

David Peikoff Chair of Deaf Studies Western Canadian Centre for Deaf Studies

“Working together to bridge research and community development.”



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INTRODUCTION

Established in 1986, the Western Canadian Centre for Deaf Studies (WCCDS) works in collaboration with the David Peikoff Research Chair to bridge research and community development. We work to strengthen the connections among research, policy, and practice in order to improve education and expand opportunities for deaf and hard of hearing individuals. WCCDS remains relevant and responsive as the only Centre in Canada focused on Deaf Studies initiatives and Deaf community partnerships, and the only endowed chair of Deaf studies in the world through **leadership, partnership, innovation, and action.**

Below are a few highlights of the past year.

2014 -2015 HIGHLIGHTS

LEADERSHIP

- ✓ *Over \$1.8 million in active grants and contracts supported the Chair's research and WCCDS's development programs during the academic year.*
- ✓ *Mentored the research experiences of 10 graduate and 7 undergraduate students working as research assistants on Centre projects*

PARTNERSHIP

- ✓ *Increased collaboration and forged new partnerships with international, national, provincial and local organizations to improve education and lives of deaf and hard of hearing children.*

INNOVATION

- ✓ *"Breakthrough" science discovery: signed language phonology facilitates word learning in early reading*
- ✓ *Accessible knowledge products and tools developed to support learning and teaching*

ACTION

- ✓ *Bringing research to practice through research-informed professional development and creative outreach programs for Alberta educators.*

Western Canadian Centre for Deaf Studies & Peikoff Research Chair

LEADERSHIP AND FUNCTION

The 2014-2015 academic year was one of significant transitions at WCCDS with the departure of Dr. Kristin Snoddon (Peikoff Chair from July 1, 2013 to June 30, 2014) to an academic faculty position at Carleton University and the retirement of Dr. Debra Russell, WCCDS's Director since 2005. Dr. Russell continued to serve as the WCCDS Director on a part-time basis from July 1, 2013 to October 30, 2014. Dr. Lynn McQuarrie, Associate Professor in the Department of Educational Psychology and Director of the Minerva Deaf Research Lab (MDRL) took up a dual appointment as the David Peikoff Research Chair and the Director of WCCDS on November 1, 2014.

An integral part of the WCCDS vision, the David Peikoff Endowed Research Chair was created to support the Centre's goal of evolving as a Centre that demonstrates leadership in Canada in the areas of research and development in deaf studies. As current chair holder, Dr. McQuarrie brings to the Centre an active research agenda studying how language and literacy develop in deaf individuals. Her primary research examines reading acquisition in children who grow up in a dual language environment (American Sign Language – English) and explores how these languages interact to support reading.

The Minerva Deaf Research Lab (MDRL), under the direction of Dr. McQuarrie, has functioned as an integral part of the JP Das Centre on Developmental and

Learning Disabilities for the past several years. Although MDRL follows Dr. McQuarrie to her new role as WCCDS Director, our established partnerships and joint initiatives with the Das Centre will continue unchanged.

Remaining constant in the face of these and numerous other changes on campus is WCCDS's commitment to our core mission: to advance the science of learning by (1) conducting basic and applied research addressing central questions in deaf education, (2) providing leadership in the development of programs and services to support knowledge translation and community capacity building, (3) facilitating student education and training for the next generation of scholars, and (4) establishing the research networks and strategic community partnerships to achieve these goals.

WCCDS enacted its mission by undertaking activities such as securing research funding, offering mentoring and collaborative opportunities to students, faculty and community-based partners, sharing its knowledge and expertise through innovative outreach and other information dissemination programs, and developing knowledge products and tools that support application of research to practice.

This report summarizes the Centre's activities and accomplishments from November 1, 2014 to June 30, 2015.

Research Advances

External Funding:

For the 2014-2015 academic year, the Chair's research was supported by more than \$1.8 million in active research grants and contracts, with Dr. McQuarrie serving as the principal investigator or co-investigator.

2013 – 2015. *Learning to Read with Languages (ASL and English): A Sign Language Phonology and Reading Intervention Study.*

Intervention studies have been essential in investigating the role that awareness of the sound structure of spoken languages (i.e. phonological awareness) plays in supporting young hearing children in learning how to read. Yet, many deaf individuals with no or limited access to the sound structure of spoken language effortlessly acquire visual languages (signed languages) and are able to learn how to read fluently. How does this occur?

To date, there have been no studies exploring the role that signed language phonological awareness might play in supporting young deaf children's early reading. To bridge this gap, we piloted a small scale American Sign Language (ASL) phonological awareness intervention at the Alberta School for the Deaf from March through June 2015. We had reasoned that if *sound-based* phonological components of *spoken words*, when associated with print, improves vocabulary and reading outcomes for the young *hearing* reader, would learning how to associate *visually-based* phonological components of *signs* with print similarly improve vocabulary and reading outcomes for young *deaf* readers? The results were startling! Yes it did – and significantly so for each child

in the study (n=7, Single case experimental design: multiple baseline across skills). Each of the seven children (who varied in primary communication mode, chronological age, and language ability) showed marked progress in sign and print word learning.

Ours is the first intervention study of its kind to examine the effects of explicit signed language phonological awareness instruction on increasing both ASL vocabulary and word reading (English) vocabulary in young deaf dual language learners (inclusive of deaf children with and without cochlear implants). Our findings are preliminary and require replication. They do, however, open an interesting window in advancing understanding of alternate learning mechanisms that may be available to support young deaf learners in reading success.

Research Team: Dr. Lynn McQuarrie (Principal Investigator), Dr. Charlotte Enns (Co-Investigator), University of Manitoba

Funding: National Science Foundation, Science of Learning Center on Visual Language and Visual Learning (VL2).

2011 – 2014. *Assessment Tools: American Sign Language Phonological Awareness Test (ASL-PAT).*

Although there are many assessments for evaluating the spoken language skills of hearing children, there are few comparable assessments of American Sign Language for educational use. To better support deaf children's language and literacy development, these kinds of assessments are urgently needed. We are developing a computerized ASL phonological awareness test for use with children ages 4 to 10. This will, for the first time, allow us to undertake detailed

and accurate diagnosis of a young child's knowledge and awareness of the phonological building blocks of ASL. Upon completion of the test development project and associated validation studies, the ASL-PAT will be available for teachers and clinicians who work with bilingual deaf students.

Research Team: Dr. Lynn McQuarrie (Principal Investigator), Suzanne Spady, M.S., CCC-SLP; and the ASL-PAT web interface 'dream team' Thomas Baron, B.Sc. (Computing Science); Eric Lam, B.Sc. (Computing Science).

Funding: Social Sciences and Humanities Research Council of Canada (Phase 1); National Science Foundation, Science of Learning Center on Visual Language and Visual Learning (Phase 2).

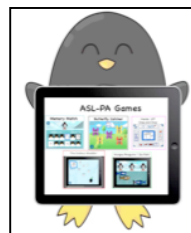
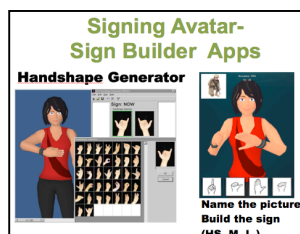
INNOVATIONS IN TRANSLATION

Ensuring that research leads to practices, products, and policies that benefit deaf people remains a core commitment of WCCDS. In the past year, we were involved in a number of on-going and new initiatives that have made significant advances in translating research into practical tools to ensure that research gets to those who can use it the most.

2014 – 2015. Dual Language Educational Apps: A Co-Design Project with Deaf Children.

Hearing children have a multitude of sound-supported educational software products available both at home and at school to enhance learning. In contrast, there are few accessible interactive educational products to support learning for deaf children. Researchers at the Minerva Deaf Research Lab are designing some fun, interactive translational products that use Avatar and robotic

technology to embed signed language and print skills practice within a technology enhanced digital games environment.



Our games are being developed with deaf children as co-design partners. The practice of co-design allows users to become an active part of the creative development of a product by interacting directly with the developers to inform design and innovation direction.

We extend a sincere THANK YOU to the students and staff at the Alberta School for the Deaf for their valuable input to date. "Hands Waving" to the co-design team!



With further development, these learning tools will provide educators with much needed resources to support the language and literacy development of their students. We will continue to seek external funding to move this project forward.

2013 – 2014. ASL Assessment Portal: A web-based test administration system for ASL Assessments.

The ASL phonological awareness test (above) was designed with an extensive Web interface allowing for maximum test usage among different groups and an authoring system for maintaining the tool. Our web interface has become the backbone of the VL2 Center's ASL test administration portal hosted at Gallaudet University. The portal will, for the first

time, bring available ASL assessment tools together in a "one-stop shop" assessment portal to assist in more widespread accessibility to the ASL assessments used in research and education.

2012 – 2014. Early Language Milestones: Visual Language Training to Enhance Literacy Development.

Early visual language experience (i.e. sign language) can afford young deaf children with higher cognitive advantages to enhance social and academic development. We have developed a Parent Toolkit website with online tutorials for parents on facilitating early visual communication and language play with their infants.



Synergy with signed language acquisition data from our previous studies provided the basis for the development of the instructional products and language games.

Research Team: Dr. Charlotte Enns (Principal Investigator) University of Manitoba, Dr. Lynn McQuarrie (Co-Investigator).

Funding: National Science Foundation

Check it out: The website was launched with the VL2 parent information package that includes a collection of Parent stories, life stories, research briefs and web-links to services and supports.

<http://vl2parentspackage.org>



2012 – 2014. The Educator's Toolkit.

We have created an online Educator's toolkit as a way to increase accessibility to current research in deaf education and to support educators in the application of evidence-based practices in their work.

The toolkit includes online 'best practices' tutorials created by instructional leaders in the field, and a resources database of research briefs and e-resources designed to provide educators, parents, and other stakeholders ready access to research and curriculum supports.

Funding: Alberta Education

Check it out:

<http://mdrltoolkit.ualberta.ca>



PROGRESS ON CAPACITY BUILDING INITIATIVES

Over the years, MDRL and the JP Das Centre have undertaken a range of innovative capacity building initiatives bringing research to practice to enhance leadership, learning, and instructional effectiveness. Two of these initiatives came to completion in 2014. Dr. McQuarrie has maintained collaborative leadership on continuing Das Centre projects this past year.

2010 – 2015. The Advancing Adolescent Reading Initiative (AARI).

In this project, we are developing a series of comprehensive, customized, and technology-supported Adolescent Reading professional learning modules for Alberta educators teaching in grades 7 – 12. The modules draw upon the research and teaching expertise of local, national and international adolescent literacy specialists.

The AARI learning modules have been



piloted with two cohorts of teachers representing school jurisdictions from across the province. Evaluation and cohort feedback indicate that the AARI professional learning program is highly effective in supporting

teachers in sustained use of research-based practices that deliver. This research and capacity building initiative supports school jurisdictions in their efforts to increase student literacy outcomes by putting proven methods of reading instruction into Alberta classrooms.

Research Team: Dr. Lynn McQuarrie, (Principal Investigator); Dr. Rauno Parrila (Co-Investigator, Director, JP Das Centre); Dr. Norma Nocente (Secondary Education); Dr. Caralyn Purvis (Post doctoral fellow).

Funding: Alberta Education

Check it out:

<http://aari.educ.ualberta.ca>

2012 – 2014. Literacy Leadership for School Administrators.

In this project, we are developing the content for an online literacy leadership professional learning program for school administrators. The learning modules will support education leaders in using the best available research to inform their work.

Research Team: Dr. Lynn McQuarrie, (Principal Investigator) with co-investigators Dr. Rauno Parrila (JP Das Centre) and Dr. Norma Nocente (Secondary Education).

Funding: Alberta Education

2010 – 2014. Capacity Building Initiatives: Inclusive Supports to Alberta Educators.

This building capacity initiative aimed to support Alberta educators in addressing the learning needs of low incidence, unique abilities students (e.g., deaf, hard of hearing, blind, and deaf-blind).

Major activities included:

- ✓ Conducting a province-wide needs assessment to identify current and future needs in the delivery of supports and services to education professionals in Alberta.
- ✓ Offering provincial workshops, seminars, and province-wide learning events to enhance the knowledge base of Alberta educators and to assist the efforts of school teams in creating more inclusive, barrier-free learning environments.
- ✓ Hosting a 3 year Summer Institute Series providing “just in time” training workshops focused on building capacity of school-based teams working with a student who is deaf, hard of hearing, or blind/visually impaired in the upcoming school year.

Funding: Alberta Education

KNOWLEDGE MOBILIZATION

WCCDS contributed to building and using evidence to improve practice by presenting at international, national, and local conferences, leading seminars, creating new knowledge products, writing reports, publishing papers, hosting community engagement research lectures, and maintaining a current web and electronic presence.

Academic Publications

Enns, C., Haug, T., Herman, R., Hoffmeister, R., Mann, W., & McQuarrie,

L. (in press). Exploring signed language assessment tools around the world. In M. Marschark, Lampropoulou, V. & Skordilis, E. (Eds.), *Diversity in Deaf Education*. New York, NY: Oxford University Press.

Abbott, M. & McQuarrie, L. (2014). Equitable assessment for hearing and deaf English language learners: An investigation of the impact of verbal load on PASS processes. In T. C. Papadopoulos, R. K. Parrila, and J.R. Kirby (Eds.), *Cognition, Intelligence, and Achievement: A Tribute To J. P. Das* (pp. 291-308). San Diego, CA: Elsevier.

Parrila, R. & McQuarrie, L. (2014). Cognitive processes and academic achievement: Multiple systems model of academic achievement. In T. C. Papadopoulos, R. K. Parrila, and J.R. Kirby (Eds.), *Cognition, Intelligence, and Achievement: A Tribute To J. P. Das* (pp. 79-100). San Diego, CA: Elsevier.

McQuarrie, L. & Parrila, R. (2014). Literacy and linguistic development in bilingual deaf children: Implications of the 'and' for phonological processing. *American Annals of the Deaf*, 159 (4): 372-384.

Multimedia Publications

McQuarrie, L. (2014). *Educator's Toolkit Website. A Resource for Teachers of Deaf and Hard of Hearing Learners*. Edmonton, AB: Minerva Deaf Research Lab. Retrieved from <http://mdrltoolkit.ualberta.ca/>

Enns, C.J. & McQuarrie, L. (2014). *Parent Toolkit Website: A Sign Language Resource for Hearing Parents*. Washington, DC: Gallaudet University. Retrieved from <http://vl2parentspackage.org>

Academic & Professional Presentations

McQuarrie, L. (2015, June). *Preliminary Findings from the Sign-based Literacy Intervention Project*. Invited presentation for our community partners at Alberta School for the Deaf. Edmonton, AB

McQuarrie, L., & Enns, C. (2015, June). Learning to read with visual languages: Investigation of the impact of ASL visual sign phonology training on emergent and developing literacy in English. Invited presentation at the Science of Learning Center on Visual Language and Visual Learning (VL2) National Science Foundation Site Review, Washington, D.C.

McQuarrie, L. (2015, March). *Reading and Literacy in Visual Learning*. Invited presentation to the Scientific Advisory Board of the National Science Foundation's Science of Learning Centre on Visual Language and Visual Learning (VL2). Washington, DC.

McQuarrie, L., & Enns, C. (2015, March). Bilingual Deaf children as co-design partners in developing ASL/English word learning technology tools. Paper presented at the *Society for Research on Child Development (SRCD) Pre-conference on Deaf Education*. Philadelphia, PA.

McQuarrie, L., & Enns, C. (2015, February). Classroom materials and technology tools to build ASL phonological awareness. Poster at the *41th Annual Conference of the Association of College Educators - Deaf and Hard of Hearing (ACE-D/HH)*. St. Louis, Missouri.

McQuarrie, L., & Enns, C. (2015, January). HandsUp! for literacy: Tapping into Sign Language phonological awareness

training in the development of literacy in English for bilingual deaf children.

Poster presented at the *12th Annual Hawaii International Conference on Education*, Honolulu, Hawaii

McQuarrie, L., Baron, T., & Lam, E. (2015, January). Nothing about us without us! Bilingual deaf children as co-design partners in the development of an interactive digital word learning game. Poster presented at the *12th Annual Hawaii International Conference on Education*, Honolulu, Hawaii.

McQuarrie, L. (2014). Kiss your brain! What the science of learning on visual language and visual learning offers teachers of reading. Plenary Keynote address at the *Canadian Association of Educators of the Deaf and Hard of Hearing (CAEDHH) Conference*. Vancouver, B.C.

Community Engagement Lectures

Our research lectures focus on evidence-based research in the field of Deaf Studies, and feature scholars from Canada and from other countries. In the upcoming year we will continue to make our lectures accessible to all Canadians who have access to the Internet, through video-streaming technology.

The Jones Memorial Endowed Lecture

The Jones Lecture is an annual event made possible by the generous support of Mrs. Pat Eidem who, in 1988, endowed the research lecture series in honor and memory of her parents, Mr. and Mrs. James I. Jones. Dr. Gina Oliva, author and emeritus professor, Gallaudet University will deliver the 2015 Jones Memorial Lecture ~ *"I have a CI" is the new Hard of Hearing: Using the Lens of Social Capital*

to Make Life Better for Hard of Hearing School Children. Save the Date: October 22nd, 2015.

Websites

WCCDS/Peikoff Chair and the Minerva Deaf Research Lab maintain active websites that link the Centre's research and knowledge translation initiatives with the wider education community.

CONTRIBUTIONS TO THE UNIVERSITY COMMUNITY

The Peikoff Chair continues to contribute to the Faculty of Education by engaging in teaching and supervision of both undergraduate and graduate students.

Teaching

Courses taught this year:

- EDPY 556: Problems and Issues in Special Education: Prevalence of Exceptionalities and Professional Practice
- EDPY 499: Directed Individual Study
- EDPY 903: Individual Directed Research Project

Student Supervision

In addition to primary supervision of graduate students in the department of Educational Psychology, Dr. McQuarrie also serves as a supervisory committee member or examiner on graduate student committees both inside and outside the Faculty of Education.

- *Continuing Graduate Students*: 5 PhD and 2 MEd student
- *Finished this Year*: 1 PhD and 2 MEd student

Research Assistants and Volunteers

WCCDS aims to provide an active learning environment that offers

research mentoring and collaborative opportunities to students across campus interested in deaf studies initiatives. This year, we supported the research experiences of 10 graduate and 7 undergraduate students working as research assistants on Centre research and development projects.

ADDITIONAL LEADERSHIP & LIAISON ACTIVITIES

Dr. McQuarrie is a research affiliate of the Science of Learning Center (SLC) on Visual Language and Visual Learning (VL2) at Gallaudet University in Washington, DC. VL2 is one of six SLCs funded by the National Science Foundation. Dr. McQuarrie currently serves on the Executive Team providing leadership in developing and implementing the Center's strategic research plan. The Executive Team entails affiliations with University of California San Diego, Rochester Institute of Technology, University of New Mexico, and the University of Manitoba. Dr. McQuarrie also serves as the Team Lead for a VL2 science network, spanning the University of Alberta, University of Manitoba, Gallaudet University, and the University of California, Davis, that carry out studies under VL2's strategic focus area, *Reading and Literacy in Visual Learning*.

This year, Dr. McQuarrie has represented the Association of Alberta Deans of Education (AADE) on the *Provincial Advisory Committee for Building an Inclusive Education System*.

University and Community Partnerships

WCCDS and the Peikoff Chair support provincial, national and international

research collaborations, as evidenced through the research and development projects described in this report. These relationships ground our research, development, and dissemination work and are the cornerstone for activities designed to have provincial, national and international impact.

MOVING FORWARD IN 2015-2016

WCCDS & Research Lab Renovations

We were the grateful recipients of a Faculty supported modernization project this summer that included renovations to the original research lab (MDRL) and upgrades to existing WCCDS administrative spaces. With renovations essentially complete, we are pleased to be back in the lab with lots of room to work and with space for new equipment. Sincere thanks to the department of Educational Policy Studies for giving us temporary lab space while renovations were being completed. The modernization creates a contemporary space and inspiring home for innovation and collaboration.

Administrative Coordinator

We are thrilled to announce that Jennifer Eigard will be joining our team as Administrative Coordinator to both WCCDS and the JP Das Centre effective August 1, 2015 for a one-year secondment. A strong team player with a "can do" attitude, Jennifer thrives in environments where there is volume and complexity. She brings exceptional planning and organizational skills to the operational and financial challenges associated with ensuring efficient and effective operations in two very active and productive Centres. Welcome to the team Jennifer!

***Leadership. Partnership. Innovation.
Action.***

In the upcoming year, we look forward to a new phase of innovation and expansion as we develop the Centre's strategic plan, seek funding for new research and development projects, and strengthen and expand our network of collaborative partnerships. We are excited about the potential for these and other, related initiatives in extending WCCDS's nationwide presence.

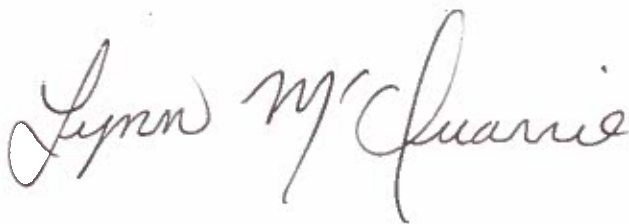
We also look forward to collaborating with community-based partners, the Peikoff trustees, administration, faculty, and other units at the U of A in the coming year as we embrace the challenges and opportunities of new scopes of work in 2015-2016.

Questions or feedback about our work are always welcome! Please contact lynn.mcquarrie@ualberta.ca or 780-492-1146.

You can also review the annual report on our website at:

<http://www.wccds.ualberta.ca/>

Respectfully submitted,

A handwritten signature in dark ink, reading "Lynn McQuarrie". The signature is fluid and cursive, with the first name "Lynn" and last name "McQuarrie" clearly distinguishable.

Lynn McQuarrie, PhD
David Peikoff Chair of Deaf Studies
& WCCDS Director