

BIOGRAPHICAL SKETCH

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NAME: Virginia A. Marchman

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POSITION TITLE: Research Associate (Psychology)

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of California, Los Angeles	BA	06/1980	Psychology & Linguistics
University of California, Berkeley	M.A.	06/1984	Developmental Psychology
University of California, Berkeley	Ph.D.	12/1989	Developmental Psychology
University of California, San Diego	Post-Doctoral Fellow	08/1991	Cognitive Science

A. Personal Statement

As a Developmental Psychologist, I have expertise in language and cognitive development, language disorders, bilingualism, and early childhood development. My long-time involvement in basic and applied research has provided me with the expertise needed to successfully participate in this project exploring the social-environmental and neurobiological precursors to language processing efficiency. I have served on the faculty at the University of Wisconsin, Madison and the University of Texas at Dallas, and was named Distinguished Scholar at the Callier Center for Communication Disorders. I have served on the consulting editorial boards of major journals, including *Journal of Speech, Language & Hearing Research*, *Developmental Psychology*, and *Child Development*. I am currently a member of the MacArthur-Bates Communicative Development Inventories (CDI) Advisory Board. My work has explored the causes and consequences of individual differences in language processing efficiency using the looking-while-listening (LWL) task in monolingual English, Spanish, and bilingual English-Spanish learners, and children at risk for language delays, including late talkers and children born preterm. Our studies also explore the impact of variability in positive home environments on child outcomes in at-risk populations. Our ongoing NIH grant investigates the role of caregiver input in shaping language processing efficiency in Spanish-English bilinguals, following children longitudinally from infancy through school age. Our results will provide new insights into how early language processing efficiency supports later learning in both L1 (Spanish) and L2 (English). I have extensive experience working with the LENA™ recording and analysis technology and have expertise in computational modeling and advanced statistical techniques, including multi-level modeling, mediation, and hierarchical linear modeling/growth curve analyses.

Selected publications that specifically highlight my qualifications and expertise for this project are:

1. **Marchman, V. A.**, Ashland, M. Loi, E., Adams, K., Fernald, A. & Feldman, H. (2019). Predictors of early vocabulary growth in children born preterm and full term: A study of processing speed and medical complications. *Child Neuropsychology*, *25*(7), 943-963. PMID:3071447
2. **Marchman, V. A.**, Loi, E., Adams, K., Ashland, M., Fernald, A. & Feldman, H. M. (2018). Speed of language comprehension at 18 months old predicts school-relevant outcomes at 54 months old in children born preterm, *Journal of Developmental Behavioral Pediatrics*, *39*(3), 246-253. PMID: 29309294
3. Adams, K. A., **Marchman, V. A.**, Ashland, M., Loi, E. C., Fernald, A. & Feldman, H. F. (2018). Caregiver talk and medical risk as predictors of language outcomes in full term and preterm toddlers, *Child Development*, *89*(5), 1674-1690. PMID: 28452393
4. **Marchman, V. A.**, Martínez, L. Z., Hurtado, N., Grüter, T. & Fernald, A. (2016). Caregiver talk to young Spanish-English bilinguals: Comparing direct observation and parent-report measures of dual-language exposure. *Developmental Science*, *20*(1), e12425, PMID: 29797746

B. Positions and Honors

1983-1986	Research Associate, Far West Laboratory for Educational Research. San Francisco, CA.
1982-1984	National Institute of Mental Health (NIMH) Developmental Training Grant award, UC Berkeley.
1985	Chancellor's Patent Fund Award, UC Berkeley.
1986-1990	Staff Research Associate II, Center for the Study of the Neurological Basis of Language, University of California, San Diego.
1990-1991	Postdoctoral Research Fellow, McDonnell-Pew Foundation for Cognitive Neuroscience, Center for Research in Language, University of California, San Diego.
1991-1996	Assistant Professor, Department of Psychology, University of Wisconsin, Madison.
1995-2001	Consulting Editorial Board, <i>Journal of Speech, Language & Hearing Research</i>
1996-1998	Consulting Editorial Board, <i>Developmental Psychology</i>
1996-2004	Associate Professor, School of Behavioral & Brain Sciences, The University of Texas at Dallas
1999-2002	Callier Scholar, Callier Center for Communication Disorders, The University of Texas at Dallas
2000-present	Board Member, MacArthur-Bates Communicative Development Inventory (CDI) Advisory Board
2004-present	Adjunct Associate Professor, School of Behavioral and Brain Sciences, UT Dallas
2004-present	Research Associate, Department of Psychology, Stanford University
2011-present	Consulting Editorial Board, <i>Child Development</i>
2015-present	Consultant, BABY Faces (2017), Mathematic Policy Research.
2016-present	Research Associate, Department of Pediatrics, Stanford University

C. Contributions to Science

1. Examining variability in language outcomes in diverse populations of monolingual and bilingual English- and Spanish-learning children

A significant focus of our work has been early individual differences in language development in samples of children that are much more diverse in SES than in many previous studies. By expanding the socioeconomic representation of the populations of children included in our projects, we can study early language development in samples that extend beyond the “convenience sample” of children who typically participate in psychological studies. Our studies include children from both English- and Spanish-speaking populations, as well as children from both language communities who represent a range of socioeconomic backgrounds. These studies reveal important crosslinguistic parallels in the development of vocabulary and information processing skills that support language outcomes in both English- and Spanish-learning children. However, such studies also reveal that there are significant differences in outcomes in children from lower-SES backgrounds, compared to their more-advantaged peers.

- Marchman, V. A.**, Bermudez, V. N., Bang, J. Y., & Fernald, A. (in review). Off to a good start: Early Spanish-language processing efficiency supports Spanish- and English-language outcomes at 4 ½ years in sequential bilinguals. *Developmental Science*.
- Fernald, A., **Marchman, V. A.** & Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science*, 16, 234-248. PMID: 23432833
- Marchman, V. A.**, Fernald, A. & Hurtado, N. (2010). How vocabulary size in two languages relates to efficiency in spoken word recognition by young Spanish–English bilinguals, *Journal of Child Language*, 37, 817-840. PMID: 19726000.
- Hurtado, N., **Marchman, V. A.** & Fernald, A. (2007). Spoken word recognition by Latino children learning Spanish as their first language. *Journal of Child Language*, 34, 227-249. PMID: 17542157.

2. Individual differences in lexical processing efficiency in full term and preterm children

Throughout my career, I have examined the causes and consequences of individual differences in early lexical development in diverse populations of children. Our most recent studies have shown that children’s early skill and comprehending language in real-time may be a marker of information processing skills that form the foundation for language and cognitive development. Our studies apply an experimental measure of online language comprehension which reveals critical individual differences in oral language processing that link to academic and life-relevant outcomes, including IQ, working memory, and executive function.

- a. **Marchman, V. A.**, Ashland, M., Loi, E., Adams, K., Fernald, A. & Feldman, H. (2019). Predictors of early vocabulary growth in children born preterm and full term: A study of processing speed and medical complications. Child Neuropsychology, *25*(7), 943-963. PMID:30714476.
- b. **Marchman, V. A.**, Loi, E., Adams, K., Ashland, M., Fernald, A. & Feldman, H. M. (2018). Speed of language comprehension at 18 months old predicts school-relevant outcomes at 54 months old in children born preterm, Journal of Developmental Behavioral Pediatrics, *39*(3), 246-253, PMID: 29309294.
- c. **Marchman, V. A.**, Adams, K. A., Loi, E. C., Fernald, A. & Feldman, H. M. (2015). Early language processing efficiency predicts later receptive vocabulary in children born preterm. Child Neuropsychology *22*(6), 649-665. PMID: 26031342.
- d. Fernald, A. & **Marchman, V. A.** (2012). Individual differences in lexical processing at 18 months predict vocabulary growth in late-talking and typically-developing toddlers. Child Development, *83*, 203–222. PMID: 22172209

3. Quantity and quality of caregiver speech as a predictor of language outcomes in monolingual and bilingual children

While some individual differences are the result of endogenous factors, such as hearing loss, there are considerable individual differences in early language outcomes that have been linked to environmental factors, such as, variability in the quantity and quality of speech that children hear. Thus, a recent focus in our studies with diverse populations of English- and Spanish-learning children has been the impact of variability in positive home environments on child outcomes. We have examined features of speech to children using standard laboratory-based play session techniques, as well as the new LENA technology that enables day-long (up to 16-hour) naturalistic recordings in the home. These ongoing studies provide additional evidence that the frequency and nature of the interactions that children experience with caregivers has substantial influences on children's language learning. Such evidence will inform early childhood educational or intervention programs that seek to "close the gap" in outcomes in children from lower-SES or at-risk populations.

- a. Adams, K. A., **Marchman, V. A.**, Ashland, M., Loi, E. C., Fernald, A. & Feldman, H. F. (2018). Caregiver talk and medical risk as predictors of language outcomes in full term and preterm toddlers, Child Development, *89*(5), 1674-1690. PMID: 28452393
- b. Loi, E. C., Clemson, K. A., Ashland, M. D., **Marchman, V. A.**, Fernald, A. & Feldman, H. F. (2017). Quality of caregiver-child play interactions with toddlers born preterm and full term: Antecedents and language outcome. Early Human Development, *115*, 110-117, PMID: 29111418.
- c. **Marchman, V. A.**, Martínez, L. Z., Hurtado, N., Grüter, T. & Fernald, A. (2016). Caregiver talk to young Spanish-English bilinguals: Comparing direct observation and parent-report measures of dual-language exposure. Developmental Science, *20*(1), e12425, PMID: 29797746.
- d. Hurtado, N., **Marchman, V. A.**, & Fernald, A. (2008). Does input influence uptake? Links between maternal talk, processing speed and vocabulary size in Spanish-learning children. Developmental Science, *11*, F31-F39. PMID: 19046145.

4. Language development in children from clinical populations.

Another significant contribution has been to examine the sources of individual differences in language outcomes in children with known language deficits or disorders that place them at increased risk for delays, such as children with brain injury, hearing loss, or prematurity. These studies inform our understanding of the information processing skills that serve as the foundation for all children's language and cognitive development and outline those skills that may be vulnerable in children with risk for delays.

- a. Borchers, L. R., Bruckert, L., Travis, K. E., Dodson, C. K., Loe, I., **Marchman, V. A.**, & Feldman, H. M. (2019). Predicting text reading skills at age 8 years in children born preterm and full term. Early Human Development, *130*, 80-86. PMID: 30708270.
- b. Gresch, L. D., **Marchman, V. A.**, Loi, E. C., Fernald, A. & Feldman, H. M. (2018). Nonword repetition and language outcomes in young children born preterm. Journal of Speech, Language & Hearing Research, *61*(5), 1426-1439. PMID: 2980035.
- c. MacDonald, K., LaMarr, T., **Marchman, V. A.**, Corina, D. & Fernald, A. (2018). Real-time lexical processing by children learning American Sign Language. Developmental Science, *21*(6), e12672, PMID: 29659103.

- d. Loi, E. C., **Marchman, V. A.**, Fernald, A. & Feldman, H. M. (2017). Using eye-movements to assess language development in toddlers born preterm and term. Journal of Pediatrics, 180, 124-129. PMID: 27816220.

5. Early child language assessment using parent report

My contributions have also been in the development and application of early childhood assessments. I am a primary author and Advisory Board member of the MacArthur-Bates Communicative Development Inventories (CDI), a suite of parent report instruments that provide low-cost, valid estimates of children's vocabulary comprehension and production. These instruments are widely used in many large- and small-scale studies and have been adapted in more than 90 languages. I have been a primary contributor to the norming of the forms in English and Spanish, the development of several short form versions in both languages, and am the author of the CDI Scoring program (<http://mb-cdi.stanford.edu/scoringprog.htm>). I have also been instrumental in establishing protocols for adapting these instruments for use with bilingual children learning English and Spanish at the same time. Our latest efforts have been to modify the instruments so that they can be administered via a web-based platform (<http://webcdi.stanford.edu>). Web-based versions of the forms will allow researchers to reach a broader cross-section of families which will potentially increase representation of norming samples.

- a. Frank, M. C., Braginsky, M., Yurovsky, D., & **Marchman, V. A.** (2016). Wordbank: An open repository for developmental vocabulary data. Journal of Child Language, 44(3), 677-694. PMID: 27189114
- b. Weber, A. M., **Marchman, V. A.**, Diop, Y. & Fernald, A. (2018). Validity of parent report measures of language skill for Wolof-learning infants and toddlers living in rural African villages. Journal of Child Language, 45(4), 939-958. PMID: 29519264.
- c. Fenson, L., **Marchman, V. A.**, Thal, D., Dale, P., Reznick, J. S. & Bates, E. (2007). MacArthur-Bates Communicative Development Inventories: User's Guide and Technical Manual. 2nd Edition. Baltimore, MD: Brookes Publishing Co.
- d. Jackson-Maldonado, D., Thal, D. J., **Marchman, V. A.**, Newton, T., Fenson, L. & Conboy, B. (2003). MacArthur Inventario del Desarrollo de Habilidades Comunicativas: User's Guide and Technical Manual. Baltimore, MD: Brookes Publishing Co.

Complete list of publications in: <https://www.ncbi.nlm.nih.gov/myncbi/16GBdtQMAh5z/bibliography/public/>

D. Research Support

R01 HD HD092343 Fernald (PI)

7/1/17-6/30/22

Early language processing skill and school-relevant outcomes in emerging Spanish-English bilingual students

An increasing number of low-SES Latino children are emerging bilinguals at high risk for poor academic outcomes. This project explores the precursors and long-term consequences of developing strong language processing skills in Spanish, asking whether early learning environments that shape processing skills in Spanish will in turn support later English language growth and skills in school. The results of these studies will inform early education policies and practices that seek to support learning more effectively in this at-risk population.

Role: Research Associate

National Science Foundation, Frank (PI)

9/1/15-8/30/18

Wordbank: An Open Repository for Developmental Vocabulary Data

This project develops the web-based infrastructure for researchers to contribute parent report data in many different languages to enable large-scale crosslinguistic analyses of children's lexical development.

Role: Research Associate