

JULIA ANNE LEONARD

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February, 2020

EMPLOYMENT

University of Pennsylvania

September 2018 - present

MindCore postdoctoral fellow with Dr. Allyson Mackey

Advisory committee: Dr. Angela Duckworth, Dr. Martha Farah, Dr. Joe Kable

EDUCATION

Massachusetts Institute of Technology

September 2013 – May 2018

PhD in Brain and Cognitive Sciences with Dr. John Gabrieli and Dr. Laura Schulz

Thesis: *Social Influences on Children's Learning*

Wesleyan University

May 2011

B.A. Neuroscience and Behavior, Phi Beta Kappa, High Honors, GPA: 4.0

Advisor: Anna Shusterman

Honors Thesis: *The Effects of Touch on Compliance in Preschool-Age Children*

RESEARCH INTERESTS

Cognitive development, learning, motivation, neuroscience, plasticity, resilience

HONORS AND AWARDS

MindCORE Postdoctoral Fellowship

2018

University of Pennsylvania

Walle Nauta Award for Continued Dedication to Teaching

2017, 2018

Massachusetts Institute of Technology

Neurohackweek Fellow

2016, 2017

University of Washington eScience Institute

UCLA-Semel Institute Neuroimaging Training Program Fellow

2016

UCLA

Summer Institute in Cognitive Neuroscience Fellow

2015

UCSB, developmental, computational & methodological cognitive neuroscience topics

Graduate Student Summer Travel Award

2015

Massachusetts Institute of Technology

Latin America School for Education, Cognition, and Neural Sciences Fellow

2015, 2018

LA school for Education, Cognition, and Neural Sciences

NSF Graduate Student Research Fellowship

2014

National Science Foundation

Ida M. Green Graduate School Fellowship 2013
Massachusetts Institute of Technology

High Honors in Neuroscience and Behavior 2011
Wesleyan University

Connecticut Higher Education Community Service Award Nominee 2011
State of Connecticut, Office of Higher Education

Dean's List 2008, 2009, 2010, 2011
Wesleyan University

Phi Beta Kappa 2010
Chapter of Wesleyan University

PUBLICATIONS

Leonard, J.A., Garcia, A., & Schulz, L.E. (2019). How adults' actions, outcomes, and testimony affect preschoolers' persistence. *Child Development*. <https://doi.org/10.1111/cdev.13305>

Leonard, J.A., Bennet-Pierre, G., & Gweon, H. (2019). Who is better? Preschoolers infer relative competence based on efficiency of process and quality of outcome. *Proceedings of the 41st Annual Conference of the Cognitive Science Society*.

Leonard, J.A., Romeo, R.R., Park, A.T., Takada, M.E., Robinson, S.T., Grotzinger, H., Last, B.S., Finn, A.S., Gabrieli, J.D.E., & Mackey, A.P. (2019). Associations between cortical thickness and reasoning vary by socioeconomic status in early childhood and adolescence. *Developmental Cognitive Neuroscience*, 36(100641). <https://doi.org/10.1016/j.dcn.2019.100641>

Romeo, R.R., Segaran, J., **Leonard, J.A.,** Robinson, S.T., West, M.R., Mackey, A.P., ... & Gabrieli, J.D.E. (2018). Language exposure relates to structural neural connectivity in childhood. *Journal of Neuroscience*, 0484-18. <https://doi.org/10.1093/scan/nsy017>

Park, A.T., **Leonard, J.A.,** Saxler, P.K., Cyr, A.B., Gabrieli, J.D.E., & Mackey, A.P. (2018). Amygdala–medial prefrontal cortex connectivity relates to stress and mental health in early childhood. *Social Cognitive and Affective Neuroscience*, 13(4), 430-439. <https://doi.org/10.1093/scan/nsy017>

Romeo, R.R., **Leonard, J.A.,** Robinson, S.T., Rowe, M.L., Mackey, A.P., Gabrieli, J.D.E. (2017). The neural correlates of the “30 million word gap”: Childhood conversational exposure is associated with language-related brain function. *Psychological Science*, 29(5), 700-710. doi:10.1177/0956797617742725

Leonard, J.A., Lee, Y., & Schulz, L.E. (2017). Infants make more attempts to achieve a goal when they see adults persist. *Science*, 357(6357), 1290-1294. doi:10.1126/science.aan2317

- Shusterman, A., Cheung, P., Taggart, J., Bass, T., **Leonard, J.A.**, & Schwartz, A. (2017). Conceptual correlates of counting: Children's spontaneous matching and tracking of large sets reflects their knowledge of the cardinal principle. *The Journal of Numerical Cognition*, 3(1), 1-30. doi:10.5964/jnc.v3i1.65
- Leonard, J.A.**, Flournoy, J., Lewis-de los Angeles, C., & Whitaker, K. (2017). How much motion is too much motion? Determining motion thresholds by sample size for reproducibility in developmental resting-state MRI. *Research Ideas and Outcomes*, 3: e12569. doi:10.3897/rio.3.e12569
- Finn, A.S., Minas, J., **Leonard, J.A.**, Mackey, A.P., Salvatore, J., Goetz, C., West, M., Gabrieli C.F.O., & Gabrieli, J.D.E. (2016). Functional brain organization of working memory in adolescents varies in relation to family income and academic achievement. *Developmental Science*. doi:110.1111/desc.12450
- Cain, M.S., **Leonard, J.A.**, Gabrieli, J.D.E., & Finn, A.S. (2016). Multi-media tasking in adolescents. *Psychonomic Bulletin & Review*, 1-10. doi:10.3758/s13423-016-1036-3
- Finn, A.S., Kalra, P.B., Goetz, C., **Leonard, J.A.**, Sheridan, M.A., & Gabrieli, J.D.E. (2016). Developmental dissociation between the maturation of procedural memory and declarative memory. *Journal of Experimental Child Psychology*, 142, 212-220. doi:10.1016/j.jecp.2015.09.027
- Leonard, J.A.**, Mackey, A.P., Finn, A.S., & Gabrieli, J.D.E. (2015). Differential effects of socioeconomic status on declarative and procedural memory. *Frontiers in Human Neuroscience*, 9:554. Doi:10.3389/fnhum.2015.00554
- Mackey, A.P., Finn, A.S., **Leonard, J.A.**, Jacoby-Senghor, D.S., West, M.R., Gabrieli, C.F., & Gabrieli, J.D.E. (2015). Neuroanatomical correlates of the income-achievement gap. *Psychological Science*, 26(6), 925-933. doi:0956797615572233
- Chai, X.J., Hirshfeld-Becker, D., Biederman, J., Uchida, M., Doehrmann, O., **Leonard, J.A.**, ... & Whitfield-Gabrieli, S. (2015). Altered intrinsic functional brain architecture in children at familial risk of major depression. *Biological Psychiatry*, 80(11), 849-858. doi:10.1016/j.biopsych.2015.12.003
- Chai, X. J., Hirshfeld-Becker, D., Biederman, J., Uchida, M., Doehrmann, O., **Leonard, J.A.**, ... & Gabrieli, J. D. (2015). Functional and structural brain correlates of risk for major depression in children with familial depression. *NeuroImage: Clinical*, 8, 398-407. doi:10.1016/j.nicl.2015.05.004
- Leonard, J.A.**, Berkowitz, T., & Shusterman, A. (2014). The effect of friendly touch on delay-of-gratification in preschool children. *The Quarterly Journal of Experimental Psychology*, 1-11, doi:10.1080/17470218.2014.907325

Plummer, D.B., Galla, B.M., Finn, A.S., Patrick, S.D., Meketon, D., **Leonard, J.A.** ... Duckworth, A.L. (2014). A behind-the-scenes guide to school-based research. *Mind, Brain, and Education*, 8(1), 15-20. doi:10.1111mbe.12040

Finn, A.S., Kraft, M., West, M., **Leonard, J.A.**, Bisk, C., Martin, R., Sheridan, M.A., Gabrieli, C.F.O., & Gabrieli, J.D.E. (2014). Cognitive skills, student achievement tests, and schools. *Psychological Science*, 25(3), 736-44. doi: 10.1177/0956797613516008

UNDER REVISION/ IN PREPARATION

Leonard, J.A., Martinez, D.N., Dashineau, S., & Mackey, A.P. (revise and resubmit at *Child Development*). Let me do it myself: Children persist less when adults take over.

Leonard, J.A., Sorcher, L., Forde, J., Fergleger, S., Tooley, U.A., Park, A.T., Hart, Y., & Mackey, A.P. (in prep). Associations between brain development and creativity in early childhood.

Leonard, J.A.*, Magid, R.W., & Schulz, L.E. (in prep). Do I measure up? How social comparison impacts preschoolers' persistence.

Leonard, J.A.*, Romeo, R.R.*, Robinson, S.T., Mackey, A.P., West, M.R., & Gabrieli, J.D.E. (in prep). Replication report: Family-based training program to improve cognitive outcomes in low-income preschoolers.

Romeo, R.R., **Leonard, J.A.**, Scherer, E., Mackey, A.P., West, M.R. Gabrieli, J.D.E. (in prep). Neuroplasticity in linguistic and social brain regions is associated with increased turn-taking following a two-generation intervention.

CONFERENCE PRESENTATIONS

Leonard, J.A., Thomas, O., Pelz, M., Braham, E. (2020). *Children and challenge: Using research to inform museum experiences*. InterActivity: Association of Children's Museums Conference, St. Louis, MO.

Romeo, R.R., **Leonard, J.A.**, Grotzinger, H., Robinson, S.T., Takada, M., Segaran, J., Mackey, A.P., Rowe, M.L., Gabrieli, J.D.E. (2019). *Cortical plasticity associated with a parent-implemented language intervention*. FLUX Congress, New York, NY.

Romeo, R.R., **Leonard, J.A.**, Grotzinger, H., Robinson, S.T., Takada, M., Segaran, J., Mackey, A.P., Rowe, M.L., Gabrieli, J.D.E. (2019). *Cortical plasticity associated with a parent-implemented language intervention*. Society for the Neurobiology of Language, Helsinki, Finland.

Leonard, J.A., Bennet-Pierre, G., & Gweon, H. (2019). *Who is better? Preschoolers infer relative competence based on efficiency of process and quality of outcome*. The Annual Meeting of the Cognitive Science Society, Montreal, CAN.

Leonard, J.A., Romeo, R.R., Park, A.T., Takada, M.E., Robinson, S.T., Grotzinger, H., Last, B.S., Finn, A.S., Gabrieli, J.D.E., & Mackey, A.P. (2018). *The neural correlates of reasoning differ by*

socioeconomic status in development. Society for Research in Cognitive Development, Baltimore, MD.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Rowe, M.L., Mackey, A.P., Gabrieli, J.D.E. (2018). *Neural plasticity associated with a parent-implemented language intervention*. Boston University Conference on Child Language Development, Boston, MA.

Leonard, J.A. Garcia, A., Chew, K., & Schulz, L.E. (2018). *Practice what you preach: Children integrate adults' outcomes, actions, and testimony to decide how hard to try*. The International Congress of Infant Studies, Philadelphia, PA.

Leonard, J.A. & Schulz, L.E. (2018). *Social influences on children's motivation*. Association for Psychological Sciences, San Francisco, CA.

D'Mello A., Romeo, R.R., **Leonard, J.A.**, Mackey, A.P., Gabrieli, J.D.E. (2018). Cerebellar contributions to children's language processing. In nanosymposium: Human cognition and behavior: Neurocognitive development. *Society for Neuroscience*, San Diego, CA.

Leonard, J.A., Romeo, R.R., Mackey, A.P., Takada, M., Robinson, S., Gabrieli, J.D.E., & Schulz, L.E. (2017). *Predicting and Intervening on cognitive outcomes in young children*. Society for Research in Cognitive Development, Austin, TX.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Rowe, M.L., Mackey, A.P., Gabrieli, J.D.E. (2017). *Children's language exposure predicts neural structure and function during language processing, independent of SES*. Society for Research in Cognitive Development, Austin, TX.

Leonard, J.A., Gabrieli, J.D.E., & Schulz, L.E. (2016). *Socioeconomic status and exploratory play in early childhood*. Active Learning Workshop at the Cognitive Science Society, Philadelphia, PA.

Leonard, J.A., & Schulz, L.E. (2015). *If at first you don't succeed: The role of evidence in children's persistence*. More On Development, Columbus, OH.

Leonard, J.A., Flyod, S., Schulz, L.E. (2015). *The development of implicit theories of effort*. The Society for Research in Cognitive Development, Philadelphia, PA.

Mackey, A.P., **Leonard, J.A.**, Finn, A.S., Gabrieli, J.D.E. (2014). *Hippocampal structure and connectivity is linked to standardized test score improvement*. Society for Neuroscience, Washington, DC.

Finn, A.S., **Leonard J.A.**, Mackey, A.P., Goetz, C.A., Salvatore, J., De los Angeles, C., Sheridan, M.A., Gabrieli, C.F.O., & Gabrieli, J.D.E. (2013). *The neural substrates associated with improvement on standardized exams during middle school*. The Society for Neuroscience, San Diego, CA.

CONFERENCE POSTERS

Leonard, J.A., Martinez, D.N., Dashineau, S., & Mackey, A.P. (2019). *Let me do it myself: The relationship between intrusive behavior in adults and young children's persistence*. Child Development Society, Louisville, KY.

Martinez, D.N., **Leonard, J.A.**, & Mackey, A.P. (2019). *Children's persistence is related to how much they attend to their parent's effortful actions*. Child Development Society, Louisville, KY.

Leonard, J.A., Sorcher, L., Forde, J., Fegler, S., Tooley, U.A., Park, A.T., Hart, Y., & Mackey, A.P. (2019). *Associations between brain development and creativity in early childhood*. FLUX Congress, New York, NY.

Park, A.T., **Leonard, J.A.**, Tooley, U.A., Boroshok, A.L., & Mackey, A.P. (2019). *Stress exposure in early childhood relates to altered midbrain functional connectivity*. FLUX Congress, New York, NY.

Tooley, U.A., Park, A.T., **Leonard, J.A.**, Bassett, D.S., & Mackey, A.P. (2019). *Functional network development in early childhood*. FLUX Congress, New York, NY.

Valencia V., Romeo, R., **Leonard, J.A.**, Rowe, M., & Gabrieli, J.D.E. (2019). *Hablamos Ambos (We Speak Both): Relationship between primary language use and lexical diversity in bilingual families*. Society for Research in Cognitive Development, Baltimore, MD.

Romeo, R.R., **Leonard, J.A.**, Segaran, J., Mackey, A.P., Rowe, M.L., Gabrieli, J.D.E. (2019). *Structural and functional neural correlates of language experience in children from diverse socioeconomic backgrounds*. Society for Research in Child Development, Baltimore, MD.

Leonard, J.A., Romeo, R.R., Park, A.T., Takada, M.E., Robinson, S.T., Grotzinger, H., Finn, A.S., Gabrieli, J.D.E., & Mackey, A.P. (2018). *Associations between cortical thickness and reasoning vary by socioeconomic status in early childhood*. Cognitive Neuroscience Society, Boston, MA.

Romeo, R.R., Segaran, J., **Leonard, J.A.**, Robinson, S. T., Mackey, A.P., Yendiki, A., Rowe, M.L., & Gabrieli, J.D.E. (2018). *Neural correlates of the "30-million word gap": Children's language exposure is related to white matter structure*. Cognitive Neuroscience Society, Boston, MA.

Leonard, J.A., Magid, R., Kleiman-Weiner, M., DePascale, M., Tenenbaum, J., & Schulz, L.E. (2017). *Preschoolers rationally deploy effort in social learning and collaborative contexts*. Cognitive Development Society, Portland, OR.

Leonard, J.A., Kleiman-Weiner, M., Lee, Y., Tenenbaum, J., & Schulz, L.E. (2017). *Preschoolers and infants calibrate persistence from adult models*. Cognitive Science Society, London, UK.

Takada, M.E., **Leonard, J.A.**, Romeo, R.R., Robinson, S.T., Mackey, A.P., & Gabrieli, J.D.E. (2017). *Cognitive and neural correlates of mathematical reasoning across math proficiency levels*. Society for Research in Cognitive Development, Austin, TX.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Rowe, M.L., Mackey, A.P., & Gabrieli, J.D.E. (2017). *Language exposure is associated with the cortical thickness of young, low-SES children*. Society for the Neurobiology of Language, Baltimore, MD.

Romeo, R.R., **Leonard, J.A.**, Robinson, S.T., Segaran, J., Rowe, M.L., Mackey, A.P., & Gabrieli, J.D.E. (2016). *Children's language exposure predicts neural activation during language processing*. Society for Neuroscience, San Diego, CA.

Leonard, J.A., Lee, Y., & Schulz, L.E. (2015). *If at first you don't succeed: The role of evidence in preschoolers' and infants' persistence*. Cognitive Development Society, Columbus, OH.

Leonard, J.A., Mackey, A.P., Finn, A.S., & Gabrieli, J.D.E. (2015). *Differential effects of socioeconomic status on declarative and procedural memory*. FLUX congress, Leiden, Netherlands.

Leonard, J.A., Lee, Y., & Schulz, L.E. (2015). *If at first you don't succeed: The role of evidence in preschoolers' and infants' persistence*. Cognitive Science Society, Pasadena, CA.

Mackey, A.P., Finn, A.S., **Leonard, J.A.**, Salvatore, J., Goetz, C.A., & Gabrieli, J.D.E. (2014). *Cortical thickness differences associated with family income in adolescents*. Human Brain Mapping, Hamburg, Germany.

Leonard, J.A., Finn, A.S., Mackey, A.P., Salvatore, J., De los Angeles, C., Goetz, C.A., Gabrieli, J.D.E., & Whitfield-Gabrieli, S. (2014). *Relation of functional connectivity to cognitive abilities in adolescents from socioeconomically diverse backgrounds*. The Cognitive Neuroscience Society, Boston, MA.

Leonard, J.A., Finn, A.S., Mackey, A.P., Salvatore, J., De los Angeles, C., Goetz, C.A., Gabrieli, J.D.E., & Whitfield-Gabrieli, S. (2013). *Resting-state MRI in adolescents: Relation of functional connectivity to cognitive abilities and educational outcomes*. The Society for Neuroscience, San Diego, CA.

Mackey, A.P., Finn, A.S., **Leonard, J.A.**, Salvatore, J., Goetz, C.A., & Gabrieli, J.D.E. (2013). *Cognitive, academic, and brain difference associated with low income backgrounds in adolescents*. The Society for Neuroscience, San Diego, CA.

Finn, A., Albert, N., **Leonard, J.A.**, & Hudson Kam, C.L. (2013). *Effort in skill learning: More persistent benefits for children*. The Cognitive Neuroscience Society, San Francisco, CA.

Leonard, J.A., Berkowitz, T., & Shusterman, A. (2013). *The effects of touch on compliance in pre-school age children*. The Society for Research in Cognitive Development, Seattle, WA.

Finn, A., Sheridan, M.A., Salvatore, J., **Leonard, J.A.**, & Gabrieli, J.D.E. (2012). *Individual differences in adolescents' ability to filter items for working memory predict neural structure and function*. The Society for Neuroscience, Louisiana.

Leonard, J.A., Berkowitz, T., & Shusterman, A. (2011). *The effects of touch on compliance in pre-school age children*. The Cognitive Development Society, Philadelphia, PA.

INVITED TALKS

Department of Psychology Colloquium, University of Chicago	2020
Department of Psychology Colloquium, University of Southern California	2020
iSearch Research Retreat, Max Planck Institute for Human Development	2020
Concepts and Categories Seminar, New York University	2019
Department of Psychology Colloquium, Yale University	2019
Department of Psychology Colloquium, Stanford University	2019
Affective Neuroscience and Development Laboratory, Harvard University	2018
Developmental Group Talk Series, University of Pennsylvania	2017
Developmental Colloquium, Stanford University	2017

TEACHING EXPERIENCE, PROFESSIONAL SERVICE, OUTREACH

Teaching Assistant – Infant & Childhood Cognition	2016
Dr. Laura Schulz, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	
Teaching Assistant – Psychological Science	2016, 2017
Dr. John Gabrieli, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	
Teaching Assistant – Cognitive Processes	2015
Dr. Mary Potter, Faculty-Of-Record, Professor of Brain and Cognitive Sciences, MIT	
Teaching Assistant – Research Methods in Cognitive Development and Education	2010
Dr. Anna Shusterman, Faculty-Of-Record, Wesleyan University, Department of Psychology	
Co-teacher – Science Pedagogy for Elementary School Students	2009 - 2011
Dr. Westmoreland, Dr. Roberts, Wesleyan University, Department of Chemistry	
Science Outreach Class and Club, Co-founder, leader, head teacher	2007 - 2011
Wesleyan University	

PROFESSIONAL MEMBERSHIP

Cognitive Science Society	2015
FLUX Congress	2015
Cognitive Neuroscience Society	2014
Society for Neuroscience	2013
Cognitive Development Society	2011
Society for Research on Cognitive Development	2011

RESEARCH MENTORSHIP

Penn Undergraduate Mentor

- Skyler Cordrey, 2019, 2020
- Greer Bizzell-Hatcher, 2019, 2020
- Julia Sandler, 2019, 2020
- Amanda Nerenberg, 2019, 2020
- Aidan Rubio, 2019, 2020
- Lily Stein, 2019, 2020
- Hunter Liu, 2019
- Samantha Dashineau (Villanova masters student), 2019
- Dominique Martinez, 2019
- Ava Cruz, 2019

MIT Undergraduate Mentor

- Caitlin Tan, 2013, 2014
- Dayna Wilmot, 2014, 2015
- Yuna Lee, 2015, 2016, 2017
- Jakub Kaczmarzyk, 2015
- Megumi Takada, 2015, 2016, 2017
- Daniel Mirney, 2016
- Yuriko Fukumura, 2017
- Emily McDermitt, 2016
- Katherine Chew, 2017
- Fatima Gunter-Rahman, 2017, 2018
- Andrea Garcia, 2018
- Stephanie Flores, 2018

High School Mentor

- Daniel Remondi, Belmont Hill School, Belmont, MA, 2014, 2015
- James Onyeukwu, Belmont Hill School, Belmont, MA, 2014, 2015
- Courtney Noll, Spackenkill High School, Poughkeepsie, NY, summer 2014, 2015

REFERENCES

Dr. John Gabrieli, Professor of Brain and Cognitive Sciences, MIT
gabrieli@mit.edu, 617-324-2896

Dr. Laura Schulz, Professor of Brain and Cognitive Sciences, MIT
lschulz@mit.edu, 617-324-4859

Dr. Allyson Mackey, Assistant Professor of Psychology, University of Pennsylvania
mackeya@sas.upenn.edu, 215-573-3074

Dr. Angela Duckworth, Professor of Psychology, University of Pennsylvania
aduckworth@characterlab.org, 215-898-1339