

Patricia K. Kuhl

Co-Director, Institute for Learning and Brain Sciences

Director, NSF Science of Learning Center (LIFE)

The Bezos Family Foundation Endowed Chair for Early Childhood Learning



BASIC DATA

Academic Rank: Professor, Department of Speech and Hearing Sciences
Date of Birth: November 5, 1946
Married: Andrew N. Meltzoff

EDUCATIONAL BACKGROUND

<u>Institution</u>	<u>Degree</u>	<u>Dates</u>
St. Cloud State University	B.A. (Psychology)	1964-1967
University of Minnesota	M.A. (Speech Science)	1968-1971
University of Minnesota	Ph.D. (Speech; Psychology)	1971-1973

EMPLOYMENT RECORD

<u>Institution</u>	<u>Position</u>	<u>Dates</u>
Central Institute for the Deaf	Post-doctoral Fellow	1973-1976
University of Washington	Assistant Professor	1977-1979
University of Washington	Associate Professor	1979-1982
University of Washington	Professor (Speech and Hearing)	1982-present
University of Washington	Adjunct Professor (Psychology)	1985-present
University of Washington	Adjunct Professor (Otolaryngology)	1987-present
University of Washington	Adjunct Professor (Neuroscience)	1994-present
University of Washington	Adjunct Professor (Linguistics)	1998-present
University of Washington	Adjunct Professor (Education)	2004-present

MAJOR PROFESSIONAL OFFICES AND SERVICE

Executive Council: Acoustical Society of America, 1982-1986

Associate Editor: *Journal of the Acoustical Society of America* (1988-1992), *Journal of Neuroscience* (1989-1995), *Developmental Science* (2000-2012)

Member, University of Washington College of Arts and Science Council: 1982-1986

Member, Speech Communication Technical Committee: Acoustical Society, 1989-1992

Chair, Medals and Awards Committee: Acoustical Society of America, 1993-1995

Human Frontiers Scientific Review Committee: 1994-1999

Department Chair, Speech and Hearing Sciences, University of Washington: 1995-1999

Neuroscience Affiliate: G. Edelman's Neuroscience Research Group, La Jolla, CA, 1994-2000

Board of Directors: American Institute of Physics, 1994-1996

Board of Directors (Governor Appointed): Washington Technology Center, 1994-1997

White House Speaker, President and Mrs. Clinton's Summit on Early Learning, 1997

Co-Chair ASA/ICA, Joint International Meeting of the Acoustical Society and International Congress on Acoustics, 1998

Board of Trustees: Neurosciences Research Foundation, Inc., 1994-1999

Vice-President Elect: Acoustical Society of America, 1995-1996

Vice President: Acoustical Society of America, 1996-1997

President-Elect: Acoustical Society of America, 1998-1999

President: Acoustical Society of America, 1999-2000

White House Speaker: First Lady Laura Bush's Summit on Learning to Read, 2001

Co-Director Sante Fe Research Consortium: 2003-2005

Co-Chair (with Leo Beranik) ASA 75th Anniversary Celebration: 2004

Co-Director, University of Washington Institute for Learning & Brain Sciences: 2004-present

Member, Publication Policy Committee: 2004-2005

Member, Investment Committee: Acoustical Society of America, 2004-2006

Co-Director, NSF Science of Learning Center (LIFE Center): 2004-2005

International Advisory Board: Nippon Telegraph and Telephone, 2004-2008

American Association for the Advancement of Science Committee: Section Z, Linguistics, 2005

Director, NSF Science of Learning Center (LIFE Center): 2005-2017

Chair, AAAS Nominating Committee: Section J, Psychology, 2006

Member, National Academy of Science Troland Award Committee, 2011-2012

Chair, National Academy of Science Troland Award Committee: 2012-2013

NAS Head, Membership of Section 52 (Psychological & Cognitive Science): 2014-2016

White House Speaker, President Obama's Summit on Early Learning, 2014

NSF Alan T Waterman Award Committee: 2015-2017

Bezos Family Foundation Scientific Advisory Board: 2015-present

AAAS Psychology (Section J) Steering Committee: 2016-2019

NAS Chair of Section 52 (Psychological & Cognitive Science): 2016-2019

HONORS AND AWARDS

- Fellow:** Acoustical Society of America, 1982
- Fellow:** American Psychological Society, 1988
- Fellow:** American Association for the Advancement of Science, 1999
- Fellow:** Cognitive Science Society, 2013
- Research Award:** Virginia Merrill Bloedel Scholar, University of Washington, 1992-1994
- Silver Medal:** Acoustical Society of America, 1997
- Endowed Professorship:** William P. and Ruth Gerberding University Professor, 1997- 2005
- American Academy of Arts and Sciences:** Elected 1997
- Faculty Lectureship Award:** University of Washington, 1998
- Rodin Academy:** Elected 2000
- Norwegian Academy of Science and Letters:** Elected 2003
- Research Award: Kenneth Craik Award:** University of Cambridge, Cambridge, England, 2005
- Alumni Outstanding Achievement Award:** University of Minnesota, April 2007
- Gold Medal:** Acoustical Society of America, Paris, France, July 2008
- Endowed Chair for Early Childhood Learning:** Bezos Family Foundation, 2009-
- National Academy of Sciences:** Elected 2010
- TED.com presentation:** 2011, http://www.ted.com/talks/patricia_kuhl_the_linguistic_genius_of_babies.html
- Education Nation:** 2011, <http://ilabs.washington.edu/i-labs-news-education-nation-2011>
- IPSEN Fondation’s Jean-Louis Signoret Neuropsychology Prize:** Paris, Nov 29, 2011
- William James Lifetime Achievement Award, Assoc. for Psychological Science,** 2013
- Honoris Causa Doctor, Stockholm University, Presented in the Nobel Hall,** 2014
- George A. Miller Prize in Cognitive Neuroscience,** 2015
- Seattle Hall of Fame: 125 Most Influential People in 50yr History, Patricia Kuhl,** 2016

CURRENT RESEARCH GRANTS

- P. K. Kuhl, Principal Investigator and Director of the LIFE Center**
NSF Science of Learning Center Grant
 “Center for LIFE (Learning in Informal and Formal Environments),” 2004-2017
- P. K. Kuhl, Principal Investigator, Bezos Family Foundation**
BFF Challenge Grant
 Support for the Ready Mind Project, 2014-2019
- P. K. Kuhl, Principal Investigator, Simms-Mann Foundation**
 Integrity Measures for the Infant Brain, 2015-2018
- P. K. Kuhl, Principal Investigator, Overdeck Family Foundation**
 Language Intervention Parent Support Project, 2016-2019
- P. K. Kuhl, Principal Investigator, Paros Family Foundation**
 Mechanisms Underlying Autism, 2016-2019

PUBLICATIONS

- Martin, R. R., Haroldson, S. K. & **Kuhl, P.** (1972). Disfluencies of young children in two speaking situations. *Journal of Speech and Hearing Research*, *15*, 831-836.
- Martin, R. R., **Kuhl, P.** & Haroldson, S. (1972). An experimental treatment with two preschool stuttering children. *Journal of Speech and Hearing Research*, *15*, 743-752.
- Speaks, C., Parker, B., Harris, C. & **Kuhl, P.** (1972). Intelligibility of connected discourse. *Journal of Speech and Hearing Research*, *15*, 590-602.
- Ingham, R. J., Martin, R. R. & **Kuhl, P.** (1974). Modification and control of rate of speaking by stutterers. *Journal of Speech and Hearing Research*, *17*, 489-496.
- Kuhl, P. K.** & Miller, J. D. (1975). Speech perception by the chinchilla: Voiced-voiceless distinction in alveolar plosive consonants. *Science*, *190*, 69-72.
- Kuhl, P. K.** (1976). Speech perception in early infancy: The acquisition of speech-sound categories. In S. K. Hirsh, D. H. Eldredge, I. J. Hirsh & S. R. Silverman (Eds.), *Hearing and Davis: Essays Honoring Hallowell Davis* (pp. 265-280). St. Louis: Washington University Press.
- Kuhl, P. K.** (1978). Predispositions for the perception of speech-sound categories: A species-specific phenomenon? In F. D. Minifie & L. L. Lloyd (Eds.), *Communicative and Cognitive Abilities — Early Behavioral Assessment* (pp. 229-255). Baltimore: University Park Press.
- Kuhl, P. K.** & Miller, J. D. (1978). Speech perception by the chinchilla: Identification functions for synthetic VOT stimuli. *Journal of the Acoustical Society of America*, *63*, 905-917.
- Sparks, D. W., **Kuhl, P. K.**, Edmonds, A. E. & Gray, G. P. (1978). Investigating the MESA (Multipoint Electrotactile Speech Aid): The transmission of segmental features of speech. *Journal of the Acoustical Society of America*, *63*, 246-257.
- Kuhl, P. K.** (1979). Models and mechanisms in speech perception: Species comparisons provide further contributions. *Brain, Behavior and Evolution*, *16*, 374-408.
- Kuhl, P. K.** (1979). The perception of speech in early infancy. In N. J. Lass (Ed.), *Speech and Language: Advances In Basic Research and Practice* (pp. 1-47). San Francisco: Academic Press.
- Kuhl, P. K.** (1979). Predispositions for the perception of speech by human infants. In *Proceedings of the Ninth International Congress of Phonetic Sciences, Copenhagen, 1979* (pp. 162-168). Copenhagen: Institute of Phonetics.
- Sparks, D. W., Ardell, L. A., Bourgeois, M., Wiedmer, B. & **Kuhl, P. K.** (1979). Investigating the MESA (Multipoint Electrotactile Speech Aid): The transmission of connected discourse. *Journal of the Acoustical Society of America*, *65*, 810-815.

- Kuhl, P.K.** (1979) Speech perception in early infancy: Perceptual constancy for spectrally dissimilar vowel categories. *Journal of the Acoustical Society of America*, 66, 1668-1679.
- Kuhl, P. K.** (1980). Infant speech perception: Reviewing data on auditory category formation. In P. Levinson & C. Sloan (Eds.), *Auditory Processing and Language: Clinical and Research Perspectives* (pp. 35-59). New York: Grune & Stratton.
- Kuhl, P. K.** (1980). Perceptual constancy for speech-sound categories in early infancy. In G. H. Yeni-Komshian, J. F. Kavanagh & C. A. Ferguson (Eds.), *Child Phonology: Vol. 2. Perception* (pp. 41-66). New York: Academic Press.
- Kuhl, P. K.** (1981). Auditory category formation and developmental speech perception. In R. E. Stark (Ed.), *Language behavior in infancy and early childhood* (pp. 165-183). New York: Elsevier/North-Holland.
- Kuhl, P. K.** (1981). Discrimination of speech by nonhuman animals: Basic auditory sensitivities conducive to the perception of speech-sound categories. *Journal of the Acoustical Society of America*, 70, 340-349.
- Kuhl, P. K.** (1982). Speech perception: An overview of current issues. In N. J. Lass, L. V. McReynolds, J. L. Northern & D. E. Yoder (Eds.), *Speech, Language, and Hearing: Vol. 1. Normal Processes* (pp. 286-322). Philadelphia: Saunders.
- Kuhl, P. K.** & Meltzoff, A. N. (1982). The bimodal perception of speech in infancy. *Science*, 218, 1138-1141.
- Kuhl, P. K.** & Miller, J. D. (1982). Discrimination of auditory target dimensions in the presence or absence of variation in a second dimension by infants. *Perception & Psychophysics*, 31, 279-292.
- Kuhl, P. K.** & Padden, D. M. (1982). Enhanced discriminability at the phonetic boundaries for the voicing feature in macaques. *Perception & Psychophysics*, 32, 542-550.
- Kuhl, P. K.** (1983). Perception of auditory equivalence classes for speech in early infancy. *Infant Behavior & Development*, 6, 263-285.
- Kuhl, P. K.** (1983). The perception of speech in early infancy: Four phenomena. In S. E. Gerber & G. T. Mencher (Eds.), *The Development of Auditory Behavior* (pp. 187-218). New York: Grune & Stratton.
- Kuhl, P. K.** & Padden, D. M. (1983). Enhanced discriminability at the phonetic boundaries for the place feature in macaques. *Journal of the Acoustical Society of America*, 73, 1003-1010.
- Kuhl, P. K.** & Meltzoff, A. N. (1984). The intermodal representation of speech in infants. *Infant Behavior & Development*, 7, 361-381.

- Grant, K. W., Ardell, L. H., **Kuhl, P. K.** & Sparks, D. W. (1985). The contribution of fundamental frequency, amplitude envelope, and voicing duration cues to speechreading in normal-hearing subjects. *Journal of the Acoustical Society of America*, *77*, 671-677.
- Kuhl, P. K.** (1985). Categorization of speech by infants. In J. Mehler & R. Fox (Eds.), *Neonate Cognition: Beyond the Blooming Buzzing Confusion* (pp. 231-262). Hillsdale, NJ: Erlbaum.
- Kuhl, P. K.** (1985). Methods in the study of infant speech perception. In G. Gottlieb & N. Krasnegor (Eds.), *Measurement of Audition and Vision in the First Year of Postnatal Life: A Methodological Overview* (pp. 223-251). Norwood, NJ: Ablex.
- Grant, K. W., Ardell, L. H., **Kuhl, P. K.** & Sparks, D. W. (1986). The transmission of prosodic information via an electrotactile speechreading aid. *Ear and Hearing*, *7*, 328-335.
- Kuhl, P. K.** (1986). Infants' perception of speech: Constraints on characterizations of the initial state. In B. Lindblom & R. Zetterström (Eds.), *Precursors of Early Speech* (pp. 219-244). New York: Stockton Press.
- Kuhl, P. K.** (1986). Reflections on infants' perception and representation of speech. In J. S. Perkell & D. H. Klatt (Eds.), *Invariance and Variability in Speech Processes* (pp. 19-30). Hillsdale, NJ: Erlbaum.
- Kuhl, P. K.** (1986). Theoretical contributions of tests on animals to the special-mechanisms debate in speech. *Experimental Biology*, *45*, 233-265.
- Fernald, A. & **Kuhl, P.** (1987). Acoustic determinants of infant preference for Motherese speech. *Infant Behavior and Development*, *10*, 279-293.
- Kuhl, P. K.** (1987). Perception of speech and sound in early infancy. In P. Salapatek & L. Cohen (Eds.), *Handbook of Infant Perception: Vol 2. From Perception to Cognition* (pp. 275-382). New York: Academic Press.
- Kuhl, P. K.** (1987). The special-mechanisms debate in speech research: Categorization tests on animals and infants. In S. Harnad (Ed.), *Categorical Perception: The Groundwork of Cognition* (pp. 355-386). New York: Cambridge University Press.
- Grieser, D. L. & **Kuhl, P. K.** (1988). Maternal speech to infants in a tonal language: Support for universal prosodic features in motherese. *Developmental Psychology*, *24*, 14-20.
- Kuhl, P. K.** (1988). Auditory perception and the evolution of speech. *Human Evolution*, *3*, 19-43.
- Kuhl, P. K.** (1988). On handedness in primates and human infants. *Behavioral and Brain Sciences*, *11*, 727-729.
- Kuhl, P. K.** & Meltzoff, A. N. (1988). Speech as an intermodal object of perception. In A. Yonas (Ed.), *Perceptual Development in Infancy: The Minnesota Symposia on Child Psychology* (Vol. 20, pp. 235-266). Hillsdale, NJ: Erlbaum.

- Green, K. P. & **Kuhl, P. K.** (1989). The role of visual information in the processing of place and manner features in speech perception. *Perception & Psychophysics*, *45*, 34-42.
- Grieser, D. & **Kuhl, P. K.** (1989). Categorization of speech by infants: Support for speech-sound prototypes. *Developmental Psychology*, *25*, 577-588.
- Kuhl, P. K.** (1989). Infants' acquisition of speech: Evidence of an early understanding of auditory-articulatory correspondences. In J. Erber, R. Menzel, H. Pfluger & D. Todt (Eds.), *Neural Mechanisms of Behavior* (pp. 153-154). Stuttgart: Georg Thieme Verlag.
- Kuhl, P. K.** (1989). On babies, birds, modules, and mechanisms: A comparative approach to the acquisition of vocal communication. In R. J. Dooling & S. H. Hulse (Eds.), *The Comparative Psychology of Audition: Perceiving Complex Sounds* (pp. 379-419). Hillsdale, NJ: Erlbaum.
- Meltzoff, A. N. & **Kuhl, P. K.** (1989). Infants' perception of faces and speech sounds: challenges to developmental theory. In P. R. Zelazo & R. G. Barr (Eds.), *Challenges to Developmental Paradigms: Implications for Theory, Assessment and Treatment* (pp. 67-91). Hillsdale, NJ: Erlbaum.
- Kuhl, P. K.** (1990). Auditory perception and the ontogeny and phylogeny of human speech. *Seminars in Speech and Language*, *11*, 77-91.
- Kuhl, P. K.** (1990). Towards a new theory of the development of speech perception. In H. Fujisaki (Ed.), *Proceedings of the International Conference on Spoken Language Processing* (pp. 745-748). Tokyo: The Acoustical Society of Japan.
- Green, K. P. & **Kuhl, P. K.** (1991). Integral processing of visual place and auditory voicing information during phonetic perception. *Journal of Experimental Psychology: Human Perception and Performance*, *17*, 278-288.
- Green, K. P., **Kuhl, P. K.**, Meltzoff, A. N. & Stevens, E. B. (1991). Integrating speech information across talkers, gender, and sensory modality: Female faces and male voices in the McGurk effect. *Perception & Psychophysics*, *50*, 524-536.
- Kuhl, P. K.** (1991). Human adults and human infants show a "perceptual magnet effect" for the prototypes of speech categories, monkeys do not. *Perception & Psychophysics*, *50*, 93-107.
- Kuhl, P. K.** (1991). Perception, cognition, and the ontogenetic and phylogenetic emergence of human speech. In S. E. Brauth, W. S. Hall & R. J. Dooling (Eds.), *Plasticity of Development* (pp. 73-106). Cambridge, MA: MIT Press.
- Kuhl, P. K.** (1991). [Review of Modularity and the motor theory of speech perception: Proceedings of a conference to honor Alvin M. Liberman, I. G. Mattingly & M. Studdert-Kennedy, (Eds.)]. *Language and Speech*, *34*, 367-373.
- Kuhl, P. K.**, Williams, K. A. & Meltzoff, A. N. (1991). Cross-modal speech perception in adults and infants. *J. Experimental Psychology: Human Perception and Performance*, *17*, 829-840.

- Meltzoff, A. N., **Kuhl, P. K.** & Moore, M. K. (1991). Perception, representation, and the control of action in newborns and young infants: toward a new synthesis. In M. J. S. Weiss & P. R. Zelazo (Eds.), *Newborn Attention: Biological Constraints and the Influence of Experience* (pp. 377-411). Norwood, NJ: Ablex.
- Davis, K. & **Kuhl, P. K.** (1992). Best exemplars of English velar stops: A first report. In J. J. Ohala, T. M. Nearey, B. L. Derwing, M. M. Hodge & G. E. Wiebe (Eds.), *Proceedings of the International Conference on Spoken Language Processing* (pp. 495-498). Edmonton, Alberta: University of Alberta.
- Kuhl, P. K.** (1992). Infants' perception and representation of speech: Development of a new theory. In J. J. Ohala, T. M. Nearey, B. L. Derwing, M. M. Hodge & G. E. Wiebe (Eds.), *Proceedings of the International Conference on Spoken Language Processing* (pp. 449-456). Edmonton, Alberta: University of Alberta.
- Kuhl, P. K.** (1992). Psychoacoustics and speech perception: Internal standards, perceptual anchors, and prototypes. In L. A. Werner & E. W. Rubel (Eds.), *Developmental Psychoacoustics* (pp. 293-332). Washington, DC: American Psychological Association.
- Kuhl, P. K.** (1992). Speech prototypes: Studies on the nature, function, ontogeny and phylogeny of the "centers" of speech categories. In Y. Tohkura, E. Vatikiotis-Bateson & Y. Sagisaka (Eds.), *Speech Perception, Production and Linguistic structure* (pp. 239-264). Tokyo: Ohmsha.
- Kuhl, P. K.**, Williams, K. A., Lacerda, F., Stevens, K. N. & Lindblom, B. (1992). Linguistic experience alters phonetic perception in infants by 6 months of age. *Science*, 255, 606-608.
- Marean, G. C., Werner, L. A. & **Kuhl, P. K.** (1992). Vowel categorization by very young infants. *Developmental Psychology*, 28, 396-405.
- Goodsitt, J. V., Morgan, J. L. & **Kuhl, P. K.** (1993). Perceptual strategies in prelingual speech segmentation. *Journal of Child Language*, 20, 229-252.
- Kuhl, P. K.** (1993). Developmental speech perception: Implications for models of language impairment. In P. Tallal, A. M. Galaburda, R. R. Llinás & C. von Euler (Eds.), *Temporal Information Processing in the Nervous System. Annals of the New York Academy of Sciences* (Vol. 682, pp. 248-263). New York: The New York Academy of Sciences.
- Kuhl, P. K.** (1993). Early linguistic experience and phonetic perception: Implications for theories of developmental speech perception. *Journal of Phonetics*, 21, 125-139.
- Kuhl, P. K.** (1993). Infant speech perception: A window on psycholinguistic development. *International Journal of Psycholinguistics*, 9, 33-56.
- Kuhl, P. K.** (1993). Innate predispositions and the effects of experience: The native language magnet theory. In B. de Boysson-Bardies, S. de Schonen, P. Jusczyk, P. McNeilage & J. Morton (Eds.), *Developmental Neurocognition: Speech and Face Processing in the First Year of Life* (pp. 259-274). Dordrecht, Netherlands: Kluwer Academic Publishers.

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- Kuhl, P. K.** (1994). Forming the brain's perceptual maps: Effects of language experience on speech perception. In *Brain and Communication: 1994 Yakult International Symposium* (pp. 1-22). Japan: Yakult Honsha Co.
- Kuhl, P. K.** (1994). Learning and representation in speech and language. *Current Opinion in Neurobiology*, *4*, 812-822.
- Kuhl, P. K.** (1994). Speech perception. In F. D. Minifie (Ed.), *Introduction to Communication Sciences and Disorders* (pp. 77-148). San Diego: Singular.
- Kuhl, P. K.**, Tsuzaki, M., Tohkura, Y. & Meltzoff, A. N. (1994). Human processing of auditory-visual information in speech perception: Potential for multimodal human-machine interfaces. In *Proceedings of the International Conference on Spoken Language Processing* (pp. 539-542). Tokyo: Acoustical Society of Japan.
- Meltzoff, A. N. & **Kuhl, P. K.** (1994). Faces and speech: Intermodal processing of biologically relevant signals. In D. J. Lewkowicz & R. Lickliter (Eds.), *The Development of Intersensory Perception: Comparative Perspectives* (pp. 335-369). Hillsdale, NJ: Erlbaum.
- Iverson, P. & **Kuhl, P. K.** (1995). Mapping the perceptual magnet effect for speech using signal detection theory and multidimensional scaling. *Journal of the Acoustical Society of America*, *97*, 553-562.
- Kuhl, P. K.** (1995). The acquisition of language and speech. In G. Bloothoof, V. Hazan, D. Huber, & J. Llisterra (Eds.), *European Studies in Phonetics and Speech Communication* (pp. 93-98). Utrecht, Netherlands: OTS Publications.
- Kuhl, P. K.** (1995). Mechanisms of developmental change in speech and language. *Proceedings of the XIIIth International Congress on Phonetic Sciences*, *2*, 132-139.
- Kuhl, P. K.** & Iverson, P. (1995). Linguistic experience and the “perceptual magnet effect.” In W. Strange (Ed.), *Speech Perception and Linguistic Experience: Issues in Cross-Language Research* (pp. 121-154). Timonium, MD: York Press.
- Kuhl, P. K.** & Meltzoff, A. N. (1995). Vocal learning in infants: Development of perceptual-motor links for speech. *Proceedings of the XIIIth International Congress on Phonetic Sciences*, *1*, 146-149.
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- Kuhl, P. K.**, Andruski, J. E., Chistovich, I. A., Chistovich, L. A., Kozhevnikova, E. V., Ryskina, V. L., Stolyarova, E. I., Sundberg, U., & Lacerda, F. (1997). Cross-language analysis of phonetic units in language addressed to infants. *Science*, *277*, 684-686.
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- Kuhl, P. K.** (1999). Speech, language, and the brain: Innate preparation for learning. In M. D. Hauser & M. Konishi (Eds.), *The Design of Animal Communication* (pp. 419-450). Cambridge, MA: MIT Press.
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- Kuhl, P. K.** (2000). A new view of language acquisition. *Proceedings of the National Academy of Sciences*, *97*, 11850-11857.
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- Ramirez-Esparza, N., Garcia-Sierra, A., & **Kuhl, P. K.** (2017, in press). The impact of early social interactions on later language development in Spanish-English bilingual infants. *Child Development*. Advance online publication.
- Zhao, T.C., & **Kuhl, P. K.** (2017, in press). Effects of enriched auditory experience on infants' speech perception during the first year of life. *PROSPECTS*.

INVITED ADDRESSES

(Since 2000)

- “Brain and Language: Reinterpreting the ‘Critical Period,’” Neuroscience Research Institute, La Jolla, CA, March, 2000.
- “Born to Learn: Language and the Brain of the Baby,” *The Felix Santschi Lecture*, University of Zurich, Zurich, April, 2000.
- “Early Experience and Language Development: Reinterpreting ‘Critical Periods,’” *National Academy of Science Colloquium*, Auditory Neuroscience, Irvine, CA, May, 2000.
- “Language, Emotion, and the Human Brain,” *New York Academy of Sciences Conference, Unity of Knowledge: The Convergence of Natural and Human Science*, Rockefeller University, New

York, NY, June, 2000.

“Plasticity for Learning: Language and the Brain,” *Keynote Address, Cold Spring Harbor Conference, Neuronal Plasticity*, Cold Spring Harbor, NY, September, 2000.

“Brain Plasticity and the ‘Critical Period,’” *Keynote Address, Neuroscience Symposium, Plasticity and Learning*, New Orleans, LA, October, 2000.

“Frontiers of Auditory Neuroscience: Language and the Brain,” *Symposium on New Frontiers in Hearing*, St. Louis, MO, March, 2001.

“Language/Culture/Mind/Brain: Progress at the Margins Between Disciplines,” *Kerry P. Green Memorial Address*, Tucson, AZ, May, 2001.

“Reinterpreting the Critical Period: Language Acquisition,” *Keynote Address, Gordon Research Conference on Neural Plasticity*, Newport, RI, July, 2001.

“Born to Learn: Language, Reading, and the Brain of the Child,” *White House Summit on Early Childhood Cognitive Development: Ready to Read; Ready to Learn*, Washington, D.C., July, 2001.

“The Secret Life of the Brain: Early Development,” *Smithsonian Museum Series on The Secret Life of the Brain*, Washington, D.C., November, 2001.

“Auditory Neuroscience: Language and the Brain,” *The Richard Silverman Lecture*, Washington University, St. Louis, MO, December, 2001.

“Language and the Brain: New Methods and Theory,” *NIH Keynote Address, Language and the Brain*, April, 2002.

“Reinterpreting the ‘Critical Period’ for Language,” *Neuronal Function Research Group, International Workshop on Sensory Systems Plasticity*, RIKEN, Japan, May, 2002.

“The Infant Brain: How Do We Know What's Going on Up There?” *Rockefeller University Annual Luncheon Honoring Women and Science*, New York, NY, May, 2002.

“Early Learning, Language, and the Infant Brain,” *Rockefeller University Neuroscience Colloquium Series*, New York, NY, May, 2002.

“Reinterpreting the ‘Critical Period’ for Language,” *Neuronal Function Research Group, International Workshop on Sensory Systems Plasticity*, RIKEN, Japan, May, 2002.

“Born to Learn: Language, Reading, and the Brain of the Child,” *White House Summit on Early Childhood Cognitive Development: Eight Northwestern States*, Boise, ID, June, 2002.

“Reevaluating the Critical Period Hypothesis: Early Language Learning,” *Meeting of the Human*

Frontiers Science Program, G-7 Nations, Ottawa, June, 2002.

“Babies at Work: The Scientist in the Crib,” *Mead-Johnson Scholars Keynote Address, Williamsburg, VA, September, 2002.*

“The Brain: The Incredible Learning Machine,” *University of Washington Alumni Association Fall Lecture Series, The Art & Science of the Brain, Seattle, WA, October, 2002.*

“Language and the Baby Brain,” *AAAS Symposium: What Infants Can't Miss, Denver, CO, February, 2003.*

“Infant Learning: Scientist in the Crib,” *Keynote Speaker, 10th Anniversary of the Neuroscience Program, University of Texas, Houston, TX, March, 2003.*

“Language Acquisition: How the Mind Works,” *Dartmouth Lecture Series on The Mind, Hanover, NH, May, 2003.*

“Born to Learn: Language, Learning, and the Child's Brain,” *White House Conference on Early Learning, Denver, CO, May, 2003.*

“Reinterpreting the ‘Critical Period’ in Development,” *Riken Brain Institute Conference, Nurturing the Brain, Tokyo, August, 2003.*

“Wiring the Baby Brain for Language: Statistical and Social Learning,” *Washington University Sesquicentennial Celebration Keynote, St. Louis, MO, October, 2003.*

“Language, Reading, and the Developing Brain,” *The Norman Geschwind Memorial Lecture, Meeting of the International Dyslexia Association, San Diego, CA, November, 2003.*

“Language and the Infant Brain: Computation with Constraints,” *Keynote Address, Institute of Electrical and Electronics Engineers, Inc. (IEEE), St. Thomas, December, 2003.*

“Language Input Maps the Baby Brain,” *AAAS Symposium, Wiring the Baby Brain for Language, Seattle, WA, February, 2004.*

“Cues for a Lifetime of Perception,” *AAAS Symposium, Cues for Language Acquisition, Seattle, WA, February, 2004.*

“Infant Speech Perception and Early Literacy,” *Keynote Speaker, Boston University School of Medicine Conference on Literacy, San Francisco, CA, April, 2004.*

“Babies, Brains and How We Help Them Learn: The Scientist in the Crib,” *Pathways Lecture Series, Sponsored by Children's Hospital, Seattle, WA, May, 2004.*

“Advances in Neuroscience: Language and the Infant Brain,” *National Governors Association Meeting, Seattle, WA, July, 2004.*

“Language and the Infant Brain: Computational Strategies and Social Influences,” *RIKEN-MIT*

- Systems Neuroscience Symposium*, Cambridge, MA, September, 2004.
- “The Scientist in the Crib,” *ARCS Annual Awards Luncheon Speaker*, Seattle, WA, November, 2004.
- “Bridging the Gap between Neuroscience and Education,” *The Society for Neuroscience K-12 Science Teachers Workshop*, The Salk Institute, San Diego, CA, November, 2004.
- “Language and the Infant Brain: Computation with Constraints,” *Special Lecture, The Society for Neuroscience*, San Diego, CA, November, 2004.
- “Language Development: Computation and the Social Brain,” *Keynote Speaker, Inaugural Celebration for the Language Learning and Development Journal*, Boston, MA, November, 2004.
- “Language and the Infant Brain,” *University of Texas at San Antonio Education Colloquium*, San Antonio, TX, January, 2005.
- “The Scientist in the Crib: Infant Learning and the Brain,” *New York Academy of Medicine*, New York, NY, March, 2005.
- “The Infant Brain: How Infants Learn and Why It Matters,” *Washington State House Appropriations Committee*, Olympia, WA, March, 2005.
- “Language and the Infant Brain: A Glimpse at How the Mind Develops,” *Inaugural Lecture, Georgetown University Neuroscience Program*, Washington, DC, March, 2005.
- “Language and the Infant Brain: The Scientist in the Crib,” *Keynote Speaker, John Merck Scholars 15th Anniversary*, New York Academy of Sciences, April, 2004.
- “Language and the Brain: A Glimpse at the Infant Mind,” *Infant and Early Childhood Conference (IECC)*, Bellevue, WA, May, 2005.
- “Early Learning and the Brain: Lessons from Language Learning,” *Keynote Speaker, Washington Learns Summit, Governor Christine Gregoire's Summit on Learning in 0-5, K-12, and Higher Education*, June, 2005.
- “Breakthroughs in Early Learning: Advances in Science, Economics and State Policy,” *Keynote Speaker, National Conference of State Legislatures (NCSL) meeting*, Seattle, WA, August, 2005.
- “Infant Language Learning: Computation with Constraints,” *NIH and the Merrill Advanced Studies Center Conference on Language Acquisition, Infant Pathways to Language: Methods, Models, and Research Directions*, Tempe, AZ, September, 2005.
- “The Scientist in the Crib: Computational Learning for Language in Infancy,” *Kenneth Craik Research Award*, University of Cambridge, Cambridge, England, November, 2005.

- “The Scientist in the Crib: Language and the Infant Brain,” *Keynote Address, Neuhaus Education Center 20th Anniversary*, Houston, TX, March, 2006.
- “Bridging Neuroscience and Education: Examples from Language,” *Invited Speech to Governor Gregoire and the Washington Learns Steering Committee*, Seattle, WA, April, 2006.
- “Early Speech Perception and Later Language Abilities: Implications for Theory and Practice,” *Keynote Address, Harvard University and the Dana Foundation’s Brain Awareness Week*, Cambridge, MA, May, 2006.
- “Language and the Infant Brain: Bridges from Neuroscience to Education,” *Keynote Address, The Tenth International Conference on Cognitive and Neural Systems*, Boston, MA, May, 2006.
- “Language and the Infant Brain: Implications for the ‘Critical Period,’” *Invited Speaker, Nobel Foundation Conference, Nurturing the Brain of the Child*, Stockholm, May, 2006.
- “Language and the Infant Brain: The Scientist in the Crib,” *Scientific Briefing, Swedish Parliament*, Stockholm, May, 2006.
- “Language, Education, and Society,” *Invited Speaker, Annual Awards Luncheon, Swedish Science Reporters*, Stockholm, May, 2006.
- “The New Science of Learning,” *Invited Address, Governor’s Committee, Washington Learns*, Seattle, WA, May, 2006.
- “New Brain Imaging Tools for Young Children,” *NBC Nightly News with Brian Williams*, Filmed interview, September, 2006.
- “From Synapse to Schoolroom—The Science of Learning,” *Invited Symposium Speaker, The NSF Science of Learning Center Satellite Symposium*, Society for Neuroscience, October, 2006.
- “Language as Human Specialization,” *Invited Speaker, National Academy of Sciences Sackler Colloquium*, Irvine, CA, November, 2006.
- “Speech Perception: Development from General Mechanisms to Modules,” *Invited Symposium Speaker, Acoustical Society of America Conference*, Honolulu, HI, December, 2006.
- “Early Learning and the Brain,” *Invited presentation to the Washington State Legislature’s Appropriations Committee*, Olympia, WA, January, 2007.
- “The Bilingual Brain,” *NBC Nightly News with Brian Williams*, Filmed interview, January, 2007.
- “Early Learning Research in Washington State,” *Briefing for U.S. Senator Patty Murray*, Seattle, WA, February, 2007.
- “Language, Bilingualism, Neuroscience and Education,” *Keynote speaker, International Symposium on the Human Brain and Early Education*, Santiago, Chile, March, 2007.

- “Linking Speech Perception in Infancy to Language Acquisition: Early Phonetic Learning Predicts Later Language,” *Invited Symposium Speaker, Society for Research on Child Development*, Boston, MA, March, 2007.
- “Neural Commitment to Language: Implications for Dyslexia,” *Keynote, International Dyslexia Association Conference, From Research to Practice*, Newport Beach, CA, March, 2007.
- “Early Language Learning and the Brain: Implications for Education,” *Invited Symposium Speaker, American Educational Research Association*, Chicago, IL, April, 2007.
- “Language, the Bilingual Brain, Education and Society,” *University of Minnesota Alumni Outstanding Achievement Award Address*, Minneapolis, MN, April, 2007.
- “Early Learning, the Brain, and Society,” *UW Provost’s Distinguished Lecture*, Seattle, WA, April, 2007.
- “Babies and Brains: Truths, Myths, and Politics,” *Invited Speaker, Pathways Lecture Series sponsored by Parent Map*, Seattle, WA, April, 2007.
- “Language Learning and the ‘Social Brain’: Implications for Children with Autism,” *Keynote Address, International Meeting For Autism Research*, Seattle, WA, May, 2007.
- “Language as a Challenge for Robotics and Engineering,” *Keynote Address, NSF conference, Future Challenges in Engineering and Learning*, Washington, DC, July, 2007.
- “Neuroplasticity for Language in Infancy,” *NSF conference, Opportunities and Challenges for Language Learning and Education*, Washington, DC, September, 2007.
- “Language, Bilingualism, and the Infant Brain,” *University of Helsinki Conference, Developing Brain, Emerging Mind*, Helsinki, September, 2007.
- “Language as a Human Specialization,” *NSF conference, Neuroscience and Education*, Washington, DC, December, 2007.
- “Cracking the Speech Code: Language and the Infant Brain,” *CNBC Lecture Series, Carnegie Mellon University*, Pittsburgh, PA, January, 2008.
- “Language and the Baby Brain,” *American Association for the Advancement of Science Symposium, Brain Basis of Speech*, Boston, MA, February, 2008.
- “It’s Not Just Talk: How the Child’s Brain Maps Language,” *Parents & Science Lecture, The Rockefeller University*, New York, NY, April, 2008.
- “Language, Bilingualism, and the Infant Brain,” *Maclyn McCarty Memorial Lecture, The Rockefeller University*, New York, NY, April, 2008.
- “The Scientist in the Crib: Early Learning and the Brain,” *McKnight Conference on Neuroscience Special Lecture, Aspen*, CO, June, 2008.

- “Cracking the Speech Code,” *Nobel Symposium, Genes, Brain, and Behavior*, Stockholm, June, 2008.
- “Dawn of the Enlightened Brain - The Scientist in the Crib,” *Shedding Light on Infant Brain Function Workshop*, Stockholm, June, 2008.
- “How Children Learn: Can (Should) We Try to Improve it?” *How Can We Improve Our Brains?* Cold Spring Harbor, NY, September, 2008.
- “Exploring the Infant Brain with MEG,” *Neurospin Opening Keynote, MEG: New Images of Brain Dynamics*, Paris, December, 2008.
- “Aesthetics and the Infant Mind,” *Special Lecture, Evolutionary Origins of Art and Aesthetics*, Salk Institute, San Diego, CA, March, 2009.
- “Minds, Brains, and Early Learning: How Infants Crack the Speech Code,” *Plenary given at the Second Biennial Conference of the Mind, Brain, and Education Society*, Philadelphia, PA, May, 2009.
- “Why Learning to Read is More Complicated Than You Think,” *Discussion led at the Aspen Ideas Festival*, Aspen, CO, July, 2009.
- “What’s the Brain Got to Do with It?” *Tutor session given at the Aspen Ideas Festival*, Aspen, CO, July, 2009.
- “Being Human in a Digital World,” *Live from the Aspen Ideas Festival: The Brian Lehrer Show*, July, 2009. Podcast: <http://www.wnyc.org/shows/bl/episodes/2009/07/03/segments/135728>
- “Neuroscience to Education: Bridging Early Learning to Language and Literacy,” *Punahou and Hanalei Schools*, Honolulu, HI, September, 2009.
- “Fostering Early Brain Development: Windows of Opportunity for Learning,” *Keynote Lecture to the Swedish Academy of Medicine*, Stockholm, October, 2009.
- “Early Language Markers of Children at Risk for Autism Spectrum Disorders,” *Keynote Address to the Department of Neonatology at Stockholm’s Astrid Lindgren Children’s Hospital*, Stockholm, October, 2009.
- “The Science of Early Childhood Development and the Impact of Adversity,” *Applying the Science of Early Childhood Development to State Policy*, Seattle, WA, January, 2010.
- “Charlie Rose Brain Series Episode Five: The Developing Brain,” *The Charlie Rose Show*, New York, February, 2010. Video: <http://www.charlierose.com/view/interview/10877>
- “Cracking the Speech Code: Language and the Infant Brain,” *Twelfth Annual Benjamin & Anne A. Pinkel Endowed Lecture on Mind/Brain Paradigms*, University of Pennsylvania, Philadelphia, PA, April, 2010.

- “The New Science of Learning: What’s the Brain Have to Do With It?” *Presidential Session, American Educational Research Association Annual Meeting*, Denver, CO, May, 2010.
- “Cracking the Speech Code: Language and the Infant Brain,” *Merck Neurosciences Seminar*, University of California, San Diego, La Jolla, CA, May, 2010.
- “Minds, Brains & Early Learning: How Infants Crack the Speech Code,” *Keynote for Living, Learning, and the Brain Conference*, Genesee School District, Flint, MI, June, 2010.
- “Minds, Brains & Early Learning: How Infants Crack the Speech Code,” *Association for Library Service to Children Charlemae Rollins President’s Program*, American Library Association Annual Conference, Washington, DC, June, 2010.
- “Minds, Brains & Early Learning: How Young Children Crack the Speech Code,” *Early Learning in Missouri: Where Bright Futures Begin*, 49th Annual Cooperative Conference for School Administrators, Osage Beach, MO, August, 2010.
- “How Infants Crack the Speech Code: Exploring Minds in the Making Using the Tools of Modern Neuroscience,” 2010 Freshman Convocation Keynote, University of Alaska Anchorage, Anchorage, AK, August 2010.
- “Learning and the ‘Social Brain’ National Science Foundation Distinguished Lecture, Directorate for Social, Behavioral & Economic Sciences, Washington, DC, October, 2010.
- “How Infants Crack the Speech Code: Exploring the Infant Mind Using the Tools of Modern Neuroscience,” Working Group on Human Neuroplasticity and Education, The Pontifical Academy of Sciences, Vatican City, Italy, October, 2010.
- “The Linguistic Genius of Babies: Early Learning and the Brain,” *Public Talk for the Opening Ceremony of the Division of Brain Science and Educational Research*, Key State Laboratory, Beijing Normal University, Beijing, China, May, 2011.
- “How Infants Crack the Speech Code: Exploring the Infant Mind Using the Tools of Modern Neuroscience,” *First International Workshop on Brain, Cognition, and Learning*, Beijing, China, May, 2011.
- “Talking to the Media: Lessons in Crossing the Great Divide,” *Invited Presentation, 161st Meeting of the Acoustical Society of America*, Seattle, WA, May, 2011.
- “How Children Learn: ‘Windows of Opportunity’ for the Young Brain,” *Keynote Address at the Third Annual Starting Strong P-3 Institute*, Spokane, WA, August, 2011.
- “Babies, Brains, and Learning,” *Session Leader, Science Foo Camp*, Googleplex, Mountain View, CA, August, 2011.
- “A Visual Tour Through the Baby Brain: Why the First 2000 Days Matter,” *Launching of Education Nation at Rockefeller Plaza*, New York, NY, September, 2011.

- “The Mind of the Child: What Neuroscience Reveals About Brains, Learning, and Language,” *IPSEN Award Lecture*, Paris, November, 2011.
- “Exploring the Social Foundations of Learning Through Neuroscience, Technology, and Education,” *Presentation at OECD (Organization for Economic Cooperation and Development)*, Paris, January, 2012.
- “The First Stages of First and Second Language Acquisition: What Neuroscience Reveals About Mechanisms of Learning,” Invited Presentation, *Collège de France*, Paris, January, 2012.
- “Early Language and Brain Development,” *Neuroscience and Education Workshop*, NeuroSpin Institute, Paris, January, 2012.
- “Bilingual Language Learning, Cognitive Flexibility, and the Future of Education,” *Keynote Address for Early Childhood* Illinois Resource Center, Bloomington, Illinois, March, 2012.
- “The Linguistic Genius of Infants: Early Learning and Brain Plasticity: Lecture 1,” *Distinguished Lecturer, 2012: Mind, Brain, Behavior Interfaculty Initiative*, Harvard University, Cambridge, April, 2012.
- “The Infant Brain: Using Neuroscience Tools to Measure Neurolearning: Lecture 2,” *Distinguished Lecturer, 2012: Mind, Brain, Behavior Interfaculty Initiative*, Harvard University, Cambridge, April, 2012.
- “Using MEG to Explore Developmental Change in Speech Processing” *MEG: Applications to Cognitive Neuroscience*, The 2012 McGovern Institute Symposium, Massachusetts Institute of Technology, Cambridge, April, 2012.
- “Humans’ Capacity for Language: NeuroLearning,” *Seattle Brain Salon*, University of Washington I-LABS and Allen Institute for Brain Science, Seattle, April, 2012.
- “Language Learning and the Developing Brain: Cross-cultural Studies Unravel the Effects of Biology and Culture,” *Keynote Lecture, 161st Meeting of the Acoustical Society of America*, Hong Kong, May, 2012.
- “The Mind of the Child: What Neuroscience Reveals about Baby Brains and Learning,” Public Lecture, *Chinese University of Hong Kong*, Hong Kong, May, 2012.
- “The Genius of Bilingual Babies and Children,” Invited Speaker, *International Conference on Bilingualism and Comparative Linguistics*, Chinese University of Hong Kong, Hong Kong, May, 2012.
- “A Child’s First 2000 Days: What’s the Brain Got to Do With It?” Featured Speaker, *Aspen Ideas Festival*, Aspen, June, 2012.
- “Early Language Experience and Brain Development: Paving the Path to School,” *Keynote Address for First Things First*, Arizona Early Childhood Development and Health Board, Phoenix, Arizona, August, 2012.

- “Dual Language: Geddes and the Science of Child Development,” Expert Panelist, *NBC Education Nation Summit 2012*, September, 2012.
- “The Buzz on Brains and Babies: How and Why Do the Earliest Years Matter?” Session Speaker, *Aspen ThinkXChange*, Aspen, October, 2012.
- “Human Language Development: Using Brain Measures to Advance Theory,” Plenary Address, Boston University Conference on Language Development, Boston, November, 2012.
- “The Child’s First 2000 Days: Brain and Language Development,” Invited Address, *Building A Grad Nation Summit*, Washington DC, February, 2013.
- “How Brain Science Can Advance the Nation: The Child’s First 2000 Days,” *Congressional Briefing*, Washington DC, February, 2013.
- “The Human Language Puzzle: Advancing Theory Through Brain Science,” Keynote Address, *Cognitive Neuroscience Society Annual Meeting*, San Francisco, April, 2013.
- “Human Language: How Brain Measures Advance Theories of Human Learning,” Invited Address, Society for Research on Child Development Biennial Meeting, Seattle, April, 2013.
- “How to Build a Brain: Language Learning and the Importance of Social Talk,” Keynote Address, *Annual Meeting of the LENA Foundation*, Denver, April, 2013.
- “The “Big Bang” in Learning: Brain Changes and Childhood Learning,” Invited Address, *Aspen Ideas Festival*, Aspen, June, 2013.
- “Human Learning and the Child’s Developing Brain,” Invited Speaker, *Paul G. Allen’s 10th Anniversary Celebration of the Founding of the Allen Brain Institute*, Seattle, September, 2013.
- “Brain Mechanisms of Learning and the Preparation Gap,” Invited Address, *White House meeting of the Office of Science and Technology Policy (OSTP) on Bridging the Thirty-Million-Word Gap*, Washington DC, September, 2013.
- “The First 2000 Days: How Opportunities to Learn Determine Brain Development,” Invited Speaker, *The “Giving Pledge,”* Tulsa, October, 2013.
- “The Linguistic Genius of Babies,” Invited Speaker, Public Lecture Series, *The Welcome Trust/DBT India Alliance*, New Dehli, India, November, 2013.
- “The Scientist in the Crib: Early Development of the Human Mind,” Invited Speaker, *Workshop on “The Evolution of the Human Mind,”* Pune, India, November, 2013.
- “The Social Brain, Neuroplasticity, and Early Language Learning,” Invited Speaker, *Science of Learning Symposium*, International Convention on Science of Learning, Shanghai, China, March, 2014.

- “Bilingualism Alters the Brain’s White-Matter Microstructure,” Invited Speaker, *Science of Learning Symposium*, International Convention on Science of Learning, Shanghai, China, March 2014.
- “Teachable Agents and Other Social Learning Technologies,” Invited Speaker, *Science of Learning Symposium*, International Convention on Science of Learning, Shanghai, China, March, 2014.
- “Frontiers in Science of Learning: Their Implications for Education Policies and Practices,” Invited Presenter, *Dialogue on Science of Learning – How can it make a difference?*, International Convention on Science of Learning, Shanghai, China, March, 2014.
- “Early Learning and Success in School: Neuroscience Implications for Education,” Keynote Speaker, *International Forum on Science of Learning and Innovation in Education*, International Convention on Science of Learning, Shanghai, China, March, 2014.
- “IQ vs. EQ: How Brain Research Can Give Our Children A Head Start,” Keynote Speaker, *Distinguished Speaker Series*, Global Parent Child Centre, Hong Kong, March, 2014.
- “Learning and the Infant Brain: Mechanisms Underlying Initial Language Learning,” Invited Speaker, *Science & Technology Discovery Series, Technology Alliance*, Seattle, April, 2014.
- “Brain Mechanisms Underlying the Developmental Change in Infant Speech Perception,” Invited Speaker, *Special Symposium on Developmental Circuit Pruning, Conte Center at Harvard, Harvard University*, Cambridge, April, 2014.
- “Understanding the fine structure of speech: Contributions of Joanne L. Miller,” Invited Speaker, *167th Meeting of the Acoustical Society of America*, Providence, Rhode Island, May, 2014.
- “Language Learning and the Developing Brain,” Invited Speaker, *79th Cold Spring Harbor Symposium on Cognition, Cold Spring Harbor Laboratory*, Cold Spring Harbor, New York, May, 2014.
- “Building a Child’s Brain,” Keynote Speaker, *82nd Annual Meeting of The United States Conference of Mayors*, Dallas, Texas, June, 2014.
- “Early Learning and the Child’s Developing Brain,” *Invited Open Lecture, The Royal Swedish Academy of Sciences, Stockholm*, Sweden, September, 2014.
- “Early Learning, Brain Development, and Bilingual Language Experience,” Keynote Address, *Bilingual and Early Learning in Spain, Madrid Ministry of Education*, Madrid, Spain, October, 2014.
- “Understanding Brain Development and Child Learning will Advance the Future of Nations,” Keynote Speaker, *Consejera De Education and Fundacion Rafael del Pino Conference*, Madrid, Spain, October, 2015.
- “Speech and the Social Brain: Insights Into How Children Learn,” Keynote Speaker, *The Rockefeller University Parents and Science Lecture*, New York, October, 2014.

- “Bilingual Language Learning, Cognitive Flexibility, and the Future of Education,” Invited Speaker, *Infant-Parent Mental Health Fellowship Napa Valley*, November, 2014.
- “Neural Plasticity,” *New York Academy of Science Panel on Neuroscience and Education*, November, 2014.
- “Language and the Child’s Developing Brain,” *New York Academy of Science Conference on Shaping the Developing Brain*, New York, November, 2014.
- “Early Learning and the Future of Our Nation,” Invited Speaker, the *Ford Foundation Seminar on Science and Technology*, New York, November, 2014.
- “The Child’s Developing Brain and Early Education,” *White House Summit on Early Childhood Education*, Washington DC, December, 2014.
- “Brain Science and Early Learning,” Invited Speaker, *King County Leadership Early Learning Roundtable Seattle’s Town Hall*, January, 2015.
- “Brain Science and How People Learn,” Invited Speaker, *Washington State Academy of Science Address*, January, 2015.
- “Brain Science and Early Learning,” *Requested Testimony on Early Learning to the Washington State Appropriations Committee*, Olympia, Washington, February, 2015.
- “Brain Development and Early Learning,” *Governor of Alabama’s Early Childhood Education Summit*, Montgomery, February, 2015.
- “Why Are Younger Learners Better? Brain Development, Early Learning, and Language,” Invited Seminar Speaker, *Society for Research on Child Development*, Philadelphia, March, 2015.
- “The Neurogenetics of Language,” George A. Miller Award Lecture, *Cognitive Neuroscience*, San Francisco, April, 2015.
- “Ken Stevens, Analysis by Synthesis, Motor Theory, and Infants’ Brain Responses to Speech,” Invited Symposium Speaker, *Special Session to Honor Kenneth S. Stevens*, Pittsburgh, May, 2015.
- “The Social Brain and Language Learning,” *Invited Speaker, International Meeting for Autism Research*, Salt Lake City, May, 2015.
- “The Science of Learning: Progress by the Six NSF Science of Learning Centers on How People Learn,” *Congressional Briefing*, Washington DC, June, 2015.
- “Early Learning and the Child’s Developing Brain,” Invited Speaker, *International Symposium on Science for Education*, Rio de Janeiro, Brazil, July, 2015.
- “Childhood Learning and the Developing Brain,” Keynote Speaker, *Ready Nation: Conference for Business Leaders*, New York, NY, October, 2015.

- “Brain Development the Early Learning,” Keynote Address, *Early Learning and Federal Policy: A Debate for the Presidential Candidates*, New Hampshire Vermont, October, 2015.
- “Advances in Early Brain Development: Policy Implications, *National Governor’s Association*, Seattle, October, 2015.
- “A Child’s First 200 Days: Early Learning and Brain Development,” Invited Keynote, *Department of Human and Human Services Grantees Meeting*, Washington DC, November, 2015.
- “Science on Children’s Social and Emotional Development,” Invited Moderator, *The Think Tank Event*, Los Angeles, November, 2015.
- “Language and the Child’s Developing Brain,” Keynote Speaker, *Zero to Three International Meeting*, Seattle, Seattle, December, 2015.
- “Early Learning and Social Policy,” Invited Panelist, *The Ford Foundation Gathering on Early Learning*, New York, NY, January, 2016
- “The Social Foundations of Learning,” Key Speaker, *Network of Science of Learning Meeting*, Washington DC, February, 2016.
- “Building the Baby Brain,” Keynote Speaker, *The World Bank Group*, Washington DC, March, 2016.
- “Early Learning and the Developing Brain,” Keynote Speaker, *The Water Cooler Event*, Sacramento, CA, March, 2016.
- “Can Baby Brain Science Affect Education and Public Policy?” Keynote Speaker, *The Montag Lecture*, Atlanta GA., April 2016.
- “Building the Baby Brain: The Importance of the Child’s First Two Thousand Days,” Keynote Speaker, *Atlanta Speech School Conference on Early Learning*, Atlanta, GA, April, 2016.
- “Learning and the Social Brain,” Invited Speaker, White House Conference on Early STEM Learning, Washington, DC, April, 2016.
- “What Can Babies’ Brains Tell Us About What it Means to be Human?” Invited Speaker, *Keystone Symposium: State-of-the-Brain*, Innsbruck, May, 2016.
- “Babies Brains: Why Bilingualism is an Asset,” Keynote Speaker, *White House Conference on Dual Language Learners*, Miami, FL, June, 2016.
- “Brain Science and Early Learning,” Keynote Speaker, *United Way International Conference on the Developing Brain*, Medellin, Columbia, South America, June, 2016.
- “Imaging the Baby Brain: Imagine a Future of Improved Learning for All Children,” Invited Speaker, *Paul G. Allen Brain Institute Conference on NeuroFutures*, Seattle, WA, June, 2016.

“Brain Science and Early Learning: It’s All About Timing!” Keynote Speaker, *Corporate Executive Conference Addressing Houston’s Literacy Crisis*, Houston, TX, September, 2016.

“Baby Brain Science, Language Development, and Literacy,” Keynote Speaker, Barbara Bush Houston Literacy Foundation’s *Power of Literacy Luncheon*, Houston TX, September, 2016.

“Early Learning and the Developing Brain: The Importance of the First 2000 Days,” Keynote Address, *Governor’s Early Learning Foundation Summit*, Richmond, VA, October, 2016

“Social Brains, Human Minds, and Academic Learning,” *Invited Address to the National Commission on Social, Emotional, and Academic Development*, Washington, DC, October, 2016.

“The Big Bang in Early Learning: Brain Changes and Childhood Learning, Keynote Address, *Governor’s Early Learning Summit*, Honolulu, Hawaii, December, 2016.

“Music and the Baby Brain,” Invited Speaker, *2017 Simms-Mann Think Tank*, LA, February, 2017.

**STUDENTS AND POSTDOCTORAL FELLOWS
TRAINED IN THE KUHL LABORATORY**

STUDENTS

Name	Years	Dissertation Title
Ken Grant	1976-1980	Investigating a tactile speechreading aid: the transmission of prosodic information in connected-discourse and sentences
James Hillenbrand	1976-1980	Perceptual organization of speech sounds by young infants
Anne Fernald	1978-1982	Acoustic determinants of infant preference for "motherese"
DiAnne Grieser	1980-1984	The internal structure of vowel categories in infancy: the effects of stimulus "goodness"
Richard Eyraud	1994-1998	Native and non-native perception of /r/ and /l/: a cross-language comparison of American and Finnish listeners
Feng-Ming Tsao	1997-2001	The effects of language experience on the perception of affricate and fricative consonants in English-speaking and Mandarin-speaking adults and young infants
Sandra Serafini	1993-2002	Functional neuroanatomy during language processing: correspondence of cortical stimulation mapping, fMRI, PEPSI, and ERP during a visual object naming task
Yang Zhang	1997-2002	The effects of linguistic experience as revealed by behavioral and neuromagnetic measures: a cross-language study of phonetic perception by normal adult Japanese and American listeners
Hui-Mei Liu	1999-2002	The acoustic-phonetic characteristics of infant-directed speech in Mandarin Chinese and their relation to infant speech perception in the first year of life
Jessica Pruitt	1998-2003	American-English school-age children's ability to discriminate native and non-native speech contrasts
Jo-Fu Lotus Lin	2003-2009	Mental addition in bilinguals as revealed by magnetoencephalography (MEG)
Alexis Bosseler	2003-2010	Cortical rhythms to native and non-native phonetic contrasts in infants and adults
Gina Cardillo	2003-2010	Predicting the predictors: individual differences in longitudinal relationships between infant phonetic perception, toddler vocabulary, and preschooler language and phonological awareness
Christina Zhao	2010-2015	Short-term musical intervention enhances infants' neural processing of temporal structure in music and speech
Melanie Fish	2011	In progress
Ruofan Cai	2016	In progress
Maggie Clarke	2016	In progress

POSTDOCTORAL FELLOWS

Name	Years	Current Position
Kate Davis	1989-1992	Industry
Jan Goodsitt	1990-1993	Industry
Gail Tomiak	1995-1997	Industry
Jean Andruski	1995-1997	Wayne State University
Kerry Green	1989-1997	Deceased
Michael Hall	1996-1998	James Madison University
Paula Smeele	1996-1998	Deceased
Raquel Willerman	1996-1998	Industry
Paul Iverson	1993-1999	University College London
Tobey Nelson	1999-2000	Industry
Bart DeBoer	2001-2002	Vrije Universiteit Brussels
Yue Wang	2001-2002	Simon Frasier University
Feng-Ming Tsao	2001-2003	National Taipei Teachers College, Taipei, Taiwan
Hui-Mei Liu	2002-2003	National Taipei Normal University, Taipei, Taiwan
Juan Silva-Pereyra	2001-2004	National University of Mexico
Yang Zhang	2002-2005	University of Minnesota
Jessica Pruitt	2003-2006	Private Practice
Maritza Rivera-Gaxiola	2001-2007	Private Practice
Megha Sundara	2005-2007	UCLA
Rajeev Raizada	2003-2008	University of Rochester
Barbara Conboy	2002-2009	University of Redlands
Yapeng Wang	2007-2009	Beijing Normal University
Alexis Bosseler	2010-2011	University of Washington
Barbara Schwanhauser Nash	2008-2011	Industry
Adrian Garcia-Sierra	2007-2012	University of Connecticut
Cherie Percaccio	2007-2012	Industry
Nairan Ramirez-Esparza	2007-2012	University of Connecticut
Jo-Fu Lotus Lin	2009-2013	National Taiwan University, Taipei, Taiwan
Sarah Roseberry	2010-2013	Director, Outreach and Education, I-LABS
Dilara Deniz Can	2010-2015	Bellevue School District
Jason Yeatman	2014-2015	University of Washington
Jasper van den Bosch	2013-2016	MRC Cognition and Brain Sciences Unit, Cambridge, UK
Kambiz Tavabi	2011	In progress
Maria Mittag	2013	In progress
Naja Ferjan Ramirez	2013	In progress
Ping Mamiya Chao	2013	In progress
Christina Zhao	2015	In progress