

**F. Sayako Earle**  
Assistant Professor  
Communication Sciences and Disorders  
University of Delaware  
Email: [fsearle@udel.edu](mailto:fsearle@udel.edu)

Research areas: speech perception, memory consolidation, language-based learning disorders, adults with learning disabilities, declarative and procedural memory

### **Education**

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2016 Ph.D.	Speech, Language and Hearing Sciences	University of Connecticut
2012 completion of clinical program	Speech Language Pathology	University of Connecticut
2008 M.A.	Linguistics	University of Virginia
2003 B.A.	English, Studio Art	Kenyon College

### **Employment History**

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2016-	Assistant Professor in Communication Sciences and Disorders	University of Delaware, Newark, DE
2015-2016	NIDCD National Research Service Award fellow	University of Connecticut, Storrs, CT
2011-2016	Graduate Teaching Assistant	University of Connecticut, Storrs, CT
2008-2010	Program coordinator/job coaching program for adults with developmental disabilities	Job Path, Inc., New York, NY
2004-2007	Peace Corps Volunteer, Public Health sector	U.S. Peace Corps, Migori, Kenya
2003	AmeriCorps National Service member, Anacostia National park	Student Conservation Association, Washington, D.C.

### **Research Support**

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#### *Submitted/pending review*

2022-2027 NSF Faculty Early Career Development Program “CAREER: Circadian influences on perceptual category learning from early to late adolescence (Role: PI)

#### *Current support*

2021 – 2023 NIH NEI R01EY028266 “Directly Testing the Magnocellular Theory of Dyslexia.” (PI: Schneider; Role: Key Personnel)

2020 - 2022 University of Delaware Research Foundation grant “Investigating the roles of sleep and wakeful rest in the consolidation of a new speech-motor pattern” (Role: PI)

2019 - 2021 American Speech and Hearing Foundation New Century Scholars Research Grant “The use of polysomnography to track perceptual learning in adults with developmental language impairment.” (Role: PI)

2018 - 2022 NIH NIDCD R21DC016391; 3R21DC016391-03S1 (Supplement for early career scientists whose career trajectories have been significantly impacted by COVID-19) “Perceptual learning and memory consolidation in adults with and without language impairment” (Role: PI)

#### *Completed support*

2019 University of Delaware College of Health Sciences Equipment Fund “Noise-canceling headphones for functional magnetic resonance imaging.” (Role: PI)

2015 - 2016 NIH NIDCD F31DC014194 “Phonetic learning in adults with and without language impairment.”

National Research Service Award (Role: PI)  
2016 University of Connecticut Institute for the Brain and Cognitive Sciences seed grant (20 scan hours)

## Awards

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- 2020 Early Career Contributions in Research Award from the American Speech and Hearing Association
- 2010 - 2015 University of Connecticut Predoctoral Fellowship
- 2013 American Speech and Hearing Foundation New Century Doctoral Scholarship
- 2012 Innovative Science in Teaching – University of Connecticut internal funding competition for graduate student-lead research projects

## Publications

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- Earle, F.S.**, Qi, Z. (*under review*). Overnight changes to the representational quality of nonnative speech: a learning and memory account.
- Hannon-Cropp, J.\* , Zinszer, B.D., Seri, A.B., Kouadio, E., Tanoh, F., **Earle, F.S.**, Jasinska, K. (*under review*). Contributions of Procedural Memory to Emergent Reading in Older Children: Insights from Côte d'Ivoire.
- Evans, T.M., **Earle, F.S.**, Del Tufo, S., Lipscomb, D.W., Lum, J.A.G., Ullman, M.T., Cutting, L.E. (*under review*) Arithmetic outcome predicted by children's early learning and memory.
- Ji, X., Saylor, J., **Earle, F.S.** (2021). Sufficient sleep attenuates COVID-19 pandemic-related executive dysfunction in late adolescents and young adults.
- Arthur, D.T., Ullman, M.T., **Earle, F.S.** (2021). Declarative memory predicts phonological processing skills in adulthood. *Frontiers in Psychology*.
- Williams, L. C.\*\*\*, **Earle, F.S.** (2021). Overnight consolidation of speech sounds predicts decoding ability in skilled adult readers. *Scientific Studies of Reading*, 1-10
- Earle, F. S.**, Del Tufo, S.N. (2021). Literacy-supporting skills in college students with specific reading comprehension deficit and developmental language disorder. *Annals of Dyslexia*, 1-17.
- Earle, F.S.**, Ullman, M.U. (2021). Deficits of learning in procedural memory and consolidation in declarative memory in adults with developmental language disorder. *Journal of Speech, Language, and Hearing Research*. 64 (2), 531-541
- Van Zelst, A.L.\*\* , **Earle, F.S.** (2020). A case for the role of memory consolidation in speech motor learning. *Psychonomic Bulletin and Review*, 1-15.
- Sengottuvel, K., Vasudevamurthy A.\* , Ullman, M.T., **Earle, F. S.** (2020) Learning and consolidation of declarative memory in good and poor readers of English as a second language. *Frontiers in Psychology*, 11, 715.
- Del Tufo, S.N. & **Earle, F. S.** (2020). Skill profiles of college students with a history of developmental language impairment and developmental dyslexia. *Journal of Learning Disabilities*, 53(3), 228-240.
- Earle, F.S.**, Del Tufo S.N., Evans, T., Lum, J.A., Cutting, L.E., Ullman, M.T. (2020). Domain-general learning and memory substrates of reading acquisition. *Mind, Brain, and Education*, 24(2), 176-186.
- Ullman, M.T., **Earle, F.S.**, Walenski, M., Janacsek, K. (2020). The neurocognition of developmental disorders of language. *Annual Review of Psychology*. 71, 389-417.
- Del Tufo, S.N., **Earle, F.S.**, Cutting, L.E. (2019). The impact of expressive language development and the left inferior longitudinal fasciculus on listening and reading comprehension. *Journal of Neurodevelopmental disorders*. 11(1), 1-27.
- Earle, F. S.**, Landi, N., & Myers, E. B. (2018). Adults with Specific Language Impairment fail to consolidate speech sounds during sleep. *Neuroscience letters*, 666, 58-63.
- Xie, X., **Earle, F.S.**, Myers, E. (2018) Sleep facilitates generalization of accent adaptation to a new talker. *Language, Cognition, and Neuroscience* 33(2), 196-210.
- Earle, F. S.**, & Arthur, D. T. (2017). Native phonological processing abilities predict post-consolidation nonnative contrast learning in adults. *The Journal of the Acoustical Society of America*, 142(6), EL525-EL531.

- Earle, F. S.**, Landi, N., & Myers, E. B. (2017). Sleep duration predicts behavioral and neural differences in adult speech sound learning. *Neuroscience letters*, 636, 77-82.
- Earle, F.S.**, Myers, E.B. (2015) Sleep and native language interference affects non-native speech sound learning. *Journal of Experimental Psychology: Human Perception and Performance*, Aug 17, 2015. DOI:<http://dx.doi.org/10.1037/xhp0000113>
- Earle, F. S.**, Gallinat, E. L., Grela, B. G., Lehto, A., & Spaulding, T. J. (2015). Empirical implications of matching children with specific language impairment to children with typical development on nonverbal IQ. *Journal of learning disabilities*, 50(3), 252-260.
- Earle, F. S.**, & Myers, E. B. (2015). Overnight consolidation promotes generalization across talkers in the identification of nonnative speech sounds. *The Journal of the Acoustical Society of America*, 137(1), EL91-EL97. DOI:<http://dx.doi.org/10.1121/1.4903918>
- Earle, F.S.**, Myers, E.B. (2014) Building phonetic categories: an argument for the role of sleep. *Frontiers in Psychology: Language Sciences*, 5:1192. DOI=10.3389/fpsyg.2014.01192

### **Book chapters/theses**

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- Myers, E., Johns, A. R., **Earle, F. S.**, & Xie, X. (2017). The Invariance Problem in the Acquisition of Non-Native Phonetic Contrasts: From Instances to Categories. *The Speech Processing Lexicon: Neurocognitive and Behavioural Approaches*, 22, 52.
- Earle, F. S.** (2016). Nonnative Phonetic Learning in Adults with and without Language Impairment. (Doctoral dissertation, University of Connecticut).
- Earle, F. S.** (2008). Plural Formation in Dholuo (MA thesis, University of Virginia).

### **Conference Presentations**

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- Roche, C. \*, **Earle, F.S.**, Del Tufo, S. N. (submitted). Factors beyond expressive language that lead to the need for speech and language services. Poster presentation submitted for the 2021 annual convention of the American Speech and Hearing Association, Washington D.C.
- van Zelst, A. \*\*, **Earle, F.S.** (canceled). *Time Will Tell: Can Post-Practice Quiet Rest or Sleep Improve Novel Speech Motor Learning?* Talk accepted at the annual convention of the American Speech and Hearing Association, San Diego, CA.
- Del Tufo, S.N., **Earle, F.S.**, & Cutting, L.E. (canceled). *Early expressive language and the left inferior longitudinal fasciculus predict comprehension*. Poster accepted at the conference for the International Association for the Study of Child Language (IASCL), Philadelphia, PA.
- Del Tufo, S.N., **Earle, F.S.**, & Cutting, L.E. (Feb 2020). *The impact of socioeconomic status and early expressive language development on listening and reading comprehension*. Talk presented at the meeting of The Dyslexia Foundation (TDF: Extraordinary Brain Symposium XVIII), Guayaquil, Ecuador.
- Williams, L. \*\*\* & **Earle, S. F.** (Nov 2019). Speech sound perception & decoding skills in relation to overnight consolidation. Poster accepted for the 2019 convention of the American Speech and Hearing Association in Orlando, FL.
- Smith, M. \*\* & **Earle, S. F.** (Nov 2019). The Correlation Between Chronotype & Executive Function in Young Adults. Poster accepted for the 2019 convention of the American Speech and Hearing Association in Orlando, FL.
- Earle, S. F.** (Nov 2019). Overnight Consolidation of Declarative, Procedural, & Speech-Perceptual Memory in Adults with Developmental Language Impairment. Poster presented at the 2019 convention of the American Speech and Hearing Association in Orlando, FL.
- Earle, F.S.**, Del Tufo, S.N., Evans, T.M., Lum, J., Cutting, L.E., Ullman, M.T. (July 2019) Learning to read is tied to domain-general memory systems. Presented at 26<sup>th</sup> annual meeting of the Society for the Scientific Society of Reading in Toronto, Canada
- Fritzson, E. \*\* & **Earle, S. F.** (March 2019). Language abilities may mediate relationship between habitual sleep, sleepiness and academic performance. Poster presented at the American Psychosomatic Society Annual Meeting, Vancouver, BC, Canada.

- Hannon, J.\*, **Earle, F.S.**, Seri, A., Tanoh, F., Akpe, H., Jasinska, K. (March 2019). The Impact of Declarative and Procedural Memory Systems on Late Childhood Literacy Development. 2019 biennial meeting of the Society for research in child development in Baltimore, MD.
- Riccardi, E.\*\* , Cook, C., **Earle, F.S.** (Nov 2018) Validation of a Receptive Speech-in-Noise Task. Presented at the 2018 convention of the American Speech and Hearing Association in Boston, MA.
- Fritz, J.\*\* , **Earle, F.S.** (Nov 2018) The Effects of Music Experience in Speech Sound Learning. Will be presented at the 2018 convention of the American Speech and Hearing Association in Boston, MA.
- Arpitha, V.\* , **Earle, F. S.**, Ullman, M. T., and Kuppuraj, S. (May 2018) Consolidation deficits in procedural and declarative memory systems in children with literacy learning difficulties: what predicts literacy? Presented at the seventh Implicit Learning Seminar in Cluj - Napoca, Romania
- Fritzson, E.\*\* & **Earle, F. S.** (March 2018) Quality of perceptual categories predict speeded, but not non speeded, cognitive ability. Presented at the 25th annual meeting of the Cognitive Neuroscience Society in Boston, MA.
- Earle, F.S.**, Myers, E.B., Lum, J., Ullman, M.T. (Nov 2017) Declarative and procedural memory substrates of the categorical perception of speech. Presented at the 2017 Society for the Neurobiology of Language conference in Baltimore, MD
- Earle, F.S.**, Myers, E. (Dec 2016) Neural changes accompanying overnight phonetic learning. To be presented at the 174<sup>th</sup> meeting of the Acoustical Society of America in Honolulu, HI
- Xie, X., **Earle, F.S.**, Myers, E. (Dec 2016) Overnight sleep facilitates talker generalization of accent adaptation. To be presented at the 174<sup>th</sup> meeting of the Acoustical Society of America in Honolulu, HI.
- Furmeister, P., **Earle, F.S.**, Rueckl, J., Myers, E. (2016). Visual and auditory native language interference in perceptual learning of non-native speech sounds. Presented at the 173<sup>rd</sup> meeting of the Acoustical Society of America in Boston, MA.
- Earle, F.S.** DelTufo, S., Myers, E.B. (April, 2016) Phonemic Restoration in adults with Specific Language Impairment. Presented at the April, 2016 meeting of the Cognitive Neuroscience Society in New York City, NY.
- Earle, F.S.** & Myers, E.B. (June, 2015). *Sleep duration predicts speech sound learning in typical adults, but not in individuals with language impairment.* Poster presentation at the 29th Annual meeting of the Associated Professional Sleep Societies in Seattle, WA.
- Earle, F. S.**, & Myers, E., Gumkowski, N., Landi, N. (2015, March). *Changes to neural sensitivity before and after overnight consolidation of phonetic training is absent in adults with language-based disorders.* Poster session presented at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.
- Earle, F. S.**, & Myers, E. (2014, May). *The effect of native language interferences on the acquisition of a non-native phonetic contrast.* Poster session at the Acoustical Society of America in Providence, RI.
- Eagan, E., **Earle, F. S.** & Spaulding, T. (2014, June). *Investigating the Flynn effect in children with Primary Language Impairment.* Poster session presented at the Symposium on Research in Child Language Disorders in Madison, WI.
- Earle, F. S.**, & Myers, E. (2013). The effect of sleep on learned sensitivity to a non-native phonetic contrast. *The Journal of the Acoustical Society of America*, 134(5), 4107-4107.
- Earle, F. S.** & Grela, B. (2013, June) *The use of adjectives in children with Specific Language Impairment.* Poster session presented at the Symposium on Research in Child Language Disorders, Madison, Wisconsin.
- Earle, F.S.**, Spaulding, T., Gallinat, E., Grela, B. (2013, June) *To Match or Not To Match: The Effect of Matching Children with SLI and Typical Children for Nonverbal IQ on Nonverbal IQ.* Poster session presented at the Symposium on Research in Child Language Disorders, Madison, Wisconsin.

\* research student mentored by me (not in my lab)

\*\*research trainee in my lab

\*\*\*mentored MA capstone student

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## Advising and Mentoring

### **Undergraduate researchers**

Andrea Perkins (BA, 2017)  
Erin Riccardi (BA, 2018)  
Makaela Somma (BA, 2018)  
Claudia Dukler (BA, 2019)  
Jake Zerner (BS, 2019)  
Juliana Magardino (BA, 2019)  
Haleigh Kidd (BA, 2019)  
Frank Chiaia (BA, 2019)  
Ann Marie McKuhan (BA, 2019)  
Jennifer Fritz (BA, 2019)  
Kirstyn Collins (BA, 2019)  
Wesley Dedman (BA, 2019)  
Caroline Bradley (BA, 2020)  
Molly Smith (BA, 2020)  
Hannah Martin (BS, 2020)  
Gabriella Ciotti (BA, 2020)  
Olivia Callan (BA, 2021)  
Jaimee Ratkoski (BA, 2021)  
Cheritesh Amaravadi (BA, 2021)  
Hanna Stephen (BA, 2021)  
Emily Virok (BA, 2021)  
Alma Fuentes  
McKenna Schindler  
Stephanie House  
Victoria Ochlan  
Jamie Ritondo  
Cheickna Sacko  
Alena Jusino

### **Undergraduate summer scholars**

Charlotte Robinson (2019)  
Emily Virok (2019)  
Hannah Martin (2019)  
Erin Willis (2020)  
Kevin Gyamfi (2020)  
Ariyanna Johnson (2021)  
Lauren Greenspan (2021)

### **Post-bac researchers**

Emily Fritzson  
Andrew Jones  
Katherine Richard  
Rahulkrishna Thimmugari

### **M.A. advising**

Samantha Costa (MA, 2018)  
Rebecca Connor (MA, 2018)  
Marissa Gerhart (MA, 2018)  
Kelly McGarry (MA, 2019)  
Kacey Bodden (MA, 2019)  
Caten Cordes (MA, 2020)

Veronica DeJesus (MA, 2020)  
Jacinda Arent (MA, 2021)  
Chaney Giordano (MA, 2021)  
Allie Loren (MA, 2021)  
Marina Guasta  
Ashley Dyer

#### **M.A. research/Capstone mentor**

Kristen Black (MA, 2018)  
Megan Santulli (MA, 2018)  
Samantha Mikels (MA, 2018)  
Adela Ulitsky (MA, 2018)  
Adriana Aldrich (2018)  
Andrew Parcell (MA, 2019)  
Hannah Radic (MA, 2019)  
Nicholas Chiasson (MA, 2020)  
Bridget Pettit (MA, 2020)  
Lane Williams (MA, 2020)  
Ally Duffy (MA, 2021)  
Cassidy Coppola (MA, 2021)  
Roxanne Ramirez  
Kendall Wellauer

#### **PhD advisor**

Anne van Zelst (Communication Sciences and Disorders)

#### **PhD committee member**

Martin Vivero (Communication Sciences and Disorders)  
Joelle Hannon-Cropp (Linguistics and Cognitive Science)  
Maxwell Schmidt (Linguistics and Cognitive Science)

#### **Courses Taught**

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CSCD 490 (also BISC 468, Ling 266, CGSC 366, HLTH 490): Undergraduate Research/ Independent Studies  
CSCD 613: Speech Sound Disorders I  
CSCD 780: Comprehensive Academic-Clinical Project  
CSCD 860: Grant-writing in Communication Sciences & Disorders  
CSCD 810: CSCD Advanced Seminar

#### **Professional Affiliations and Service**

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- Alternate member, University of Delaware Institutional Review Board
- Foundation grant reviewer: American Speech and Hearing Foundation, Israel Research Foundation, Language Learning, Hong Kong Polytechnic University
- Scholarship application reviewer: American Speech and Hearing Foundation
- American Speech and Hearing Association annual convention planning: Speech and Language Science topic committee member
- Guest editor: *Brain and Language* special issue: "Perceptual Flexibility for Speech: What are the Pros and Cons?"
- Editorial Board member: *Frontiers in Language Sciences*, *Journal of Speech, Language, and Hearing Research*
- Ad-hoc journal reviewer: *Acta Psychologica*, *American Journal of Speech Language Pathology*, *Brain and Language*, *Cognitive Systems Research*, *Cortex*, *Psychonomic Bulletin and Review*, *Cognitive Neuroscience*, *Annals of Dyslexia*, *Journal of the Acoustical Society of America*, *Research in Developmental Disabilities*, *Journal of Experimental Psychology: General*, *Journal of Experimental Psychology: Human Perception and Performance*, *Journal of Experimental Psychology: Learning*,

*Memory and Cognition, Journal of Phonetics, Scientific Studies of Reading, Neuroscience Letters, Sleep Disorders, PLOS One, Journal of the International Neuropsychological Society*; conference reviewer: Society for the Neurobiology of Language

- Member: American Speech and Hearing Association, Cognitive Science Society, Association for Psychological Science, Society for the Neurobiology of Language, Acoustical Society of America
- Session chair, Poster session at the Acoustical Society of America in Providence, RI, May 2014

### **Additional Training**

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- 2021 University of Delaware NSF CAREER academy
- 2021 American Speech and Hearing Foundation Grant Review & Reviewer Training program
- 2019 NIH Early Career Reviewer Program (awaiting assignment)
- 2016 Conference Fellow, “Lessons for Success: Developing the Emerging Scientist” (co-sponsored by ASHA and NIDCD)
- 2015 Summer Sleep Institute, Sleep for Science Research Laboratory, Bradley Hospital, Providence, RI
- 2014 AFNI Bootcamp by the NIH, New Haven, CT