

**ANNUAL REPORT
2011**

SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS
FACULTY OF MEDICINE

Submitted by:

Marc D. Pell, Ph.D.
Director and Associate Dean

1 June 2012

Report Summary

The School of Communication Sciences and Disorders (SCSD) is an inter-disciplinary, research-intensive teaching unit focused on human communication and its disorders, one that serves as a bridge between the Faculties of Medicine, Science, Arts, and Education. The contents of this report highlight our unique strengths and activities that promote McGill's objective to be among the world leaders in the cognitive and behavioural neurosciences, language and cultural studies, and to deliver first-rate professional education.

Research and publications –SCSD faculty members continue to secure high levels of external operating funds from all three Canadian (CIHR, NSERC, SSHRC) and Québec research councils, and from private foundations. In 2011, eleven faculty members received 17 new external grants (13 as Principal Investigator) for a total of \$1.3 million in new funds to be administered directly by the School. Combined with other funding sources, SCSD faculty held operating grants valued at over \$5.0 million (\$2.4 million as Principal Investigator) plus \$0.8 million in the form of salary/research chair awards. The School boasts three faculty members (Baum, Pell, Steinhauer) who hold research chairs through the JMP/WDS or CRC programs. Of special note, Dr. Gracco successfully spearheaded a six-year renewal and expansion of the *Centre for Research on Brain, Language, and Music* (2011-2017).

During the reference period, SCSD faculty members published 27 refereed articles and chapters, many in leading international journals such as *Developmental Psychology*, *Journal of Speech, Language, and Hearing Research*, *Brain*, *NeuroImage*, and *Journal of Cognitive Neuroscience*. Research conducted by Drs. Baum and Steinhauer was featured in the summer 2011 issue of *Headway* in an article on aging and neuroscience, entitled "Communication Breakdowns". As an example of new research innovations, Dr. Rvachew established a new industry partnership between McGill and Tribal Nova in September 2011 to develop a prototype iPad application that will enhance children's language and literacy development through parent-child interactions and participatory reading.

Teaching and learning (graduate) – A total of 23 students graduated with the MSc (Applied) degree with specialization in Speech-Language Pathology and three students were granted the Ph.D. degree in Communication Sciences and Disorders. Our professional training program (M.Sc.A.) remains one of the most selective graduate programs at McGill. In 2011, we received 330 applications for 25 available slots; our incoming class had a mean GPA of 3.84/4.0. Our PhD program continues to attract high quality applicants from around the world; the number of research students registered in the School is now at an all-time high (24 PhD students, 2 MSc (thesis) students, 2 Postdoctoral Fellows). The fact that 75% of current PhD students are International is atypical of similar PhD programs in Canada and speaks to the international calibre of the research programs carried out by SCSD faculty.

In 2011, the School engaged in a thorough self-study and hosted a site review in November 2011 as part of the exercise for accreditation of its M.Sc. (Applied) teaching program in Speech-Language Pathology. A decision about re-accreditation will be rendered in 2012.

Involvement in the community – SCSD faculty provided academic leadership in our field both nationally and internationally. Seven faculty members (Baum, Gracco, Pell, Polka,

Rvachew, Steinhauer, Thordardottir) served as journal Editors or on Editorial Boards in 2011. Dr. Rvachew was Chair of the 2011 Annual Conference of the Canadian Association of Speech-Language Pathologists and Audiologists meeting held in Montreal in April 2011, and Drs. Steinhauer and Elin Thordardottir each organized workshops focused on bilingualism in their respective areas of research expertise.

Under the supervision of Ms. Vogt, the SCSD continued a successful partnership with the *Association québécoise des personnes aphasiques* to provide free clinical services in Speech-Language Pathology for English-speaking Montrealers who live with aphasia, an acquired impairment that affects language (e.g., following a stroke). The SCSD also ran a summer camp (*Camp Leapfrog*) in August 2011 to foster inter-professional education opportunities for our students, while providing services for children with mild, multiple handicaps.

Partnerships – SCSD faculty members co-operate extensively in teaching and research with other McGill departments and institutions. In 2011, six SCSD faculty members (Gonnerman, Nadig, Polka, Rvachew, Steinhauer, Elin Thordardottir) provided instruction and/or doctoral research supervision as members of the inter-disciplinary Language Acquisition program, in collaboration with the departments of Linguistics, Psychology, and Integrated Studies in Education. As well, four SCSD faculty members (Baum, Gracco, Pell, Steinhauer) actively participated and provided research supervision to graduate students enrolled in the Integrated Program in Neuroscience. SCSD faculty members (co) supervised McGill undergraduate and/or graduate students registered in Psychology, Linguistics, Educational and Counselling Psychology, and Arts and Sciences (Cognitive Science program) and co-supervised PhD students registered at other institutions (e.g., Université de Montréal, Max Planck Institute, Leipzig, Germany).

Note that all SCSD faculty members are actively partnering with Montreal researchers as members of the *Centre for Research on Brain, Language, and Music* (among other research networks) and are pursuing their own innovative research programs that involve collaborative partnerships at the national and/or international level.

Milestones - Dr. Marc Pell was promoted to the rank of Professor on June 1, 2011 and re-appointed as Interim Director of the School in September 2011. Dr. Gracco continues his appointment as Director of the renewed and renamed *Centre for Research on Brain, Language and Music*.

Honours, awards, and prizes - Ms. Kristina Kasparian, a PhD4 student supervised by Dr. Steinhauer, received the prestigious Vanier CGS Doctoral Scholarship to undertake her research on the neurocognition of second language learning. Dr. Simon Rigoulot, a postdoctoral fellow working with Dr. Pell, was awarded the McLaughlin Postdoctoral Fellowship from the Faculty of Medicine.

Fundraising – In September 2011, Mme Lucie Besner established the *Besner Fellowship for the Study of Human Communication Neuroscience* through a generous gift of \$200,000. This endowed fellowship will be awarded annually to a PhD student in the School to advance knowledge of the relationship between language, communication, and the human brain.

Section I –Unit Status Update

Mission statement

The mission of the School of Communication Sciences and Disorders is to advance our understanding of human communication and its disorders and to promote excellence in scholarship as well as in professional service. This is achieved by providing a challenging multidisciplinary learning environment and engaging in scholarly activities that not only advance basic and applied knowledge, but that will ensure our place among the international leaders of the field.

Activities & Objectives

The School provides both professional and research training in communication sciences and disorders at the graduate level through its M.Sc. (Applied), M.Sc., and Ph.D. degrees. The goal of the M.Sc. (A) program is to educate the next generation of well-prepared and innovative Speech-language pathology professionals by providing enriched classroom training, clinical laboratory activities that enhance the transition from theory to practice, and outstanding clinical practicum experiences. We are also committed to providing continuing education activities for speech and hearing professionals in the community and to working together with the *Ordre des Orthophonistes et Audiologistes du Québec (OOAQ)* to maintain the quality and integrity of the professions in Québec.

The objective of our research degrees is to develop leading researchers and scholars who will go on to train future investigators in the field of communication sciences and disorders and who, through their research, will advance our understanding of the processes of human communication and its breakdown. Interdisciplinary interactions are at the core of our research training approach, which includes preparation to conduct both fundamental and clinically-applied investigations.

Academic Staff

Shari Baum, Ph.D. James McGill Professor

(serving as Associate Dean, Graduate and Postdoctoral Studies, 2010-2013)

Meghan Clayards, Ph.D., Assistant Professor (joint appointment with Linguistics)

Laura Gonnerman, Ph.D. Assistant Professor

Vincent Gracco, Ph.D. Associate Professor

Aparna Nadig, Ph.D. Assistant Professor

Marc Pell, Ph.D. Professor & William Dawson Scholar, Interim Director

Linda Polka, Ph.D. Associate Professor

Susan Rvachew, Ph.D. Associate Professor

(on sabbatic leave, Sept2010-Aug2011)

Karsten Steinhauer, Ph.D. Associate Professor & Tier II Canada Research Chair

(on sabbatic leave Jan-Dec2011)

Elin Thordardottir, Ph.D. Associate Professor

Anne Vogt, M.Sc.A. Faculty Lecturer (Coordinator of Clinical Education)

Section II – Grants, publications, and service outside of McGill

SCSD faculty members continue to excel in terms of the impact of research publications produced in our field, tri-council funding, and all faculty maintain visible, international-calibre research programs that are recognized by their peer communities. We have particular research strengths in the areas of Bilingualism, Human Communication Neuroscience, and Applied Research in Communication Sciences and Disorders. Our research accomplishments are enriched by the involvement of SCSD faculty members in the inter-disciplinary Centre for Research on Brain, Language and Music.

Grants and Awards Received

BAUM, Shari

Source: NSERC – Discovery Grants
 Title: Sensorimotor control of speech
 Amount: \$155,000
 Term: 2011-2016
 Role: Principal Investigator

Source: FQRNT – Project de recherche en équipe
 Title: Le développement sensori-moteur de la parole : Expérimentation et modélisation
 Amount: \$150,750
 Term: 2011-2014
 Role: Co-Investigator (Principal Investigator = L. Ménard, Département de Linguistique, UQAM)

Source: CIHR
 Title: The consequences of bilingualism in healthy older adults for cognitive control, language processing and their structural brain correlates
 Amount: \$50,000
 Term: 2011-2012
 Role: Co-Investigator (Principal Investigator = D. Titone, McGill Dept. of Psychology)

Source: Réseau de bio-imagerie du Québec (RBIQ)
 Title: The consequences of bilingualism in healthy older adults for cognitive control, language processing and their structural brain correlates
 Amount: \$10,000
 Term: 2011-2012
 Role: Co-Investigator (Principal Investigator = D. Titone, McGill Dept. of Psychology)

CLAYARDS, Meghan

Source: FQRSC – Nouveaux Chercheurs
 Title : Une analyse acoustique de la réduction dans les discours de type conversationnel
 Amount : \$38,837
 Term : 2011-2014
 Role: Principal Investigator

GONNERMAN, Laura

Source: SSHRC – Standard Research Grants
 Title: Eye movement studies of first and second language idiom processing: Are idioms compositionally analyzed or retrieved during comprehension?
 Amount: \$133,623
 Term: 2011-2014
 Role: Co-Investigator (Principal Investigator, D. Titone, McGill Dept. of Psychology)

GRACCO, Vincent

Source: FQRNT – Regroupements stratégiques
 Title: Centre for Research on Brain, Language and Music
 Amount: \$250,000
 Term: 2011-2017
 Role: Principal Investigator

Source: FQRSC - Regroupements stratégiques
 Title: Centre for Research on Brain, Language and Music
 Amount: \$125,000
 Term: 2011-2017
 Role: Principal Investigator

NADIG, Aparna

Source: Max Bell Foundation – Project Grants
 Title: A service delivery model to better support young adults with Autism Spectrum Disorders
 Amount: \$154,300
 Term: 2011-2014
 Role: Principal Investigator (with co-investigator Prof. Tara Flanagan, McGill Dept. of Educational and Counselling Psychology)

NADIG, Aparna (continued)

Source: SSHRC - Insight Development Grant
Title: Routes to general knowledge: Social versus nonsocial learning
Amount: \$74,748
Term: 2011-2013
Role: Principal Investigator

PELL, Marc

Source: NSERC – Discovery Grants
Title: Neuro-cognitive studies of emotion processing in speech
Amount: \$235,000
Term: 2011-2016
Role: Principal Investigator

Source: CIHR – Open Operating Grants
Title: Effects of Parkinson’s disease on social cognition and communication
Amount: \$83,202
Term: 2011-2012
Role: Principal Investigator

Source: CIHR/Parkinson Society Canada – Priority Announcement
Title: Effects of Parkinson’s disease on social cognition and communication
Amount: \$100,000
Term: 2011-2013
Role: Principal Investigator

STEINHAUER, Karsten

Source: NSERC – Discovery Grants
Title: Brain signatures of nativeness in native-like second language acquisition
Amount: \$155,000
Term: 2011-2016
Role: Principal Investigator

Elin THORDARDOTTIR

Source: SSHRC – Standard Research Grants
Title: Effects of bilingual exposure on bilingual acquisition
Amount: \$179,925
Term: 2011-2014
Role: Principal Investigator

VOGT, Anne/PELL, Marc

Source: McGill Training and Retention of Health Professionals (Health Canada)
 Title: Coordinated inter-professional services in English for members of the AQPA: Supervised internships for speech-language pathology, occupational therapy and social work students from McGill
 Amount: \$57,182
 Term: 2011-2013
 Role: Principal Investigator

Source: McGill Training and Retention of Health Professionals (Health Canada)
 Title: Speech-Language Pathology services for English speaking adults with aphasia living in Montreal: Supervised internships for English speech-language pathology students from the School of Communication Sciences and Disorders in collaboration with the AQPA
 Amount: \$51,584
 Term: 2011-2013
 Role: Principal Investigator

Scholarly works published in the 2011 calendar year

Found at: <http://www.mcgill.ca/scsd/research/publications>

BAUM, Shari

- Thibeault, M., **Baum, S.R.**, Ménard, L., Richard, G., & McFarland, D. (2011). Articulatory movements during speech adaptation to palatal perturbation. *Journal of the Acoustical Society of America*, 129, 2112-2120.

- Pauker, E., Itzhak, I., **Baum, S. R.**, & Steinhauer, K.) (2011). Co-operating and conflicting prosody in spoken English garden path sentences: Evidence from event-related potentials. *Journal of Cognitive Neuroscience*, 23, 2731-2751.

CLAYARDS, Meghan

- Niebuhr, O., **Clayards, M.**, Meunier, C., & Lancia, L. (2011). On place assimilation within sibilant sequences – comparing French and English. *Journal of Phonetics*, 39, 429-451.

- Bejjanki, V.R., **Clayards, M.**, Knill, D.C. & Aslin, R.N.) (2011) Cue integration in categorical tasks: insights from audio-visual speech perception. *PLoS ONE*, 6 (5): e19812. doi:10.1371/journal.pone.0019812.

- **Clayards, M.** & Doty, E. (2011). Automatic analysis of sibilant assimilation in English. Proceedings of Acoustics week in Canada. *Canadian Acoustics*, 39 (3), 194-195.

GRACCO, Vincent

- Shum, M., Shiller, D., **Baum S.R.**, & **Gracco V.L.** (2011). Sensorimotor integration for speech motor learning involves the inferior parietal cortex. *European Journal of Neuroscience*, 34 (11), 1817-1822.
- Beal, D., Quraan M., Cheyne, D., Taylor, M., **Gracco V.L.** & DeNil L. (2011). Speech-induced suppression of evoked auditory fields in children who stutter. *NeuroImage*, 54 (4), 2994-3003.
- Feng Y., **Gracco V.L.**, & Max L. (2011). Integration of auditory and somatosensory error signals in the neural control of speech movements. *Journal of Neurophysiology*, 106 (2), 667-679.

NADIG, Aparna

- Vivanti, G., McCormick, C., Young, G., Abucayan, F., Hatt, N., **Nadig, A.**, Ozonoff, S. & Rogers, S. (2011). Intact and impaired mechanisms of action understanding in autism. *Developmental Psychology*, 47 (3), 841-856.

PELL, Marc

- **Pell, M.D.** & Kotz, S.A. (2011). On the time course of vocal emotion recognition. *PLoS ONE*, 6 (11): e27256. doi: 10.1371/journal.pone.0027256.
- Jesso, S., Morlog, D., Ross, S., **Pell, M.D.**, Pasternak, S., Mitchell, D., Kertesz, A. & Finger, E. (2011). The effects of oxytocin on social cognition and behaviour in frontotemporal dementia. *Brain*, 134, 2493-2501.
- **Pell, M.D.**, Jaywant, A., Monetta, L., & Kotz, S.A. (2011). Emotional speech processing: disentangling the effects of prosody and semantic cues. *Cognition & Emotion*, 25 (5), 834-853.
- Paulmann, S. & **Pell, M.D.** (2011). Is there an advantage for recognizing multi-modal emotional stimuli? *Motivation and Emotion*, 35 (2), 192-201.
- Cheang, H.S. & **Pell, M.D.** (2011). Recognizing sarcasm without language: A cross-linguistic study of English and Cantonese. *Pragmatics & Cognition*, 19 (2), 203-223.

POLKA, Linda

- Best, C., Bradlow, A., Guion, S., & **Polka, L.** (2011). Using the lens of phonetic experience to resolve phonological forms. *Journal of Phonetics*, 39, 453-455.

- **Polka, L.**, & Bohn, O-S. (2011). Natural Referent Vowel (NRV) framework: An emerging view of early phonetic development. *Journal of Phonetics*, 39, 467-478.

RVACHEW, Susan

- MacLeod, A.A.N., Laukys, K. & **Rvachew, S.** (2011). The impact of bilingual language learning on whole-word complexity and segmental accuracy among children aged 18 and 36 months. *International Journal of Speech-Language Pathology*, 13 (6), 490-499.

- **Rvachew, S.**, Mattock, K., **Clayards, M.**, Chiang, P., & Brosseau-Lapr e, F. (2011). Perceptual considerations in multilingual adult and child speech acquisition (pp. 58-68). In S. McLeod & B.A. Goldstein (Eds.), *Multilingual Aspects of Speech Sound Disorders in Children*. Bristol, UK: Multilingual Matters.

- **Rvachew, S.** & Brosseau-Lapr e, F. (2011). Preschoolers with phonological disorders learn language and literacy skills in 12 weeks. *Communiqu e*, 25 (3), 18-19.

STEINHAUER, K.

- Hwang, H. & **Steinhauer, K.** (2011). Phrase length matters: The interplay between implicit prosody and syntax in Korean 'garden path' sentences. *Journal of Cognitive Neuroscience*, 23 (11), 3555-3575.

- Pauker, E., Itzhak, I., **Baum, S.R.**, & **Steinhauer, K.** (2011). Effects of cooperating and conflicting prosody in spoken English garden path sentences: ERP evidence for the boundary deletion hypothesis. *Journal of Cognitive Neuroscience*, 23 (10), 2731-2751.

- **Steinhauer, K.** (2011). Combining behavioral measures and brain potentials to study categorical prosodic boundary perception and relative boundary strength. *Proceedings of the 17th International Congress of Phonetic Sciences (ICPhS XVII)*, Hongkong (China), p. 1898-1901.

- Pr evost, A.E., Goad, H. & **Steinhauer, K.** (2011). Prosodic transfer: An event-related potentials approach. *Proceedings of the 6th International Symposium on the Acquisition of Second Language Speech, New Sounds 2010*, Poznań, Poland, 1-3 May 2010. (eds. Katarzyna Dziubalska-Ko aczyk, Magdalena Wrembel, Ma gorzata Kul), 361-366.

- **Steinhauer, K.** & Connolly, J.F. (2011). Event-related potentials in the study of language. In: Whitaker, H. (Ed.), 191-203. *Concise Encyclopedia of Brain and Language*. Oxford: Elsevier.

- Pr evost, A.E., Goad, H., & **Steinhauer, K.** (2011). Prosodic transfer: An event-related potentials approach. *Achievements and Perspectives in SLA of speech II: New Sounds 2010* (eds. Magdalena Wrembel, Ma gorzata Kul, Katarzyna Dziubalska-Ko aczyk), 217-226.

THORDARDOTTIR, Elin

- **Elin Thordardottir** (2011). The relationship between bilingual exposure and vocabulary development. *International Journal of Bilingualism*, 14 (5), 426-445.

- **Elin Thordardottir**, Kehayia, E., Mazer, B., Lessard, N., Majnemer, A., Sutton, A., Trudeau, N. & Chilingarian, G. (2011). Sensitivity and specificity of French language measures for the identification of Primary Language Impairment at age 5. *Journal of Speech, Language and Hearing Research*, 54, 580-597.

Academic and community engagement service outside of McGill by individual members of the unit

1) Provision of professional services to underserved groups in the Montreal community:

- The SCSD continues a successful partnership with the *Association québécoise des personnes aphasiques* to provide free clinical services in Speech-Language Pathology for English-speaking Montrealers who live with aphasia, an acquired impairment that affects language (e.g., following a stroke). Under the supervision of Ms. Vogt, this “satellite clinic” provides group and individual therapy to approximately 60 individuals with chronic aphasia, while creating clinical placement opportunities for our M.Sc. (A) students. In 2011, Ms. Vogt secured new funding for this project through the Health Canada Retention of Health Professionals fund and expanded its mandate to provide inter-professional services to this group in the areas of Occupational Therapy and Social Work. As a consequence of participating in this program, Mme Lucie Besner established an endowed PhD fellowship in the SCSD to advance new research on language and the brain (see summary).
- The SCSD ran a successful summer school program (“Camp Leapfrog”) in August 2011 for children with mild, multiple handicaps, under the direction of Ms. Vogt in collaboration with the School of Physical and Occupational Therapy, the Montreal Children’s Hospital and the Lester B. Pearson School Board. This program created internship opportunities for applied M.Sc. students while providing training in multi-professional and evidence-based practice in the context of an underserved population of children. This program was funded by MELS in response to the Action 6 RFP entitled ‘Start-up Programs in Health’, awarded to Dr. Rvachew.

2) Academic service by individual members of the SCSD:

- Throughout 2011, SCSD faculty members gave invited research lectures and/or workshops in their domain of expertise in several countries in Europe, Asia, and in the USA.
- Dr. Baum served as External Reviewer of Academic programs at the University of Toronto, Department of Speech-Language Pathology, and at the University of British Columbia, Department of Linguistics.

- Dr. Baum is president of the Montreal chapter of the Society for Neuroscience and is on the Board of Governors of the Academy of Aphasia, a scientific society devoted to the study of acquired neurogenic language impairments.
- Drs. Gonnerman and Gracco served on Review panels for the National Science Foundation and CIHR, respectively.
- As Director of the Centre for Research on Brain, Language, and Music, Dr. Gracco organized events designed for the Montreal research community and for the general public. He organized the “*Latest on Language*” series of public lectures that touched on topics of public interest, such as language acquisition, bilingualism and reading. He also organized the *Distinguished Lecture Series* for language researchers in the Montreal community.
- Dr. Nadig participated and provided assessments in conjunction with the research group of the Montreal Children’s Hospital Autism Spectrum Disorders Program.
- Dr. Pell represented the CREPUQ on the Comité de la formation of the *Ordre des orthophonistes et audiologistes du Québec*.
- Dr. Steinhauer chaired a workshop on “Bilingualism: Neurolinguistics and Psycholinguistic Perspectives” in Aix-en-Provence, France, in September 2011.
- Dr. Elin Thordardottir served as Chair of the assessment committee for a COST Action project on bilingual Specific Language Impairment funded by the European Union. She is responsible for promoting and overseeing a uniform selection of diagnostic criteria for studies undertaken in participating countries. She also collaborated with the Reykjavik School Board (Iceland) to develop a language assessment test for speakers of Icelandic as a second language.
- Dr. Elin Thordardottir represented the Canadian Council of University Programs on key committees examining the revision of professional standards as new competency profiles are developed for the professions of Speech-Language Pathology and Audiology.
- Ms. Vogt organized and hosted several continuing education activities/workshops designed for our clinical educators and other health professionals living in the Montreal community on behalf of the SCSD.
- The School disseminated information on the nature of communication disorders, professional services, and clinical training and student research initiatives at the School through its *Speaking of Language* newsletter. This newsletter was written by SCSD students in consultation with Dr. Rvachew and then distributed to the wider SCSD and Montreal clinical communities (see: <http://www.mcgill.ca/scsd-newsletter/>).