

MATIAS FERNANDEZ-DUQUE, PH.D.

Curriculum Vitae

matiasfduque2024@u.northwestern.edu

ACADEMIC APPOINTMENTS

Postdoctoral Scholar 2025 – present
Northwestern University, Evanston, IL
Principal Investigator: Dr. Viorica Marian

EDUCATION

Ph.D. in Communication Sciences and Disorders 2019 – 2025
Northwestern University, Evanston, IL
Cognitive Science Specialization
Dissertation: “The Effects of Dual-Language Experience on Memory and Creativity”
Committee: Dr. Viorica Marian, Dr. Adriana Weisleder, Dr. Matthew Goldrick

B.A. in Cognitive Science, *magna cum laude* 2015
University of Pennsylvania, Philadelphia, PA
Honors Thesis: “Identifying the Boundaries of Fast Mapping Learning”

RESEARCH INTERESTS

Bilingualism, language co-activation, memory, creativity, conceptual associations, effects of language on higher-order cognition

PUBLICATIONS

Peer-Reviewed Journal Articles

- Fernandez-Duque, M., & Marian, V.** (under review). Phonological co-activation shapes memory for visual items. *Bilingualism: Language and Cognition*.
- Fernandez-Duque, M., & Marian, V.** (under review). Bilingualism, sleep, and creativity: Individual differences in circadian rhythms and language experience influence divergent thinking. *Creativity Research Journal*.
- Fernandez-Duque, M., & Marian, V.** (2026). Free flowing thought in bilinguals and monolinguals: How language experience and lexical properties influence word associations. *PLOS One*, 21(10), e0359889. <https://doi.org/10.1371/journal.pone.0359889>
- Fernandez-Duque, M., Chung-Fat-Yim, A., & Marian, V.** (2026). Language experience shapes creative idea generation. *The Journal of Creative Behavior*, 60(3), e70128. <https://doi.org/10.1002/jocb.70128>

Fernandez-Duque, M., Hayakawa, S., & Marian, V. (2023). Speakers of different languages remember visual scenes differently. *Science Advances*, 9(33), eadh0064. <https://doi.org/10.1126/sciadv.adh0064>

Fernandez-Duque, F., Miller, E. T., **Fernandez-Duque, M.,** Falk, J., Venable, G., Rabinowicz, S., Becker, C. D., & Hauber, M. E. (2023). Phenotype predicts interspecific dominance hierarchies in a cloud-forest hummingbird guild. *Ethology*, 130(1), e13410. <https://doi.org/10.1111/eth.13410>

Fernandez-Duque, M., Chapman, C. A., Glander, K. E., & Fernandez-Duque, E. (2018). Darting primates: Steps toward procedural and reporting standards. *International Journal of Primatology*, 39(6), 1009–1016. <https://doi.org/10.1007/s10764-017-9963-z>

Book Chapters

Fernandez-Duque, M., Standley, M., Roy, A., & Marian, V. (2025). Language-dependent memory in bilingualism. In *The Encyclopedia of Applied Linguistics* (pp. 1–8). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781405198431.wbeal20345>

Chung-Fat-Yim, A., **Fernandez-Duque, M.,** & Marian, V. (2024). Multilingualism, creativity, and problem-solving. In E. Babatsouli (Ed.), *Multilingual Acquisition and Learning: An Eco-Systemic View to Diversity* (Vol. 67, pp. 36–59). John Benjamins Publishing Company. <https://doi.org/10.1075/sibil.67.01chu>

Valdés Kroff, J. R., & **Fernández-Duque, M.** (2017). Experimentally inducing Spanish-English code-switching: A new conversation paradigm. In K. Bellamy, M. W. Child, P. González, A. Muntendam, & M. C. Parafita Couto (Eds.), *Issues in Hispanic and Lusophone Linguistics* (Vol. 13, pp. 211–231). John Benjamins Publishing Company. <https://doi.org/10.1075/ihll.13.09val>

Popular Science Essays

Chung-Fat-Yim, A., **Fernandez-Duque, M.,** & Marian, V. (2023). The surprising creative power of the multilingual brain. *Fast Company*. <https://fastcompany.com/90884912>

Manuscripts in Preparation

Fernandez-Duque, M., & Marian, V. (in preparation). Covert phonological overlap of object labels in a second language increases preference and memory for visual objects.

PRESENTATIONS

Invited Talks

Fernandez-Duque, M. (2026, April 24). *Connections in the mental lexicon: How language experience influences word associations and creative thinking*. Talk given as part of the Talks in Linguistics series at the University of Illinois, Chicago, IL.

Fernandez-Duque, M. (2026, February 23). *The effects of dual-language experience on memory and creativity*. Talk given as part of the Natural Behavior, Computation, and Developmental seminar series at The University of Texas at Austin, Austin, TX.

Conference Talks

Fernandez-Duque, M., Chen, S., & Marian, V. (2025, March 13-15). *Bilingualism and creativity: How dual-language proficiency shapes divergent thinking in the Alternate Uses Test*. Society for the Psychology of Aesthetics, Creativity, and the Arts (APA Division 10), New Haven, CT.

Fernandez-Duque, M., & Marian, V. (2024, November 21-24). *The consequences of bilingual co-activation for memory and creativity*. Psychonomic Society 65th Annual Meeting, New York City, NY.

Fernandez-Duque, M., Hayakawa, S., & Marian, V. (2023, August 9-12). *Phonological overlap facilitates episodic memory*. Society for Applied Research in Memory and Cognition, Nagoya, Japan.

Fernandez-Duque, M., Marian, V., & Hayakawa S., (2022, October 27–28). *Dual-language competition changes memory for visual items*. University of Illinois at Chicago 2022 Bilingualism Forum, Chicago, United States.

Fernandez-Duque, M., Hayakawa, S., & Marian, V. (2022, August 4-5). *The effects of dual-language phonological competition on memory*. 4th International Symposium on Bilingual L2 Processing in Adults and Children, Tromsø, Norway.

Conference Poster Presentations

Fernandez-Duque, M., & Marian, V. (2026, February 20-21). *Connections in the mental lexicon: How language experience and lexical properties influence word associations*. 25th Meeting of the Texas Linguistics Society, Austin, TX.

Fernandez-Duque, M., & Marian, V. (2025, November 20-23). *The role of language proficiency and dominance in creative idea generation*. Psychonomic Society 66th Annual Meeting, Denver, CO.

Fernandez-Duque, M., Chung-Fat-Yim, A., & Marian, V. (2025, June 9-13). *Associative thinking in bilinguals: How dual-language experience influences conceptual associations*. 15th International Symposium on Bilingualism, Donostia-San Sebastián, Spain.

Chung-Fat-Yim, A., **Fernandez-Duque, M.,** & Marian, V. (2025, June 9-13). *Language proficiency and dominance shape bilinguals' performance on the Alternate Uses Test of creativity*. 15th International Symposium on Bilingualism, Donostia-San Sebastián, Spain.

Chen, S., **Fernandez-Duque, M.,** & Marian, V. (2025, April 10-12). *Language proficiency influences divergent thinking in bilinguals*. 97th Annual Meeting of the Midwestern Psychological Association, Chicago, IL.

- Chen, S., **Fernandez-Duque, M.**, & Marian, V. (2025, March 13-15). *Assessing divergent thinking: The impact of scoring methodology on creativity ratings*. Society for the Psychology of Aesthetics, Creativity, and the Arts (APA Division 10), New Haven, CT.
- Fernandez-Duque, M.**, Chung-Fat-Yim, A., & Marian, V. (2024, November 21-24). *Dual-language experience influences divergent thinking*. Psychonomic Society 65th Annual Meeting, New York City, NY.
- Fernandez-Duque, M.**, Marian, V., & Hayakawa, S. (2023, November 16-19). *Speaking multiple languages changes memory of visual scenes*. Psychonomic Society 64th Annual Meeting, San Francisco, CA.
- Chabal, S., **Fernandez-Duque, M.**, Hayakawa, S., & Marian, V. (2020, July 29 - August 1). *Role of working memory in language activation during visual scene processing*. Cognitive Science Society 42nd Annual Virtual Meeting.
- Fernandez-Duque, M.**, Chabal, S., Hayakawa, S., & Marian, V. (2020, June 1 - September 1). *Language activation in visual processing occurs regardless of memory demands*. Association for Psychological Science Poster Showcase.
- Fernandez-Duque, M.** & Valdés Kroff, J. R. (2014, October 6). *A new conversation paradigm for the experimental study of code-switching in bilingual speech*. Penn State University Undergraduate Exhibition in Hispanic and General Linguistics.

HONORS & AWARDS

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| • Best Oral Student Presentation at the 4 th International Symposium on Bilingual L2 Processing in Adults and Children in Tromsø, Norway | 2022 |
| • Penn State Undergraduate Exhibition in Hispanic and General Linguistics (PSUxLing) Travel Award (\$500) | 2014 |

GRANTS & FELLOWSHIPS

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| • TGS Conference Travel Grant, Northwestern University (\$1,000) | 2023 |
| • TGS Conference Travel Grant, Northwestern University (\$1,100) | 2022 |
| • Cognitive Science University Fellowship (\$32,844) | 2019 |
| • Pinkel Endowment Undergraduate Research Fund (\$600) | 2015 |

TECHNICAL SKILLS

- Programming languages: R, Python
- Statistics: Power analyses, mixed-effects models (LMM, GLMM, GAMM), growth curve analysis, regression (linear, logistic, Poisson), ANOVA, bootstrapping & Monte Carlo simulations, model evaluation (AIC/BIC), Bayesian analysis
- Computational methods: Semantic network analysis, word embeddings, LLM-based scoring of open-ended responses
- Experimental design: Visual world paradigm, online eye tracking (WebGazer), experiment building (PsychoPy, Qualtrics), online data collection (Prolific, Pavlovica)

TEACHING & MENTORING

Directed Teaching Experience

Northwestern University

2024, Spring CSD 309 – Culture, Language, and Learning
 Lectures:
 “Language, Memory, and Creativity in Bilinguals”
 “Perceptual Narrowing & Accents”
 “The Future of Linguistic Diversity: Language Loss & Revitalization”

Teaching Assistant

Northwestern University

2025, Spring CSD 460 – Counseling and Effective Communication
 2025, Winter CSD 305 – Phonetics
 2024, Winter CSD 305 – Phonetics
 2024, Fall CSD 457 – Language Science
 2023, Spring CSD 309 – Culture, Language, and Learning
 2023, Fall CSD 457 – Language Science
 2022, Fall CSD 110 – Introduction to Hearing and Speech Acoustics
 2022, Fall CSD 301 – Anatomy and Physiology of the Vocal Mechanism
 2022, Winter CSD 305 – Phonetics
 2021, Fall CSD 110 – Introduction to Hearing and Speech Acoustics
 2021, Winter CSD 305 – Phonetics
 2020, Fall CSD 110 – Introduction to Hearing and Speech Acoustics

Guest Lectures

Northwestern University

2025, Fall CSD 309, “Language & Memory in Bilinguals”
 2025, Fall CSD 309, “Multilingualism, Creativity, & Problem Solving”
 2024, Spring CSD 309, “Language, Memory, & Creativity in Bilinguals”
 2024, Fall CSD 457, “Language Acquisition & Perceptual Narrowing”
 2023, Spring CSD 309, “Language and Memory in Bilinguals”
 2023, Fall CSD 457, “Language Acquisition & Perceptual Narrowing”
 2023, Fall 1st Year PhD Student Seminar, “Statistics & Programming Resources”
 2022, Fall 1st Year PhD Student Seminar, “Statistics & Programming Resources”
 2022, Fall CSD 110, “Language Acquisition & Perceptual Narrowing”
 2022, Winter CSD 207, “Bilingual Research Methods”
 2021, Fall CSD 110, “Language Acquisition & Perceptual Narrowing”
 2021, Winter CSD 207, “Bilingual Research Methods”

University of California, Davis

2024, Fall LIN 182, “The Consequences of Co-activation for Memory & Creativity”

Vanier College

2026, Spring Language, “Multilingualism, Creativity, & Problem Solving”

Mentoring

Suhuai Chen, 2022 – 2024

- *Undergraduate Researcher*, Northwestern University, Evanston, IL
Various projects: designing experimental stimuli, writing code to analyze multilingual datasets, and using large language models (LLMs) to score participant responses

Arshi Hirani, 2023 – 2024

- *High School Researcher*, Colleyville Heritage High School, Colleyville, TX
Project on bilingualism and executive functions for the 2024 Texas State Science and Engineering Fair

REVIEWER EXPERIENCE

Ad Hoc Journal Reviewer

Bilingualism: Language and Cognition, Second Language Research, International Journal of Multilingualism, The Journal of Creative Behavior, Translational Issues in Psychological Science

Conference Abstract Reviewer

International Symposium on Bilingual and L2 Processing in Adults and Children

RESEARCH & WORK EXPERIENCE

Graduate Student, Northwestern University

- Bilingualism and Psycholinguistics Research Lab 2019 – 2025
Advisor: Dr. Viorica Marian

Market Researcher, Bethesda, MD

- Senior Analyst at Collage Group 2016 – 2018

Research Assistant, University of Pennsylvania

- Thompson-Schill Laboratory 2013 – 2015
Advisors: Dr. Sharon Thompson-Schill & Dr. Jorge Valdés-Kroff
- Dahan Laboratory 2012 – 2013
Advisor: Dr. Delphine Dahan
- Linguistics Department 2012
Advisor: Dr. Gillian Sankoff

MEDIA COVERAGE

Interviews

- ViX: Noticias Univision 24/7, “[Los retos y beneficios de criar un hijo bilingüe](#)” (2024)
- Univision Chicago, “[La inteligencia artificial llegó para quedarse: ¿puede esta tecnología poner en riesgo tu empleo?](#)” (2023)

- Telemundo Descifrando La Ciencia Podcast, [Hablar varios idiomas y tu cerebro](#) (2022)

Selected Media Coverage

- *The Conversation*. [Why bilinguals have a memory advantage – new research](#). August 16, 2023.
- *Big Think*. [Being bilingual affects your visual perception and memory](#). September 4, 2023.
- *El País*. [“Un idioma es una forma de ver el mundo”: las personas que hablan distintas lenguas memorizan mejor](#). August 19, 2023.
- *Neuroscience News*. [Bilingual brain boost: How knowing two languages enhances memory and prediction](#). August 27, 2023.
- *Northwestern Now*. [Was it a tortoise, or a torte? Study finds overlapping sounds can cue memory across languages](#). August 18, 2023.
- *Sciences et Avenir*. [Le bilinguisme améliore la mémoire visuelle grâce à l’activation de "mots concurrents"](#). August 30, 2023.
- *Tagesschau*. [Fremdsprachen helfen dem Gedächtnis](#). August 29, 2023.
- *Index*. [A nyelvtudás megváltoztatja az emlékezetet](#). September 10, 2023.
- *Aktual24*. [A fi bilingv iti afecteaza perceptia vizuala si memoria](#). September 5, 2023.
- *The Jerusalem Post*. [How does bilingualism impact memory?](#). August 21, 2023.

REFERENCES

Dr. Viorica Marian
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