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Bottom of the Gondola - Leading Professional Learning in Mathematics and Numeracy

*2021 Short-Term E-Exchange Program – Research* *Report*

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As part of the International [E-Exchange Program](https://education.nsw.gov.au/about-us/careers-at-education/scholarships-and-programs/international-teacher-exchange/short-term-e-exchange-program), a virtual exchange was completed between New South Wales and overseas counterparts. This exchange provided an opportunity for short-term one-on-one partnerships between educators with similar interests or fields.

This action research report on the shared focus area was completed following the 6-week program.

# E-Exchange Overview/Conditions

During weekly discussions, personal and professional experiences which contributed to building strong connections were shared. Professional dialogue focused on leading professional learning in Mathematics and Numeracy.

This report highlights some of the commonalities and differences between systems, literature and current approaches to the teaching and leading of Mathematics at Cooranbong Public School, in line with the NSW Department of Education, and Edmonton Public Schools, Alberta, Canada.

# Approaching the Mountain: Why take part in an educator E- Exchange?

There are many reasons to take part in an educator exchange, such as:

* An opportunity to learn about an education system beyond our own;
* To extend our professional network;
* To collaborate;
* Strong links to the Australian Professional Standards for Teachers;
* Establishing a lifelong friendship; and
* An opportunity to learn about an education system beyond our own!

This program provided an opportunity to learn about an education system beyond the NSW Department of Education.

During our weekly meetings, Carolyn and I spent time exploring the many similarities, as well as the many differences between our education systems. We were surprised to learn about the overlap of literature drawn upon in the areas of Leadership and Mathematics.

Perhaps the most startling realisation for me was to hear of the challenges Canadians had faced in the past 12 months with COVID-19, which had led to an extensive lockdown and ‘learning from home’ period for students and teachers. In response to this, I learnt about how Carolyn and her team were providing a high level of curriculum support to schools, through the development of online resources and the delivery of online professional learning. Her job had completely transformed during this time.

In contrast, I was spending my time in classrooms, working closely with teachers and delivering face-to-face professional learning, which I could then follow up with classroom visits and one-on-one support.

*Extending our professional networks*

The e-exchange was a great opportunity to extend our professional networks and to collaborate with educators. Through regular group meetings, we connected with a group of exchange participants from both Canada and NSW. We shared experiences and common interests through small and large group discussions.

In conjunction with these group meetings, I electronically met weekly with my exchange partner Carolyn. Carolyn is an educator who holds similar beliefs about the teaching and learning of Mathematics to me. I genuinely look forward to our weekly meetings. Each week, we engage in rich professional discussion around Mathematics, the delivery of professional learning, challenges we are facing and successes we may have recently achieved. We have had in-depth discussions about the direction Mathematics is taking in both NSW and Edmonton.

*Collaboration*

Effective collaboration increases collective efficacy by connecting teachers to leaders, colleagues and experts in the field (Donnohoo, Hattie & Eells, 2018). Chapter 8 of the [What Works Best (WWB)](https://education.nsw.gov.au/about-us/educational-data/cese/publications/research-reports/what-works-best-2020-update) Framework states that ‘effective collaboration is key to sharing successful and innovative evidence-informed practices across the teaching profession’.

This experience has given me an opportunity to regularly collaborate with a like-minded colleague who specialises in leading professional learning in Mathematics, whilst engaging with the research and having robust discussions around evidence-based practices. We have created a resource share point where we have shared literature and learning activities, as well as openly available departmental resources and policies. We have also shared our experiences, challenges and successes when planning and delivering professional learning.

*Links to The Australian Professional Standards for Teachers*

The key elements of quality teaching are described in the Australian Professional Teaching Standards. There are many strong links that can be made between the e-exchange program and the Standards, especially across Standards 1-3 and 6-7. In particular, Standard 6.2 (lead) focuses on initiating collaborative relationships to expand professional learning opportunities and engage in research. Discussions I have had with Carolyn have helped me reflect upon and refine my approach to the development of the professional learning I have delivered to staff at my school.

*Establishing a lifelong friendship*

Perhaps something I hadn’t really anticipated was the deep personal connections Carolyn and I would establish throughout the exchange period. Each of us has spent time living in the home country of the other, with fond memories of our times abroad. We have spent many hours reminiscing and discussing our experiences living in Canada and Australia. We also have many common interests, and similarities in our family structures. We are both excited and grateful to be provided with the opportunity to build a strong friendship and professional relationship through the international E-Exchange program.

# Lining Up: Exchange Contexts and Goals

Our exchange partnership allowed deep conversation and sharing of current teacher training practices.

Key components of our interactions were:

building personal and professional connections

collaboration

leading professional learning

#### Rebecca Thompson’s Context

Cooranbong Public School (CPS) is a Phase 2 Early Action for Success (EAfS) school. The goal of the [Department of Education’s Strategic Plan (2018-2022)](https://education.nsw.gov.au/content/dam/main-education/about-us/strategies-and-reports/media/documents/NSW-Department-of-Education-Strategic-Plan-2018-2022.pdf) is to ensure ‘every student, every teacher, every leader and every school improves every year’. All EAfS schools were appointed Instructional Leaders for an initial tenure of 3 years. Tenures have been extended yearly for the past two years. As an Instructional Leader, my primary focus is on improving the literacy and numeracy outcomes of our students.

The pathway we have taken to improving student outcomes at CPS is through a focus on building teacher expertise. This is being done through targeted, ongoing professional learning at a school level, based on identified focus areas, aligned with our School Improvement Plan. In order to provide high quality professional learning for our staff, it is important to continually focus on building my own capacity. I engage deeply and regularly with current literature and research-based practices in literacy and numeracy, as well as regular and ongoing professional learning. The professional learning delivered by Michelle Tregoning, formerly leader of Numeracy for Early Action for Success and currently leader of Mathematics Professional Learning K-12, has challenged my thinking, refined my teaching practice and enhanced my capacity, whilst strongly influencing my leadership of Mathematics at CPS.

All professional learning at a school level is delivered face-to-face to the whole school staff, with sessions driven by syllabus content and underpinned by current literature. At a state level, professional learning is delivered online. We are currently engaging in a year-long, online series of professional learning in Mathematics, Starting Strong (K-2) and Big Ideas (3-6) led by Michelle and her team. This is strongly guiding the professional learning we are providing to our teachers.

Coupled with high quality professional learning, a co-teaching and planning model (among other supporting strategies) is used to support teachers in transferring what they have learned into the classroom.

#### Carolyn Jones’s Context

As a teacher consultant with a focus on Numeracy, I plan for and instruct professional learning sessions and series for Edmonton Public School teachers and school leaders. Staff access Division-led professional learning offerings by registering on their own, through Catchment (K-12 school clusters) offerings or school-led activities. Content for the mathematics and numeracy sessions focuses on Program of Studies outcomes (Curriculum), current research on mathematical and numeracy learning and meeting the desired learning of our participants.

During the 2020-2021 school year, all professional learning was delivered on-line as in-person instruction was not permitted under the Alberta Government’s Covid-19 public health orders. As such, a heavy reliance on technology access and familiarity was needed by presenters and participants.

# Tickets to Ride: Research, Literature and Discussion underpinning our approach to Mathematics

Carolyn and I engaged in deep discussion around how we lead numeracy in our respective settings. With a common approach which focuses on building students’ conceptual understanding, we explored common links in the literature, whilst also introducing literature explored by each system. We regularly discussed the importance of teachers having a strong understanding of the ‘Big Ideas’ of Mathematics, which led to discussions regarding how we build teacher expertise, and how we measure it. We found many commonalities in the way we lead Mathematics in our settings. These include:

* Building conceptual understanding, rather than relying on rote memorisation of facts;
* Developing student understanding around the ‘Big Ideas’ in Mathematics, such as trusting the count and place value;
* Hands-on activities, where concrete materials are available at all grade levels;
* Targeted, intentional teaching;
* Incorporation of Mindset Mathematics (anyone can be a mathematician);
* Embedding ‘Number Talks’ into lessons.

We shared our knowledge of the literature underpinning our approaches, again with many commonalities. Some of the many researchers we discussed throughout our exchange are:

* Di Siemon (Big Ideas)
* Jo Boaler (Mindset Mathematics)
* Marcy Wood (Mathematical Superpowers)
* Steve Wyborney (SPLAT/ Number Talks)
* Mike Askew (hands-on approach to Maths)
* Marian Small (Good Questions: Great Ways to Differentiate Mathematics)
* John Van de Walle (Teaching Student Centred Mathematics)

From a leadership perspective, our contexts are very different. I work directly with teachers within my school, whereas Carolyn works with teachers from a variety of schools within her region. All professional learning, I have delivered is face-to-face with teachers I know, mostly within my own school setting, whereas Carolyn delivers professional learning online to a vast number of teachers from schools within her area. However, we both work to achieve a common goal: working with teachers to build their expertise in order to improve outcomes for students.

# Journeying up the Gondola: Significant Learning

#### While we share a common focus on improving student learning through staff development, our system contexts, delivery structure and sources of data are slightly different.

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|  | Rebecca’s Context | Carolyn’s Context |
| *Systems/Context* | *Cooranbong Public School, in line with the NSW Department of Education, receives:*   * Instructional Leader (5 years) * Ongoing professional learning for Instructional Leader * Equity funding based on a number of factors, including FOEI (Family Occupation and Education Index) | Edmonton Public Schools, Department of Curriculum and Learning Supports, provides:   * Consultant support in curricular areas across the school division * Catchments, schools and staff request support directly * Mathematics and Numeracy is Professional Learning provided throughout the school year * Resource development (e.g., Teacher Support Packages and High School Course Packages, Math Activity Cards, Math Vocabulary) |
| *Professional Learning Development of Content* | *Professional Learning includes:*   * Curriculum focus * Determined by staff needs (survey feedback driving future sessions) * Resource Sharing/Literature Underpinning Practice * Assessment and programming * Commitment to learning * Hands-on * Take-away activities | Professional Learning includes:   * Curriculum focus with considerations for assessment * Determined by Division staff needs (direct requests from schools and catchments, survey feedback influencing future sessions and content) * Resource Sharing * Hands-on (demonstrated virtually) * ideas/lessons/activities to use with students |
| *Delivery structure methods* | PL is delivered at CPS as follows:   * 6 x 1.5-hour PL sessions per term * An additional 5 full-day PL sessions per year * 8 PL sessions dedicated to Mathematics across 2021 * Ongoing/ progressive sessions * Access to online sessions for interested K-2 and 3-6 staff as a part of the Starting Strong and Big Ideas initiatives * Co-teaching/ Planning model to support PL delivery * Staff Commitment to Learning to support implementation of content from PL into classrooms * In-person (school-based) * On-line (state wide) | Mathematics and Numeracy professional development is offered K-12 by Edmonton Public Schools throughout the school year:   * Centrally offered sessions and series * Catchment-based professional learning * School-based professional learning   Topics include:   * Foundations of Mathematics; * A Guided Approach to Math (Elementary); * First Steps in Mathematics; * Growing Numeric Learners; and * All professional learning was only offered virtually from mid-March 2020 through to August 2021.   This included:   * self-paced, on-line modules; * live, virtual sessions and series; * Pop-Up PL videos; and * Communities of Practice (on-line). |
| *Data* | Staff Surveys are conducted after each PL session and provide:   * Usefulness of session, according to participating staff * Future directions * Constructive feedback * Challenges/ questions staff have * Support required * Suggestions for improvement   Other forms of data collected:   * Anecdotal comments * Commitment to Learning * Student achievement (internal/ external) | Participant surveys are collected:   * prior to the start of a series or session * at the conclusion of a series or session     Other forms of data collected:   * Anecdotal comments * Student achievement (internal/ external) * Participant numbers for each session or series |

## *Table to show similarities in literature and others that we each draw from.*

# Approaching the top: What have we learnt from each other and how will we use what we’ve learnt to improve our practice?

## Throughout this initial e-exchange, we have gained knowledge and perspectives on leading mathematics and numeracy professional learning, including:

* ways to refine delivery of professional learning sessions, in-person or on-line;
* questions to ask participants to evaluate current sessions and plan future ones.

We were able to:

* engage in rich discussions around Mathematics with someone equally passionate about teaching Mathematics, who regularly challenged our thinking;
* improve technology skills through the use of G Suite (Google Docs, Google Chat, Google Meet);
* exchange literature and resources in support of our professional learning;
* explore the syllabus of our different systems.

We have started to share what we have discovered with staff and colleagues. Through sharing stories of our experience and investigating discussed resources, our current and future professional learning sessions and series will be enhanced. Thoughtful reflection on our discussions will propel our future rich conversations and collaboration.

# Beyond the Gondola: Conclusion

We chose to use a metaphor to reflect our journey throughout this report. Riding a gondola up to the ski fields holds fond memories for us both, and signifies the beginning of the strong connection we made throughout this journey, whilst also aptly representing our learning journey.

We began this journey by exploring the *‘Conditions’* of this short-term, international e-exchange. When *‘Approaching the Mountain*’, we discussed why we took part in this experience. We saw this as an opportunity to learn about an education system beyond our own, whilst establishing a lifelong friendship. Whilst *‘Lining Up’* for our tickets, we explored our different contexts. Here, we were able to see many commonalities within the work that we do, as well as open doors to explore areas that differ across our contexts. When purchasing our *‘Tickets to Ride’*, Carolyn and I spent time getting to know more about each other and finding our common interests (both personally and professionally). Our journey *‘Up the Gondola’* symbolises the significant learning that has taken place over the course of this short exchange. When *‘Approaching the Top’*, we reflected on what we have taken away from this experience.

When you alight from a gondola similar to the one in the picture at the beginning of this paper, you are usually not at the top at all. You are at the foot of the mountain. This final title, ‘Beyond the Gondola’, symbolises that our gondola ride is only the beginning of this professional and personal partnership.

We know we are not alone in the desire to continue this journey beyond the exchange term. Carolyn and I hope to continue collaborating beyond this program, so we will continue to take the journey up the mountain together.

# Acknowledgements

* [What works best: 2020 update](https://drive.google.com/file/d/1iAeK4L5e08brUKs9Dl9iyvld1QQMXFUy/view?usp=sharing), Chapter 8
* [Australian Professional Standards for Teachers](https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standards-for-teachers.pdf?sfvrsn=5800f33c_74)
* [Department of Education’s Strategic Plan (2018-2022)](https://education.nsw.gov.au/content/dam/main-education/about-us/strategies-and-reports/media/documents/NSW-Department-of-Education-Strategic-Plan-2018-2022.pdf)
* Donohoo, J, Hattie, J & Eells, R. (2018). ‘The power of collective efficacy’, Educational Leadership, vol. 75, no. 6, pp. 40-44.