JULIA ANNE LEONARD

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August, 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., Martinez, D.N., Dashineau, S., Park, A.T. & Mackey, A.P. (2020). Children persist less when adults take over. *Child Development.*

Leonard, J.A., Sandler, J., Nerenberg, A., Rubio, A., Schulz, L.E., & Mackey, A. P. (2020). Preschoolers are sensitive to their performance over time. *Proceedings of the 42st Annual Conference of the Cognitive Science Society*

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:10.111mbe.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.*, Romeo, R.R.*, Robinson, S.T., Mackey, A.P., West, M.R., & Gabrieli, J.D.E. (Revise and Resubmit at *Journal of Research on Educational Effectiveness*). Replication and extension of a family-based training program to improve cognitive abilities in young children.

Leonard, J.A., Lydon-Staley, D.M., Sharp, S., Liu, H.Z., Bassett, D.S., Duckworth, A.L., & Mackey, A.P. (in prep) Daily fluctuations in young children's persistence.

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

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.

* Cancelled due to Covid-19

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

Park, A.T., **Leonard, J.A.,** Tooley, U.A., Richardson, H., Ke, A., Tisdall, D., Edgar, C., & Mackey, A.P. (2020). *Neural activation to naturalistic emotional events in young children.* FLUX Congress, Santa Rosa, CA (Virtual conference).

Leonard, J.A., Sandler, J., Nerenberg, A., Rubio, A., Schulz, L.E., & Mackey, A. P. (2020). *Preschoolers are sensitive to their performance over time*. The Annual Meeting of the Cognitive Science Society, Toronto, CAN (Virtual conference).

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, KT.

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, KT.

Leonard, J.A., Sorcher, L., Forde, J., Fergler, 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

Psychology Developmental Colloquium, Temple University *2020*

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*
Psi Chi International Honors Society of Psychology	*2009*

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, 202
- 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