-2016
Colloquium Committee Member

PROFESSIONAL MEMBERSHIPS

International Mind Brain and Education Society (IMBES)

Mathematical Cognition and Learning Society (MCLS)

American Education Research Association (AERA)

Society for Research in Child Development (SRCD)

REFERENCES

David J. Purpura	Pamela E. Davis-Kean	Frederick J. Morrison
Associate Professor	Professor	Professor
Purdue University	University of Michigan	University of Michigan
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