

Curriculum Vitae
Bob McMurray

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Educational and Professional History

Education

Ph.D.	University of Rochester Brain and Cognitive Sciences, 2004 Categorization summer school, University of Quebec at Montreal, 2003
M.S.	University of Rochester Brain and Cognitive Sciences, 2003
B.A., Magna Cum Laude	Cornell University Psychology with Cognitive Studies Concentration, 1998

Professional and Academic Positions

2004-	Assistant Professor, Department of Psychology, University of Iowa
1998-2004	Research Assistant, Infant Development Laboratory, University of Rochester (Supervisor Richard N. Aslin, Ph.D.)
1998-2004	Research Assistant, Language Processing Laboratory, University of Rochester (Supervisor Michael Tanenhaus, Ph.D.)
1996-1998	Research Assistant, Human Information Integration Laboratory, Cornell University (Supervisor: Michael Spivey, Ph.D.)

Honors and Awards

TA Ryan Undergraduate Research Award, 1998
Honorable Mention, NSF Graduate Research Fellowship, 1998
NIH loan repayment program “Lexical and Statistical Processes in Speech Perception and Development: Normal and Impaired Listeners”. 2007-2008
- ICIS Junior Faculty Travel Award 2008

- Best Perception and Action Model, *Cognitive Science Conference*, 2008 (see Toscano & McMurray, in 2008)

Professional Organizations

Association for Psychological Science
 Acoustical Society of America
 McWoppers (Mid-Continental Working Group on Phonology)
 International Society for Infant Studies
 The Cognitive Science Society

Teaching and Student Supervision

Courses Taught (University of Rochester)

CSP 502 Cognitive Foundations: Spring, 2002 (20)

Courses Taught (University of Iowa)

- 31:121 Experimental Psychology II: Fall, 2004 (28)
- 31:121 Experimental Psychology II: Spring, 2005 (21)
- 31:118 Infant Development: Spring, 2005 (40)
- 31:280 Developmental Science Proseminar: Fall, 2005 (5)
- 31:118 Infant Development: Fall, 2005 (30)
- 31:121 Experimental Psychology II: Spring, 2006 (23)
- 31:210 Developmental Science Proseminar: Fall, 2006 (14)
- 31:121 Experimental Psychology II: Fall, 2006 (14)
- 31:118 Infant Development: Spring, 2007 (34)
- 31:210 Developmental Science Proseminar: Fall, 2007 (7)
- 31:210 Developmental Science Proseminar: Fall, 2008 (7)
- 31:118 Infant Development: Spring, 2009 (47)

Other Teaching

Iowa Summer Workshop on Connectionism: Summer, 2006

Undergraduate Research Practicum in Psychology (31:185)

Fall, 2004 (2); Spring, 2005 (4); Summer, 2005 (2); Fall, 2005 (6); Spring, 2006 (6); Summer, 2006 (2); Fall, 2006 (6); Spring, 2007 (8); Summer, 2007 (1); Fall, 2007 (3); Spring, 2008 (2); Fall, 2008 (5); Spring, 2009 (4)

Advanced Undergraduate Research Practicum in Psychology (31:188)

Fall, 2005 (1); Spring, 2006 (1); Spring, 2007 (1); Spring, 2008 (1); Spring, 2009 (1)

Honors Research Practicum (143:100)

Spring, 2005 (1); Fall, 2005 (1); Spring, 2006 (1); Summer, 2006 (1); Fall, 2006 (1); Spring, 2006 (1); Fall, 2007 (1); Spring, 2008 (1)

Undergraduate Honors Thesis Supervision (31:199)

Joseph Toscano (University of Rochester, supervised from Iowa, 2004).
 Molly Robinson (2007)
 Stephanie Huette (2007)

- Mary Gannon (2008)
- Lea Greiner (2008)

Research Advisory Committee Service

Jennifer Lee, Valerie Mendez-Gallardo, Gwynneth Rost (Speech Pathology), Stephanie Packard
Libo Zhao

Comprehensive Exam Committee Service

Kristine Kovack: Fall, 2004; Vanessa Simmering: Fall, 2004; Kara Kosun: Fall, 2004; Jennifer Lee, Fall 2004; Brandon Abbs: Fall, 2005; Hyunkyuu Lee: Fall, 2005; Wendy Troob: Fall, 2005; Sammy Perone: Fall, 2006; Gwynneth Rost (Speech Pathology), Summer, 2007; Christine Ziemer: Fall, 2007; Tomosasa, Sasa (Linguistics): Fall, 2007; Fabian Soto: Fall, 2008; Stephanie Packard: Fall, 2008; Libo Zhao: Fall, 2008; Valerie Mendez-Gallardo: Fall, 2008; Lynn Perry: Fall, 2008;

Current Doctoral Student Supervision

- Joseph Toscano (C&P)
- Cheyenne Munson (C&P)
- Marcus Galle (DS)
- Keith Abfelpaum (C&P)

Completed Ph.D.s

- Kristine Kovack (DS), now Assistant Professor at Ripon College.

Current Doctoral Student Research Projects

Gwynneth Rost (Speech Pathology)

Completed Doctoral Student Research

Vicki Samelson (Speech Pathology)
John Lipinski (2005)
Jessica Horst (2006-2007)
Sunghee Lee (Speech Pathology) (2005)

M.A. Committee Service

Vicki Klein (Speech Pathology)

Ph.D. Committee Service

Yu-Hisang Wu (Speech Pathology, 2006-2007), Jessica Horst (2007), Brandon Abbes (2007), Kara Recker (2008), Hyunkyuu Lee (2007-2008), Jeff Johnson (2008), Vanessa Simmering (2008), Tomosasa Sasa (Linguistics, 2008); Hsin-Jen Hsu (Communication Disorders, 2008); Damon Ng (2009)

Post-Doctoral Supervision

- Shannon Ross-Sheehy (2007)
- Ashley Ferris-Trimble (2008-present)

Research

Refereed Publications

- McMurray, B., and Spivey, M. (2000). The categorical perception of consonants: the interaction of learning and processing. Proceedings of the Chicago Linguistics Society, 34(2), 205-220.
- Tanenhaus, M., Magnuson, J., McMurray, B., and Aslin, R. (2000). No compelling evidence against feedback in spoken word recognition. Behavioral and Brain Sciences, 23(3), 348-349.
- McMurray, B., Tanenhaus, M., and Aslin, R. (2002). Gradient effects of within-category phonetic variation on lexical access, Cognition, 86(2), B33-B42.
- McMurray, B., Tanenhaus, M., Aslin, R. and Spivey, M. (2003). Probabilistic constraint satisfaction at the lexical/phonetic interface: Evidence for gradient effects of within-category VOT on lexical access. Journal of Psycholinguistic Research, 32(1), 77-97.
- Magnuson, J., McMurray, B., Tanenhaus, M. and Aslin, R. (2003). Lexical effects on compensation for coarticulation: A tale of two systems? Cognitive Science, 27(5), 801-805.
- Magnuson, J., McMurray, B., Tanenhaus, M. and Aslin, R. (2003). Lexical effects on compensation for coarticulation: The ghost of Christmas past. Cognitive Science, 27(2), 285-298.
- Jordan, K., Weiss, D., Hauser, M. and McMurray, B. (2004). Antiphonal responses to loud contact calls produced by cotton-top tamarins (*Saguinus oedipus*). International Journal of Primatology, 25(2), 465-475.
- McMurray, B. and Aslin, R.N. (2004). Anticipatory eye movements reveal infants' auditory and visual categories. Infancy, 6(2), 203-229.
- Aslin, R.N., and McMurray, B. (2004). Where babies look: An overview of methods for assessing visual fixations and eye movements in young infants. Infancy, 6(2), 155-163.
- McMurray, B., and Aslin, R.N. (2005) Infants are sensitive to within-category variation in speech perception. Cognition, 95/2, B15-B26.
- McMurray, B. and Gow, D.W. (2005) It's not how many dimensions you have, it's what you do with them. Behavioral and Brain Sciences, 28(1), 31.
- McMurray, B. (2007) Defusing the childhood vocabulary explosion. Science, 317(5838), 631
- Gow, D.,W., and McMurray, B. (2007) Word recognition and phonology: The case of English coronal place assimilation. J.S. Cole & J. Hualdo (Eds.) Papers in Laboratory Phonology 9. (pp 173-200). New York: Mouton de Gruyter
- McMurray, B., Dennhardt, J., and Struck-Marcell, A. (2008) Context effects on musical chord categorization: Different forms of top-down feedback in speech and music? *Cognitive Science*, 32(5), 893 – 920.
 - McMurray, B., Aslin, R., Tanenhaus, M., Spivey, M., and Subik, D. (2008). Gradient sensitivity to within-category variation in speech: Implications for categorical perception. *Journal of Experimental Psychology, Human Perception and Performance*, 34(6), 1609-1631
 - McMurray, B., Clayards, M., Tanenhaus, M., and Aslin, R. (2008) Tracking the timecourse of phonetic cue integration during spoken word recognition. *Psychonomic Bulletin and Review*, 15(6), 1064-1071.

- McMurray, B., Tanenhaus, M.K., and Aslin, R.N. (2009) Within-category VOT affects recovery from "lexical" garden paths: Evidence against phoneme-level inhibition. *Journal of Memory and Language*, 60(1), 65-91
- Rost, G., and McMurray, B. (2009) Speaker variability augments phonological processing in early word learning. *Developmental Science*, 12(2), 339-349

Manuscripts in press

- McMurray, B., Horst, J., Toscano, J., and Samuelson, L. (in press) Towards an integration of connectionist learning and dynamical systems processing: case studies in speech and lexical development. In Spencer, J., and Thomas, M., and McClelland, J. (Eds) *Toward a Unified Theory of Development: Connectionism and Dynamic Systems Theory Re-Considered*. . London: Oxford University Press
- McMurray, B., Aslin, R.N., and Toscano, J. (in press) Statistical learning of phonetic categories: Computational insights and limitations. *Developmental Science*.
- Spencer, J., Blumberg, M., McMurray, B., Robinson, S., Samuelson, L., and Robinson, S. (in press) Short arms and talking eggs: Why we should no longer abide the nativist-empiricist debate. *Child Development Perspectives*
- Spencer, J., Samuelson, L., Blumberg, M., McMurray, B., Robinson, S., and Tomblin, J.B. (in press) Developmental Systems Theory As A Framework For Moving Beyond The Nativist-Empiricist Debate. *Child Development Perspectives*
- McMurray, B., and Hollich, G. (in press) Core Computational Principles of Language Acquisition: Can Statistical Learning do the Job? Introduction to special section of *Developmental Science*

Manuscripts under review

- Cole, J.S., Linebaugh, G., Munson, C., and McMurray, B. (submitted) Unmasking the acoustic effects of vowel-to-vowel coarticulation: A statistical modeling approach *Journal of Phonetics*
- McMurray, B., Samuelson, V., Lee, S., and Tomblin, J.B. (submitted) Eye-movements reveal the time-course of online spoken word recognition language impaired and normal adolescents. *Cognitive Psychology*.
- Mitchell, C., and McMurray, B. (submitted) On leveraged learning in lexical acquisition and its relationship to acceleration. *Cognitive Science*
- McMurray, B., Cole, J.S., & Munson, C. (submitted) Features as an emergent product of perceptual parsing: Evidence from vowel-to-vowel coarticulation. Invited chapter for R.Ridouane and N. Clement (Eds) *Where do Features Come From?*
- Rost, G.C., and McMurray, B. (submitted) Finding the signal by adding noise: The role of non-contrastive phonetic variability in early word learning. *Cognition*.
- Toscano, J., and McMurray, B. (submitted) Cue Integration with Categories: A Statistical Approach to Cue Weighting and Combination in Speech Perception. *Cognitive Science*.
- Horst, J., Samuelson, L., and McMurray, B. (submitted) When Word Learning is Not About Words: Fast Mapping and Visual Familiarity. *Child Development*.

- Apfelbaum, K., Blumstein, S., and McMurray (submitted) Semantic priming is affected by real-time phonological competition: Evidence for continuous cascading systems. *Cognition*

Editorial Service

McMurray, B., and Hollich, G. (in press) Core Computational Principles of Language Acquisition. Special Section in *Developmental Science*

Manuscripts in Preparation

- Huettenlocher, S., and McMurray, B. (submitted) Continuous dynamics of color categorization.
 - Toscano, J., Dennhardt, J., McMurray, B. & Luck, S. (in preparation) Electrophysiological correlates of continuous phonetic cues: It's gradient all the way down.
 - McMurray, B., and Mitchell, C. (in preparation) The mathematical underpinnings of acceleration in early word learning: The Vocabulary Explosion is a by product of parallel learning.
 - McMurray, B., Horst, J., and Samuelson, L. (in preparation) A computational model of word learning at two timescales.
 - McMurray, B., Munson, C., and Tomblin, J.B. (in preparation) Gradient effects of within category detail on lexical activation in language impaired adolescents: Evidence for a deficit in competition, not perception.
 - Apfelbaum, K., and McMurray, B. (in preparation) Understanding successes and failures in the early learning of minimal pairs: The role of basic learning processes.
 - Galle, M., and McMurray, B. (in preparation) The development of voicing categories: A meta study.
 - Jongman, A., and McMurray, B. (in preparation) Linking perception and production in fricatives: A parsing approach.
- McMurray, B., Clayards, M., Toscano, J., Tanenhaus, M., and Aslin, R. (in preparation) Gradient effects of continuous acoustic detail on lexical activation: extensions.
- McMurray, B. (in preparation). KlattWorks: a [somewhat] new systematic approach to formant-based speech synthesis for empirical research.

Published Conference Proceedings and Other Manuscripts

- McMurray, B. (1998). The Hebbian Acoustic/Phonetic Category Acquisition Model (HAPCAM): a neurologically plausible connectionist account of the development of speech perception abilities. Senior Honors Thesis, Cornell University, Department of Psychology.
- McMurray, B. (2000). Connectionism for ...er... linguists. In Crosswhite, K., and McDonough, J., eds., The University of Rochester Working Papers in the Language Sciences, 2000(1), 72-96.
- McMurray, B., Spivey, M., and Aslin, R. (2000). The Perception of Consonants by Adults and Infants: Categorical or Categorized? Preliminary Results. In Crosswhite, K., and Magnuson, J., eds., The University of Rochester Working Papers in the Language Sciences, 2000(2), 215-256.
- Tanenhaus, M., Magnuson, J., McMurray, B., and Aslin, R. (2000). Does lexical knowledge mediate perceptual effects of compensatory coarticulation? Evidence from research with an artificial lexicon. Proceedings of the Workshop on Spoken Word Access Processes.

- Gow, D., and McMurray, B., (2004) From sound to sense and back again: the integration of lexical and speech processes. The proceedings of From Sound to Sense: 50+ years of discoveries in Speech Communication.
- Horst, J.S., McMurray, B., and Samuelson, L.K. (2006) Online processing is essential for learning: Understanding fast mapping and word learning in a dynamic connectionist architecture. In R. Sun (Ed) The proceedings of the 28th meeting of the Cognitive Science Society (pp. 339-334), Austin, TX: Cognitive Science Society.
- McMurray, B. (2007) Moo-cow! Mummy! More! How do children learn so many words? Significance: The Magazine of the Royal Statistical Society, 4.
- Mitchell, C., and McMurray, B. (2008) A stochastic model of the vocabulary explosion. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), Proceedings of the 30th Annual Conference of the Cognitive Science Society (pp. 1919-1926). Austin, TX: Cognitive Science Society.
 - Toscano, J., and McMurray, B. (2008) Using the distributional statistics of speech sounds for learning and combining multiple acoustic cues. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), Proceedings of the 30th Annual Conference of the Cognitive Science Society (pp. 433-439). Austin, TX: Cognitive Science Society.

Conference Symposia

- McMurray, B., and Aslin, R.N. (2004, May) Stop-consonant perception in 7.5-month-olds:evidence for gradient categories. In R. Aslin (Chair) The lexical/phonetic interface in infancy: Coping with multiple sources of variability. Symposium presented at the International Conference on Infant Studies, Chicago, IL.
- McMurray, B., and Aslin, R.N. (2005, April) Statistical learning of phonetic categories: Computational insights and limitations. In B. McMurray & G. Hollich (chairs) Core Computational Principles of Language Acquisition. Symposium presented at the Biennial Meeting of the Society for Research in Child Development, Atlanta, GA.
- Spencer, J. (chair) and McMurray, B. (organizer) (2007, April) An(other) Inconvenient Truth? Why Substantive Interactionism Should Move Us Beyond the Nature/Nurture Debate. Roundtable discussion presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA.
 - McMurray, B., Horst, J., and Samuelson, L. (2007, April) The interdependence of long-term learning and real-time behavior: computational investigations with a word learning model. In L. Samuelson & L. Smith (chairs) It's About Time: New Approaches to Timescales, Computation and Processes in Early Word Learning. Symposium to be presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA.
 - Rost, G., and McMurray, B. (2008, March) Phonetic variability and early word learning. In McMurray, B. (Chair) The emergence of phonological contrast from lexical and perceptual processes. Symposium presented at the International Conference on Infant Studies, Vancouver, BC.
 - Galle, M., and McMurray, B. (2008, March) Early discrimination of positional variants of consonants: Acquiring subphonemic sensitivity. In K. Onishi, and A. Seidl (Chairs) Processing and learning of allophonic contrasts in infancy. Symposium presented at the International Conference on Infant Studies, Vancouver, BC.

- Rost, G., and McMurray, B. (2008, July) Phonological variability and word learning: Infants can learn lexical neighbors. In A. Owen (Chair), The role of input variability on language acquisition and use. Symposium presented at the XI International Congress For The Study Of Child Language (IASCL): Edinburgh, Scotland.
- McMurray, B., and Mitchell, C. (2009, April) Word Frequency, Difficulty, and the Form of Vocabulary Growth. In M. Frank (chair) From Input to Uptake: Word Frequency Effects as a Window Into the Mechanisms of Early Language Learning. Symposium presented at the Biennial Meeting of the Society for Research on Child Development, Denver, CO.
- Horst, J., Samuelson, L., and McMurray (2009, April) When Word Learning is Not About Words: Referent Selection and Visual Familiarity. In S. Grassmann & J. Horst (Chairs) New Perspectives on Mutual Exclusivity. Symposium presented at the Biennial Meeting of the Society for Research on Child Development, Denver, CO.

Invited Addresses and Colloquia

- McMurray, B. (2001, July). *The eyes betray the ears. Speech perception: categorical or categorized?* Invited talk presented at the University of Calgary Department of Psychology
- McMurray, B. (2002, April). *Two B or not two B: categorical perception in lexical and non-lexical tasks*. Invited talk presented at the Brown University Department of Cognitive and Linguistic Sciences
- McMurray, B. (2003, September). *Within-category acoustic variation is signal, not noise: A new look at Categorical Perception and the problem of covariance*. Invited talk presented at the Massachusetts Institute of Technology, Speech Communication Group.
- Gow, D. and McMurray, B. (2004, June) *From sound to sense and back again: the integration of lexical and speech processes*. Invited paper for From Sound to Sense: 50+ Years of Discoveries in Speech Communication, Boston, Massachusetts.
- McMurray, B. (2005, March) *Within-category information is used in language processing: Temporal Integration at two timescales*. Invited talk presented at the Purdue University Dept. of Psychology
- McMurray, B. (2005, February) *Perception & Cognition: One at last in spoken word recognition*. Invited talk presented at the University of Iowa Dept. of Otolaryngology and Cochlear Implant Group
- McMurray, B. (2005, September) *Continuous acoustic detail affects spoken word recognition Implications for cognition, development and language disorders*. Invited colloquium presented at the University of Indiana University School of Medicine.
- McMurray, B. (2006, January) *Continuous detail is used in language comprehension and language learning: Temporal Integration at two time scales*. Invited colloquium presented at the University of Illinois Department of Psychology.
- McMurray, B. (2006, January) *Perceptual Categories: Old and gradient, young and sparse*. Invited colloquium presented at the Texas A&M Department of Psychology
- McMurray, B. (2006, February) *Back to the future: Where we're going, we don't need phonemes. Implications of a gradient lexicon*. Invited colloquium presented at the Rice University Department of Linguistics.

- McMurray, B. (2006, February) *Back to the future: Where we're going, we don't need phonemes. Implications of a gradient lexicon.* Invited colloquium presented at the University of Iowa Department of Linguistics.
- McMurray, B. (2007, March) *Spoken language comprehension at two time scales: developmental, and momentary.* Invited colloquium presented at the Grinnell University Department of Psychology.
 - McMurray, B. (2007, July) *Word learning is more than learning and words: Computational Investigations.* Invited tutorial presented at *Council on Academic Programs in Communication Sciences and Disorders, Summer Workshop.* University of Iowa.
 - McMurray, B. (2007, September) The power of parallelism, the grace of gradiency: Core computations in word recognition, and development. Invited presentation to Duke University, Department of Psychology, Developmental Area.
 - McMurray, B. (2007, September) The power of parallelism, the grace of gradiency: Core computations in word recognition, and development. Invited presentation to University of Memphis, Department of Psychology.
 - McMurray, B. (2008, May) The computational brain: simple mechanisms, unexpected power. Invited presentation to the 20th Anniversary of the Cornell University Cognitive Science Program.
 - McMurray, B. (2008, September) Language use at two timescales: Word recognition and word learning as the interaction of online processes and developmental history. Invited colloquium to Johns Hopkins University, Dept. of Cognitive Science.
 - McMurray, B. (2008, October) Language use at two timescales: Word recognition and word learning as the interaction of online processes and developmental history. Invited colloquium to University of California at Merced, Dept. of Cognitive Science.
 - McMurray, B. (2009, May) Is behavior the future of Cognitive Science? Emerging methods. Invited address at *The Future of Cognitive Science*, Merced, CA.

Conference Presentations

- McMurray, B., and Spivey M.J. (1999, April) The categorical perception of consonants: the interaction of learning and processing. Paper presented at the Second Meeting of the Northeast Cognitive Science Society, Philadelphia, PA.
- McMurray, B. and Spivey, M.J. (1999, May) The categorical perception of consonants: the interaction of learning and processing. Paper presented at the 34th Meeting of the Chicago Linguistics Society, Chicago, IL.
- McMurray, B. and Spivey, M.J. (1999, July) The categorical perception of consonants: the interaction of learning and processing. Paper presented at the Empire State Speech Research Conference, Binghamton, NY.
- Tanenhaus, M.K., Magnuson, J.S., McMurray, B., and Aslin, R.N. (2000, May) Does lexical knowledge mediate perceptual effects of compensatory coarticulation? Evidence from research with an artificial lexicon. Paper presented at the Workshop on Spoken Word Access Processes, Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands.

- McMurray, B., and Aslin, R.N. (2000, July) Anticipatory eye movements: a technique for assessing auditory categorization in 5-month-old infants. Poster presented at the International Conference on Infant Studies, Brighton, England.
- McMurray, B., Magnuson, J.S., Tanenhaus, M.K. and Aslin, R.N. (2001, March) Transitional Probabilities and Lexical Status in Spoken Word Recognition. Poster presented at CUNY Sentence Processing Conference, Philadelphia, PA.
- McMurray, B., Tanenhaus, M.K., and Aslin, R.N. (2002, March) The lexical/phonetic interface: Evidence for gradient effects of within-category VOT on lexical access. Paper presented at the CUNY Sentence Processing Conference, New York, NY.
- McMurray, B., Tanenhaus, M.K., Aslin, R.N., and Spivey, M.J. (2002, April) Gradient effects of within-category VOT differences on lexical activation as measured by eye fixations. Poster presented at Temporal Integration in the Perception of Speech, Aix-en-Provence, France.
- McMurray, B., and Aslin, R. (2002, April) Anticipatory eye movements (AntiEM): A new method for assessing multi-dimensional categorization in 6-month-olds. Poster presented at International Conference on Infant Studies. Toronto, Canada.
- McMurray, B. (2002, October) Object Comprehension: it's more than it looks. Commentary given at the University of Rochester Graduate Conference in Epistemology, Rochester, NY.
- McMurray, B., and Aslin, R. (2003, July) Anticipatory eye movements reveal infants' auditory and visual categories. Poster presented at UQAM Summer Institute in Cognitive Sciences, Montreal, Canada.
- Gow, D., McMurray, B., and Tanenhaus (2003, November) Eye Movements Reveal the Time Course of Multiple Context Effects in the Perception of Assimilated Speech. Poster presented at the 44th Annual Meeting of the Psychonomics Society, Vancouver, Canada.
- McMurray, B., Maye, J., Lathrop, A., and Aslin, R.N. (2003, November) Categorical Perception of Speech: Task Variations in Infants and Adults. Paper presented at Auditory Perception, Cognition, and Action Meeting, Vancouver, Canada.
- McMurray, B., Clayards, M.A., Aslin, R.N., and Tanenhaus, M.K. (2004, May) Gradient sensitivity to acoustic detail and temporal integration of phonetic cues. Poster presented at the 147th meeting of the Acoustical Society of America, New York.
- McMurray, B, Gow, D.W., and Tanenhaus, M.K (2004, June) Tracking the timecourse of multiple context effects in assimilated speech. Paper presented at the Ninth Conference on Laboratory Phonology, Urbana-Champaign, IL.
- Clayards, M. and McMurray, B. (2005, November) Can the temporal unfolding of gradient lexical activation reveal the grain of phonological units? Paper presented at the 11th Meeting of the Midcontinental Workshop on Phonology. Ann Arbor Michigan.
- Toscano, J., and McMurray, B. (2005, November) Statistical learning cross-constraints and the acquisition of speech categories: a computational approach. Paper presented at the 11th Meeting of the Midcontinental Workshop on Phonology. Ann Arbor Michigan.
- Horst, J. S., McMurray, B., and Samuelson, L.K., (2005, June) Connectionist Time and Dynamic Systems Time in One Architecture? Modeling Word Learning at Two Time Scales. Poster presented at Connectionist and Dynamic Systems Approaches to Development: On the Cusp of a New Grand Theory or Still Too Distributed? Iowa City, IA.

- McMurray, B. (2005, June) Connectionism from Connectionists, Dynamical Systems Theory from Connectionists, and some other stuff... (from Connectionists). Invited commentary and workgroup facilitation presented at Connectionist and Dynamic Systems Approaches to Development: On the Cusp of a New Grand Theory or Still Too Distributed? Iowa City, IA.
- Horst, J.S., Samuelson, L.K., and McMurray, B. (2005, October) Real-Time Dynamics of Language Acquisition in Two-Year-Old Children and Connectionist Models. Poster presented at the 3rd Meeting of the Cognitive Development Society. San Diego, CA.
- McMurray, B., Samuelson, V., Lee, S.H., and Tomblin, J.B. (2006, June) Eye-movements reveal the timecourse of spoken word recognition in normal and language-impaired adolescents. Poster presented at the Meeting of the Society for Research on Child Language Disorders, Madison, WI.
- Dennhardt, J., McMurray, B., Luck, S., and Toscano, J. (2006, June) Gradient effects of continuous acoustic detail revealed by event-related potentials. Poster presented at the 151st meeting of the Acoustical Society of America. Providence, RI.
- Toscano, J., and McMurray, B. (2006, June) A lexical locus for the integration of asynchronous cues to voicing: An investigation with natural stimuli. Poster presented at the 151st meeting of the Acoustical Society of America. Providence, RI.
- Munson, C., McMurray, B., and Gow, D.W. (2006, June) Lexical influences on the progressive facilitation during perception of assimilated speech. Paper presented at the 151st meeting of the Acoustical Society of America. Providence, RI.
- McMurray, B., Tanenhaus, M., and Aslin, R.N. (2006, June) Garden-path phenomena in spoken word recognition: Gradient sensitivity to continuous acoustic detail facilitates ambiguity resolution. Paper presented at the 151st meeting of the Acoustical Society of America. Providence, RI.
- Horst, J.S., McMurray, B., and Samuelson, L.K. (2006, July) Online processing is essential for learning: Understanding fast mapping and word learning in a dynamic connectionist architecture. Paper presented at the 28th meeting of the Cognitive Science Society. Vancouver, British Columbia.
- Toscano, J., and McMurray, B. (2007, April) Taking Statistical Learning to the Next Level: A Computational Approach to the Acquisition of Multi-Dimensional Categories. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA.
- Samelson, V., McMurray, B., Lee, S., and Tomblin, J.B. (2007, April) Eye Movement During Spoken Word Recognition in Normal and Language-Impaired Adolescents: Activation and Inhibition Effects. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA.
- Toscano, J., and McMurray, B. (2007, October) Integrating acoustic cues to phonetic features: a computational approach to cue weighting. Poster presented at Where do Features Come From? Phonological Primitives in the Brain, the Mouth, and the Ear, Paris.
- Galle, M., and McMurray, B. (2007, October) Infant representations of positional variants of stop consonants. Poster presented at Where do Features Come From? Phonological Primitives in the Brain, the Mouth, and the Ear, Paris.

- Munson, C., and McMurray, B. (2007, October) Perceptual features of place assimilation are continuous and contextually. Poster presented at Where do Features Come From? Phonological Primitives in the Brain, the Mouth, and the Ear, Paris.
- Cole, J., McMurray, B., Munson, C., and Linebaugh, G. (2007, October) Parsing acoustic variability as a mechanism for feature abstraction. Paper presented at Where do Features Come From? Phonological Primitives in the Brain, the Mouth, and the Ear, Paris.
- Toscano, J., Galle, M., and McMurray, B. (2007, October) Learning positional variation and place of articulation in stop consonants from the distributional statistics of acoustic cues. Poster presented at the 13th Mid-Continental Workshop on Phonology, Columbus, OH.
- Munson, C., Cole, J., McMurray, B., and Linebaugh, G. (2007, October) Vowel-to-vowel coarticulation across words in English: Acoustic evidence. Paper presented at the 13th Mid-Continental Workshop on Phonology, Columbus, OH.
- Robinson, M. and McMurray, B. (2007, November) The timecourse and nature of listeners' sensitivity to indexical information during word recognition. Poster presented at the 48th Meeting of the Psychonomic Society, Long Beach, CA.
- McMurray, B., Tanenhaus, M., and Aslin, R. (2007, November) Gradient sensitivity to continuous acoustic detail: avoiding the lexical garden-path. Poster presented at the 48th Meeting of the Psychonomic Society, Long Beach, CA.
- Kovack-Lesh, K., McMurray, B., and Oakes., L. (2008, March) Comparing Cats and Dogs: Infants' and Adults' Eye-Movements During Online Comparison. Poster presented at the International Conference on Infant Studies, Vancouver, BC
 - Kovack-Lesh, K., Oakes, L., and McMurray, B. (2008, March) Multiple Influences on Infants Category Learning. Poster presented at the International Conference on Infant Studies, Vancouver, BC.
 - Horst, J. S., Samuelson, L.K. & McMurray, B. (2008, April) The Dynamics of Referent Selection. Poster presented at New Directions in Word Learning. York, UK.
 - Munson, C., McEchron, D., McMurray, B., and Tomblin, J.B. (2008, May) Gradient perception of within-category acoustic detail by normal and language impaired listeners. Poster presented at the Society for Research in Language Disorders, Madison, WI.
- McMurray, B., McEchron, D., and Tomblin, J.B (2008, May) The timecourse of frequency effects on word recognition in language impairment: Evidence for impaired inhibition. Poster presented at the Society for Research in Language Disorders, Madison, WI.
- Mitchell, C., and McMurray, B. (2008, July) A stochastic model of the vocabulary explosion. Poster presented at the Meeting of the Cognitive Science Society, Washington, DC.
 - Toscano, J., and McMurray, B. (2008, July) Using the distributional statistics of speech sounds for learning and combining multiple acoustic cues. Poster presented at the Meeting of the Cognitive Science Society, Washington, DC.
 - McMurray & Jongman, (2008, November) From production to acoustics to perception: The case of fricatives. Poster presented at the 156th Meeting of the Acoustical Society of America, Miami, FL.

- Toscano, J. & McMurray, B. (2008, November) Online processing of acoustic cues used in speech perception: Comparing statistical and neural network models. Poster presented at the 156th Meeting of the Acoustical Society of America, Miami, FL.
- Munson, C., McEchron, W.D., McMurray, B. & Tomblin, J.B. (2008, November) Perceptual sensitivity to within-category acoustic variation by language impaired and typically developing adolescents. Poster presented at the 156th Meeting of the Acoustical Society of America, Miami, FL.
- Galle, M., McMurray, B., Walker, B., Barker, B., and Tomblin, J.B. (2009, April) Preference for Modified Adult Directed and Infant Directed Speech. Poster presented at the Meeting of the Society for Research in Child Development, Denver, CO.
- Kovack-Lesh & McMurray, (2009, April) Separating Phonetic Categories in Infant Directed Speech: Intentional Enhancement or Hyperarticulation? Poster presented at the Meeting of the Society for Research in Child Development, Denver, CO.
- McMurray, B. and Samuelson, L. (2009, April) Understanding Word Learning in the Context of Processing: A Computational Approach. Poster presented at the Meeting of the Society for Research in Child Development, Denver, CO.

Media & Outreach

Quoted in NY Times article on infant eye-tracking: “A Baby-Proof Method Tracks Just Where Little Ones Look” (July 31, 2007)

Work on vocabulary explosion received significant attention including articles by
 Associated Press: “Toddler Word Spurts are Guaranteed”
 Scientific American: “What Explains Toddlers' Linguistic Leap? Math” (Aug 7, 2007)
 Daily Telegraph of London: “Toddler jabbering easy to explain” (Aug 8, 2007)
 Science News: “Calculating the Word Spurt” (Aug 18, 2007)
 New Scientist: “Computer model may explain toddlers' chattering” (Aug 2, 2007)
 Interview on CBC Radio (“and sometimes Y”)
 Why Files: “Toddler’s “vocabulary explosion,” explained”

Presentation at Unitarian Universalist Community of Davenport (Oct, 2007)

- Quoted in Associated Press article on babbling “Baby birds babble just like human babies learning to talk” May, 2008
- Quoted in Parent Magazine (Dec, 2008)

Research Support

“Temporal Integration of Acoustic Detail in Speech”, Ruth L. Kirchstein Predoctoral National Research Service Award. (31DC006537-01). Role: PI. 2003-2004.

“Acoustic Detail Facilitates Word Recognition”, Old Gold Summer Fellowship, University of Iowa. 2005.

“The microstructure of word recognition in language impairment: Different deficits in inhibition and excitation?” Center for Advanced Studies, Spellman-Rockefeller Awards. \$9000 Role: PI. 2006-2007

“Lexical Integration of Acoustic Detail in Word Recognition: Normal and Disordered Speech”, 1R01DC008089-01A1. National Institutes of Deafness and other Communication Disorders. \$751,336 (total). Role P.I. 2007-2010

“Iowa Cochlear Implant Clinical Research Center Project 5”, 2P50DC000242-21. National Institutes of Deafness and other Communication Disorders. \$11,849,169 (direct) Role: Investigator

Student Research Support

“The Interplay of Continuous and Categorical Information in Speech Perception”, Iowa Research Experiences for Undergraduates Award, University of Iowa. Student: Scott Spilger (undergraduate), 2005

“Spoken word recognition: normalized or exemplar-based?” University of Iowa Student Government / University Honors Program. \$500. Student: Molly Robinson (undergraduate), 2006

“Spoken word recognition: normalized or exemplar-based?” University of Iowa, Dewey Stuit Fund. \$300. Student: Molly Robinson (undergraduate), 2006

“Spoken word recognition in Specific Language Impairment” Old Capitol Kiwanis Club. \$200. Student: Brooke Overgard (undergraduate), 2006

“Acoustic Cues for Anticipation in Speech Perception.” Sigma Xi: Grants in Aid of Research Program. \$400. Student: Cheyenne Munson (graduate), 2006

“The Phonetic Garden Path: Infinite Sounds on a Three Lane Road.” University of Iowa Honors Program, Senior Honors Thesis Grant. \$500. Student: Stephanie Huette (undergraduate), 2006

“Exploring joint influences on infant categorization: Previous experience and how infants compare on-line between stimuli. University of Iowa Student Government Research Grant. \$1000. Student: Kristine Kovack-Lesh (graduate), 2006

“Spoken word recognition: the relationship between lexical structure and acoustic detail” Iowa Center for Research by Undergraduates (ICRU) Scholar Assistant. Student: Jennifer Merickel, 2007.

Service

Departmental Service

Designed graduate student recruitment poster for Language Group, Fall, 2004

Drafted Developmental Area mission statement, Fall 2004

Redesigned Developmental Science Website, Fall, 2005, Fall, 2008

Committee for Undergraduate Studies, Fall, 2005-Fall, 2007

Committee for Facilities and Security, Fall, 2006-Fall, 2007

Clinical Search Committee, Fall, 2006-Spring, 2007

Developmental Science Search Committee, Fall, 2007-Spring, 2008

- Faculty Advisory Committee, Fall, 2007-present

Departmental Teaching Service

Experimental Psychology II, Cognition and Perception Area, Fall, 2004

Experimental Psychology II, Cognition and Perception Area, Spring, 2005

Developmental Proseminar, Developmental Science Area, Fall, 2005
Experimental Psychology II, Cognition and Perception Area, Spring 2006
Experimental Psychology II, Cognition and Perception Area, Fall, 2006
Developmental Proseminar, Developmental Science Area, Fall, 2006
Developmental Proseminar, Developmental Science Area, Fall, 2007

University Service

College of Liberal Arts and Sciences, Faculty Assembly Representative, Fall, 2006-Spring, 2007

Professional Service

Ad Hoc Review service: Journals

2004-2005 *Infancy (1), Cognitive Science (1)*
2005-2006 *Infancy (1), Cognitive Science (2), Journal of Experimental Psychology: Learning Memory and Cognition (1), Current Directions in Psychological Science (1), Perception & Psychophysics (1), Cognition (1), Journal of the Acoustical Society of America (1)*
2006-2007 *Infancy (1), Journal of the Acoustical Society of America (2)*
2007-2008 *Journal of Experimental Child Psychology (1), University of Santa Cruz Working Papers in Linguistics (1), Psychonomic Bulletin and Review (1), Cognition (1), Developmental Science (1), Memory and Cognition (1), Infancy (1)*
2008-2009 *Infancy (1), Psychological Science (1), Cognition (2), Journal of Experimental Child Psychology (1), Journal of Memory and Language (1), Child Development (2), Language and Cognitive Processes (1), Cognitive Science (2), Psychonomic Bulletin and Review (1)*

Editorial Boards

2008-2011 *Child Development*

Review service: Granting Agencies

Ad hoc reviewer for the UK Biotechnology and Biological Sciences Research Council, Joint Equipment Initiative Committee (2001)
Ad Hoc Reviewer for NSF BCS/Linguistics (2005)
Ad hoc reviewer for the UK Engineering and Physical Sciences Research Council (EPSRC) (2006).
Ad hoc reviewer for Dutch Science Ministry (2007)
Ad Hoc Reviewer for Dutch Humanities Council (2007)
National Science Foundation, Human and Social Dynamics Panel (2007)

Review Service: Books and Book Proposals

Oxford University Press (1 Book, 1 Proposal)
Book Chapters (1)

Conference Panels:

2004 meeting of the Cognitive Science Society
2006 meeting of the Cognitive Science Society
- 2008 meeting of the Cognitive Science Society
- Experimental and Theoretical Advances in Prosody (2008)

Conference Organization:

Member of the 2006 Mid-Continental Workshop on Phonology organizing committee (sponsored by the University of Iowa, Dept. of Linguistics), Fall, 2006.

Other:

Founding member of the ISIS Consortium on the Use of Computerized Eye Tracking Technologies with Infants.

Developed and released free KlattWorks speech synthesis application (105 users)