



**ANNUAL REPORT**

**2021**

**SCHOOL OF COMMUNICATION SCIENCES AND DISORDERS**

**FACULTY OF MEDICINE AND HEALTH SCIENCES**



Submitted by:

Susan Rvachew, Ph.D.  
Associate Dean and Director

March 2023

## **Unit Overview**

The School of Communication Sciences and Disorders strives to advance our understanding of human communication and its disorders and to promote excellence in scholarship and professional service. Our teaching focuses on graduate-level professional training in Speech-Language Pathology and advanced research training in this field. Our applied research on the nature of communication disorders across the lifespan supports speech-language pathology practice for the identification and treatment of speech, language, and voice disorders. Our fundamental research informs issues in child development, the neurocognitive basis of human communication, multilingualism, literacy development, and other aspects of communication sciences. These educational and research initiatives are implemented in partnership with the broader community, including the bilingual and multicultural network of healthcare centres in Montreal and the stimulating system of research partners that we link to in Montreal and around the world.

The year 2021 was the final year of our Strategic Plan that focused on enhancing our educational programs and highlighting the visibility of our research. The plan focused on the following objectives: (1) transforming our M.Sc. (Applied) curriculum to a “competency” approach; (2) expanding our clinical placement opportunities; (3) enhance international visibility of our research and research trainees; and (4) develop new initiatives that address issues facing Canada’s Indigenous and cultural communities. Progress toward all these goals was achieved. In particular, faculty members received training to conduct competency assessments in their courses. New funds were obtained and used to create innovative new satellite clinics for our students in the applied program. Research productivity continued to be stellar as outlined in the remainder of this report. Finally, the clinical education team successfully obtained funds to expand clinical opportunities in remote parts of the province.

This year was marked as the second year of the pandemic in our school. Some teaching moved from virtual format to in-person format, that is, back into the school but with significant restrictions to protect the safety of students during hands-on laboratory activities. The restrictions associated with the pandemic reduced the amount of research that could be conducted. Furthermore, the sense of community among students and faculty was maintained only through super efforts of students to bring everyone together as best they could by zoom from time to time. Town-hall meetings by zoom were also held periodically so that students and faculty could ask and answer questions about the extraordinary procedures.

## **Research and Publications**

SCSD faculty members secured competitive research funding to support their research programs. Faculty members also played leading roles in research networks at the local (Transforming Autism Care Consortium; Centre for Research in Brain, Language, and Music; Institut universitaire sur la réadaptation en déficience physique) and international (Acoustical Society of America; Enhancing Children’s Oral Language Skills; International Federation of ORL Societies) levels.

Twelve tenure-track SCSD faculty members published 4 book chapters and 37 refereed articles in leading international journals, in collaboration with their students and other researchers across their international networks. An additional 16 publications were submitted or were under revision but are not listed here.

- Athari, P., Dey, R., & Rvachew, S. (2021). Vocal imitation between mothers and infants. *Infant Behavior and Development*, 63, Article 101531. <https://doi.org/10.1016/j.infbeh.2021.101531>
- Auclair-Ouellet, N., Tittley, L., & Root, K. (2022). Effect of an intensive comprehensive aphasia program on language and communication in chronic aphasia. *Aphasiology*, 36(11), 1312–1332. <https://doi.org/10.1080/02687038.2021.1959016>
- Barbier, G., Merzouki, R., Bal, M., Baum, S. R., & Shiller, D. M. (2021). Visual feedback of the tongue influences speech adaptation to a physical modification of the oral cavity. *The Journal of the Acoustical Society of America*, 150(2), 718–733. <https://doi.org/10.1121/10.0005520>
- Bouhabel, S., Park, S., Kolosova, K., Latifi, N., Kost, K., Li-Jessen, N. Y. K., & Mongeau, L. (2021). Functional analysis of injectable substance treatment on surgically injured rabbit vocal folds. *Journal of Voice*. <https://doi.org/10.1016/j.jvoice.2021.06.001>
- Byers-Heinlein, K., Tsui, A. S. M., Bergmann, C., Black, A. K., Brown, A., Carbajal, M. J., Durrant, S., Fennel, C. T., Fiévet A. -C., Frank, M. C., Gampe, A., Gervain, J., Gonzalez-Gomez, N., Hamlin, J. K., Havron, N., Hernik, M., Kerr, S., Killam, H., Klassen, K., . . . Wermelinger, S. (2021). A multilab study of bilingual infants: Exploring the preference for infant-directed speech. *Advances in Methods and Practices in Psychological Science*, 4(1). <https://doi.org/10.1177/2515245920974622>
- Caballero, J., Mauchand, M., Jiang, X., & Pell, M. D. (2021). Cortical processing of speaker politeness: Tracking the dynamic effects of voice tone and politeness markers. *Social Neuroscience*, 16(4), 423–438. <https://doi.org/10.1080/17470919.2021.1938667>
- Chauvin, A., Baum, S., & Phillips, N. (2021). Individuals with mild cognitive impairment and Alzheimer's disease benefit from audiovisual speech cues and supportive sentence context. *Journal of Speech, Language, & Hearing Research*, 64(5), 1550–1559. [https://doi.org/10.1044/2021\\_JSLHR-20-00402](https://doi.org/10.1044/2021_JSLHR-20-00402)
- Clayards, M., Gaskell, M. G., & Hawkins, S. (2021). Phonetic detail is used to predict a word's morphological composition. *Journal of Phonetics*, 87, Article 10155. <https://doi.org/10.1016/j.wocn.2021.101055>
- Coburn, P. T., Herbay, A. C., Berrini, M. & Li-Jessen, N. Y. K. (2021). An in vitro assessment of the response of THP-1 macrophages to varying stiffness of a glycol-chitosan hydrogel for vocal fold tissue engineering applications. *Journal of Biomedical Materials Research Part A*, 109(8), 1337–1352. <https://doi.org/10.1002/jbm.a.37125>
- Coburn, P. T., Li, X., Li, J., Kishimoto, Y., & Li-Jessen, N. Y. K. (2021). Progress in vocal fold regenerative biomaterials: An immunological perspective. *Advanced NanoBiomed Research*, 2(2), Article 2100119. <https://doi.org/10.1002/anbr.202100119>
- Di Francesco, C., Murahara, F., Martin, V., Flanagan, T., & Nadig, A. (2021). The value of employment support services for adults on the autism spectrum and/or with intellectual disabilities: Employee, employer, and job coach perspectives. *The Journal of Vocational Rehabilitation*, 55(3), 283–296. <https://doi.org/10.3233/JVR-211163>

- Gilbert, A. C., Honda, C. T., Phillips, N. A., & Baum, S. R. (2021). Near native-like stress pattern perception in English-French bilinguals as indexed by the mismatch negativity. *Brain and Language*, 213, Article 104892. <https://doi.org/10.1016/j.bandl.2020.104892>
- Gilbert, A. C., Lee, J. G., Coulter, K., Wolpert, M. A., Kousaie, S., Gracco, V. L., Klein, D., Titone, D., Phillips, N. A., & Baum, S. R. (2021). Spoken word segmentation in first and second language: When ERP and behavioral measures diverge. *Frontiers in Psychology*, 12, Article 705668. <https://doi.org/10.3389/fpsyg.2021.705668>
- Gullifer, J. W., Kousaie, S., Gilbert, A. C., Grant, A., Giroud, N., Coulter, K., Klein, D., Baum, S., Phillips, N., & Titone, D. (2021). Bilingual language experience as a multidimensional spectrum: Associations with objective and subjective language proficiency. *Applied Psycholinguistics*, 42(2), 245–278. <https://doi.org/10.1017/S0142716420000521>
- Haeuser, K. I., Baum, S., & Titone, D. (2021). Effects of aging and non-canonical form presentation on idiom processing: Evidence from eye tracking. *Applied Psycholinguistics*, 42(1), 101–127. <https://doi.org/10.1017/S0142716420000612>
- Hallé, M. -C., Bussi eres, A., Asseraf-Pasin, L., Storr, C., Mak, S., Root, K., & Thomas, A. (2021). Building evidence-based practice competencies among rehabilitation students: A qualitative exploration of faculty and preceptors' perspectives. *Advances in Health Sciences Education*, 26, 1311–1338. <https://doi.org/10.1007/s10459-021-10051-0>
- Kolossova, K., Gao, Q., Tuznik, M., Bouhabel, S., Kost, K. M., Wang, H., Li-Jessen, N. Y. K., Mongeau, L., & Wiseman, P. W. (2021). Characterizing vocal fold injury recovery in a rabbit model with three-dimensional virtual histology. *The Laryngoscope*, 131(7), 1578–1587. <https://doi.org/10.1002/lary.29028>
- Kousaie, S., Chen, J. -K., Baum, S. R., Phillips, N. A., Titone, D., & Klein, D. (2021). Bilingual language experience and the neural underpinnings of working memory. *Neuropsychologia*, 163, Article 108081. <https://doi.org/10.1016/j.neuropsychologia.2021.108081>
- Kremin, L. V., Alves, J., Orena, A. J., Polka, L., & Byers-Heinlein, K. (2021). Code-switching in parents' everyday speech to bilingual infants. *Journal of Child Language*, 49(4), 714–740. <https://doi.org/10.1017/S0305000921000118>
- Latif, N., Di Francesco, C., Custo-Blanch, M., Hyde, K., Sharda, M., & Nadig, A. (2021). Joint engagement and movement: Active ingredients of a music-based intervention with school-age children with autism. *NeuroRehabilitation*, 48(2), 167–185. <https://doi.org/10.3233/NRE-208012>
- Liu, P., Rigoulot, S., Jiang, X., Zhang, S., & Pell, M. D. (2021). Unattended emotional prosody affects visual processing of facial expressions in Mandarin-speaking Chinese: A comparison with English-speaking Canadians. *Journal of Cross-Cultural Psychology*, 52(3), 274–294. <https://doi.org/10.1177/0022022121990897>
- Liu, Y. Y., Polka, L., Masapollo, M., & M enard, L. (2021). Disentangling the roles of formant proximity and stimulus prototypicality in adult vowel perception. *JASA Express Letters*, 1(1), Article 015201. <https://doi.org/10.1121/10.0003041>
- Matthews, T., Barbeau-Morrison, A., & Rvachew, S. (2021). Application of the challenge point framework during treatment of speech sound disorders. *Journal of Speech, Language, and Hearing Research*, 64(10), 3769–3785. [https://doi.org/10.1044/2021\\_JSLHR-20-00437](https://doi.org/10.1044/2021_JSLHR-20-00437)

- Mauchand, M., Caballero, J. A., Jiang, X., & Pell, M. D. (2021). Immediate online use of prosody reveals a speaker's ironic intentions: Neurophysiological evidence. *Cognitive, Affective, & Behavioral Neuroscience*, 21, 74–92. <https://doi.org/10.3758/s13415-020-00849-7>
- Mauchand, M., & Pell, M. D. (2021). Emotivity in the voice: Prosodic, lexical, and cultural appraisal of complaining speech. *Frontiers in Psychology*, 11, Article 619222. <https://doi.org/10.3389/fpsyg.2020.619222>
- Pell, M. D. & Kotz, S. A. (2021). Comment: The next frontier: Prosody research gets interpersonal. *Emotion Review*, 13(1), 51–56. <https://doi.org/10.1177/1754073920954288>
- Pell, M. D., Monetta, L., Caballero, J., & Coulombe, V. (2021). Parkinson's disease. In L. Cummings (Ed.), *Handbook of pragmatic language disorders: Complex and underserved populations* (pp. 381–415). Springer.
- Polka, L., Masapollo, M. and Ménard, L. (2021). Setting the stage for speech production: Infants prefer listening to speech sounds with infant vocal resonances. *Journal of Speech, Language, and Hearing Research*, 65(1), 109–120. [https://doi.org/10.1044/2021\\_JSLHR-21-00412](https://doi.org/10.1044/2021_JSLHR-21-00412)
- Polka, L., Molnar, M., Zhao, T. C., & Masapollo, M. (2021). Neurophysiological correlates of asymmetries in vowel perception: An English-French cross-linguistic event-related potential study. *Frontiers in Human Neuroscience*, 15. <https://doi.org/10.3389/fnhum.2021.607148>
- Polka, L., & Ruan, Y. (2021). The ins and outs of baby talk. *Acoustics Today*, 17(1), 26–34. <https://doi.org/10.1121/AT.2021.17.1.26>
- Ridgway, C., Bouhabel, S., Martignetti, L., Kishimoto, Y., & Li-Jessen, N. Y. K. (2021). Pediatric vocal fold paresis and paralysis. *JAMA Otolaryngology–Head & Neck Surgery*, 147(8), 745–752. <https://doi.org/10.1001/jamaoto.2021.1050>
- Royle, P., & Steinhauer, K. (2021). Neural correlates of morphology computation and representation. In M. Grimaldi, Y. Shtyrov, & E. Brattico (Ed.), *Language electrified: Techniques, methods, applications, and future perspectives in the electrophysiological investigation of language* (pp. 3–60). Springer.
- Rvachew, S. (2021). Children with speech sound disorders. In J. S. Damico, N. Müller, & M. J. Ball (Eds.), *The handbook of language and speech disorders* (2nd ed., pp. 313–333). Wiley.
- Rvachew, S., & Brosseau-Lapr  , F. (2021). Speech perception intervention. In S. McLeod, L. Williams, & R. MacAuley (Eds.), *Intervention in speech sound disorders in children* (2nd ed., pp. 201–224). Brookes Publishing.
- Sander, K., Barbeau, E. B., Chai, X., Kousaie, S., Petrides, M., Baum, S., & Klein, D. (2022). Frontoparietal anatomical connectivity predicts second language learning success. *Cerebral Cortex*, 32(12), 2602–2610. <https://doi.org/10.1093/cercor/bhab367>
- Thordardottir, E. (2021). Adolescent language outcomes in a complex trilingual context: When typical does not mean unproblematic. *Journal of Communication Disorders*, 89, Article 106060. <https://doi.org/10.1016/j.jcomdis.2020.106060>
- Thordardottir, E. (2021). National language in a globalised world: Are L1 and L2 adolescents in Iceland more interested in learning English than Icelandic? *Journal of Multilingual and Multicultural Development*, 1–16. <https://doi.org/10.1080/01434632.2021.1879090>
- Thordardottir, E., & H  var  arson, G. (2021). Accent, comprehensibility, and confidence in second and third Languages of Adolescents: How do they relate to language proficiency and

language interactions? *Journal of Speech, Language, and Hearing Research*, 64(12), 4828–4844. [https://doi.org/10.1044/2021\\_JSLHR-21-00077](https://doi.org/10.1044/2021_JSLHR-21-00077)

Thordardottir, E., & Topbaş, S. (2021). How aware is the public of the existence, characteristics and causes of language impairment in childhood and where have they heard about it? A European survey. *Journal of Communication Disorders*, 89, Article 106057.

<https://doi.org/10.1016/j.jcomdis.2020.106057>

Titone, D., Mercier, J., Sudarshan, A., Pivneva, I., Gullifer, J., & Baum, S. (2021). Spoken word processing in bilingual older adults: Assessing within-and cross-language competition using the visual world task. *Linguistic Approaches to Bilingualism*, 11(4), 578–610.

<https://doi.org/10.1075/lab.18028.tit>

Zhang, W., Clayards, M., & Zhang, J. (2021, January 24–27). *Effects of mandarin tones on acoustic cue weighting patterns for prominence*. ISCSLP 2021, Hong Kong.

<https://doi.org/10.1109/ISCSLP49672.2021.9362105>

New grants to support research projects and clinical education were awarded in 2021, totaling approximately \$537,000.

1. Awardee: Shari Baum (with Clayards, & Honda)  
Award: MITACS Accelerate Award – Partner: TandemLaunch, Inc., (\$30,000) 2021-2022  
Title: Enhancing foreign speech sound learning through transcutaneous vagus nerve stimulation
2. Awardee: Shari Baum (with Klein and Phillips)  
Award: CRBLM Research Incubator Award (\$10,000), 2021-2022  
Title: Challenges associated with cross-cultural dementia diagnosis
3. Awardee: Meghan Clayards  
Award: NSERC Discovery grant (\$140,000) 2021-2026  
Title: Cognitive predictors of second language learning success
4. Awardee: Co-investigator Nicole Li-Jessen (with PI: David Lott; Co-I: Dimitar Deliyski, Lady Catherine Cantor Cutiva, Stephanie Cotton, Michael McPhail)  
Award: National Institutes of Health, National Institute on Deafness and Other Communication Disorders (USA) R13 Program  
Title: International Conference on Advances in Quantitative Laryngology, Voice and Speech Research (AQL)
5. Awardee: PI Nicole Li-Jessen (with Andreas Kist)  
Awardee: FRQS and WKS at BayFOR, Collaborative Bilateral Research Program  
Title: Bavaria-Québec, (\$75,000) 2022-25  
Artificial Intelligence in Health: AIrway, an AI-Powered Wearable Device for Airway Health Monitoring
6. Awardee: PI Nicole Li-Jessen (with Karen Kost)  
Awardee: Pentax Medical Industrial Contract (\$37,500) 2022-24  
Title: AI-informed Diagnostic Utility of iSCAN in Laryngeal Pathologies
7. Awardee: Co-PI Marc Pell (with L. Polka)  
Awardee: SSSHRC Insight Development Grant (\$59,416), 2021-2023  
Title: A platform for investigating affective communication in infants



8. Awardee: Co-PI Marc Pell (with S. Rigoulot)  
Awardee: Quebec Bio-Imaging Network (FRSQ), Pilot projects grant (\$ 20,000) 2021-2022  
Title: Neural correlates of the effects of regional accents on emotional prosody
9. Awardee: PI Marc Pell (with J. Armony, S. Rigoulot, M. Mauchand)  
Awardee: CRBLM Research Incubator Award (\$10,000) 2021-2022  
Title: Empathy in social communication
10. Awardee: PI Linda Polka (with M. Pell co-investigator)  
Awardee: McGill SSHRC General Research Fund, additional support awarded to the SSRHC Insight Development Grant (\$5,000), 2021-23  
Title: A platform for investigating affective communication in infants
11. Awardee: Lauren Tittley  
Awardee: Dialogue McGill (\$85,788), 2021-2023  
Title: Expanding our reach: Connecting SLP interns from McGill to communities outside of Montreal
12. Awardee: Lauren Tittley  
Awardee: Dialogue McGill (\$63,164), 2021-2023  
Title: New S-LP internships and services for anglophone youth within a First Nations reserve in the Montérégie region

### **Teaching and Learning (Graduate) – 2021 Highlights**

In 2021, 28 students graduated with the M.Sc. (Applied) degree with specialization in Speech-Language Pathology. An additional 2 students graduated with the M.Sc. degree (with thesis) and 2 students were granted the Ph.D. in Communication Sciences and Disorders.

Highlights for the professional training program in Speech-Language pathology were as follows:

- Our M.Sc. (Applied) program continues to be one of the most selective graduate programs at McGill. In 2021 we received 275 applications and accepted 30 students with a mean CGPA of 3.84/4.00.
- The plan for a new M.Sc. (Applied) program was finalized and approved and all administrative and pedagogical structures were put in place to open the new program in Fall 2022.
- The Learning Environment Committee, led by Dr. Laura Gonnerman, provided supports to faculty so that they could adapt to the ongoing adaptations to the pandemic environment in the school including remote teaching and heightened levels of student and faculty stress.
- Plans to introduce new on-site clinics in the school were finalized, including the Pediatric Teaching and Learning Clinic (with support from the Hewitt Foundation) and a telepractice (virtual care) clinic (with support from the Hylcan Foundation).

Highlights in the research training program were as follows:

- McGill continues to be recognized as a leader in advanced research training in our field in Canada. In 2021, we received 9 applications for the PhD program and admitted three new students (yielding a total of 25 doctoral students supervised by our faculty). These students included students from the IPN program and are augmented by post-doctoral fellows, masters students, and undergraduate honours students.
- SCSD professors co-operate extensively in teaching and research student supervision with several McGill departments in different Faculties: Linguistics, Psychology, UGME, Neurology/Neurosurgery, Otolaryngology, Biomedical Engineering, Mechanical Engineering, as well as providing training opportunities to UG students in Cognitive Science (Bachelor of Arts and Science).

### **Involvement in the Community – 2021 Highlights**

- Nicole Li-Jessen, as Chair of the Faculty of Medicine Widening Participation Committee, transitioned workshops for under-represented students to remote format.
- Sophie Vaillancourt established a collaboration with the Kahnàwa:ke Education Center's Kateri Elementary School so that our students in the M.Sc. Applied program could provide additional literacy intervention to their students.
- Lauren Tittley and Mariska Burgar taught two webinars on telepractice this year: *Supervising Telepractice Placements*. Speech-Language & Audiology Canada and *Telesupervision in the Health Sciences Professionals*. Northern Ontario School of Medicine Health Sciences.
- Aparna Nadig co-chaired the Community Engagement Committee of the Transforming Autism Care Consortium. Her committee led the development and implementation of a virtual art exhibit by autistic artists (the Creation Initiative).
- Kelly Root was nominated to the Board of Directors of Speech-Language and Audiology Canada.
- Elin Thordardottir made a substantial contribution to the comité de formation for the Ordre des Orthophonistes et Audiologistes du Québec.
- The majority of faculty members are serving as editorial board members for important journals in our field (e.g., Journal of Communication Disorders, Language and Cognitive Science, Language, Interaction and Acquisition, Open Journal for Modern Linguistics, Phonetica, Frontiers in Language Science, and Frontiers in Psychology).