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Our Learning Context

EOSDN, a consortium of Eastern Ontario District School Boards and the Faculty of Education at Queen's University, provides ongoing collaborative professional learning opportunities for administrators, teachers, and researchers in the region. Supported by funding from the Ontario Ministry of Education, EOSDN is coordinating a multi-year regional mathematics study that aims to enhance professional discourse, instructional practice, and outcomes for students. The nine Eastern Ontario district school boards (DSBs) are networking across the region and within their districts with a collective focus on building educator fluency (i.e., applying understanding in practice) in mathematical *big ideas* as well as the process of representation in mathematics. System leaders in math from each DSB met monthly to learn more about strategic implementation and monitoring with support from recognized experts in mathematics education, Queen's University researchers, Ministry of Education Student Achievement Officers, and colleagues with experience in special education, technology, and school leadership. As a result, Eastern Ontario math leaders are enhancing their own fluency with regards to supporting research-based classroom practices within their DSBs. During the 2017-2018 school year, 42 schools and approximately 200 educators engaged in the project, collaborating across the region, focusing on local specific needs that related to the parameters of the regional project and the provincial Renewed Math Strategy (RMS) introduced in Spring 2016. This collaboration extended to include working partnerships with math and research experts to develop, refine, and reflect on collaborative leadership in the areas of math content knowledge, understanding *students of mystery*, instructional strategies, and approaches to assessment at regional, district, and school gatherings. The project is continuing in 2018-2019.

Impacts on Teaching and Learning

Instructional Practice

- Use of learner profiles to support *students of mystery* in math, informed by *What to Look For*, *Waterfall Chart*, and multiple sources of assessment
- Purposeful assessment approaches, primarily formative, to inform asset-based instruction and monitor students' learning
- Use of tools—manipulatives, visual representations, and technology—to support students' thinking and representation
- Implementation of differentiated group instruction based on diagnostic assessments to support all students

Students and Classrooms

- Increased engagement among *students of mystery* in math class
- Students of mystery* self-advocating based on their strengths and needs in math
- Teachers and all students valuing and using tools to solve math problems
- All students demonstrating their understanding of math concepts in multiple ways, captured through teachers' documentation of observations and conversations as well as student products

Teachers are meeting the needs of some students and realizing it benefits all students.
~District Facilitator

My practice looks different because I feel confident to say that I am more equipped to meet the needs of students with challenges by using the strategies and tools I was taught in this project
~Classroom Teacher

Students are able to attain success once supports are put in place for them.
~School Support Teacher

Impacts on Spread and Sustainability

School Culture

- Educators are using common approaches and language to understand and support students' math learning (e.g., learner profiles for *students of mystery*, *What to Look For*, *Waterfall Chart*, tools, diagnostics, CASMT)
- Educators involved in the project are spreading common approaches to colleagues through staff meetings, school-embedded professional learning, and conversations
- School support teachers are spreading common approaches through their work with teachers across classrooms
- School administrators are engaged in spreading common approaches among staff
- Educators across roles, grades, and divisions are collectively owning students' math learning

DSB Culture

- Coherence and alignment among BIPSA, RMS, and Math Project goals
- District facilitators (math and special education leads) are collaborating to spread project learning through central sessions and work with educators in schools
- Common approaches are spreading to schools not involved in the project through district facilitators
- District facilitators are advocating spread of project learning to system administrators

We realize the value of a team working together in building a common understanding through thought-provoking discussions, moderation of student work, debriefing, questioning, and reflecting together to move the learning forward.
~School Administrator

Factors that Contributed to Impacts

Factors most valued by all educators:

- Trusting professional relationships among educators in team
- Prioritizing connections between educator practice and student outcomes
- Reflecting on how students interact with math content and pedagogy
- Focusing on relevant content and pedagogical knowledge
- Connecting content and pedagogical knowledge to classroom implementation

Factors valued differently among educators:

- Aligning our inquiry with local and system priorities was more important to educators in other roles than classroom teachers
- Ongoing support from knowledgeable others was more important to educators in other roles than classroom teachers
- Trusting professional relationships were more important to classroom teachers than educators in other roles

It is necessary to provide foundational learning for educators supported by math experts.
~District Facilitator

Our monthly meetings have been invaluable Steering Committee professional development as well as an opportunity to share resources or ask for suggestions from boards that might have already implemented something.
~District Facilitator

Moving Forward to Year 6

Maintain

- Monthly regional Steering Committee meetings for learning, planning, and networking among district facilitators (math and special education leads)
- Knowledgeable other support from math experts at designated regional sessions
- Focus on common approaches including developing and using learner profiles to support *students of mystery* in math
- Purposeful involvement of current school-based teams (school administrators, school support teacher, and selected classroom teachers)
- Time for school-embedded support of implementation and spread

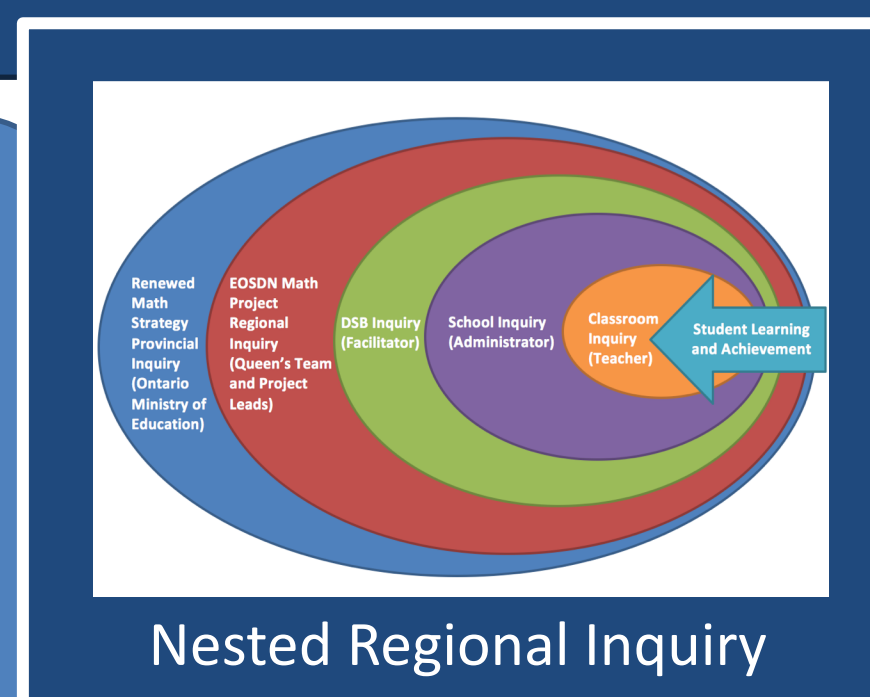
Improve Upon

- Expand the learner profile approach: include student voice, technology, and physical learning environment; use to support UDL
- Go deeper with current learning within schools, DSBs, and the region: leveraging tools, *What to Look For*, *Waterfall Chart*, and accommodations to support students' learning
- Refine the structure of regional sessions: more time for team and cross-DSB discussions, planning, and reflection; leverage technology as appropriate; review professional learning literature; revisit middle leadership

The learner profile has become the heart of our system.
~District Facilitator

Regional Inquiry

How will a regional focus on sense of number, educator and learner fluency, and the process of representation impact math teaching and learning in Eastern Ontario?



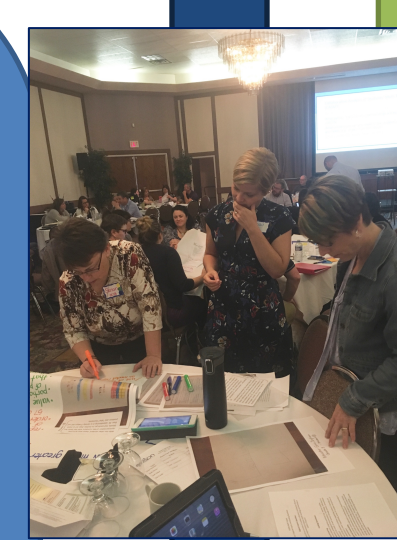
Year 5 Guiding Questions

Teaching and Learning

- How are educators using key practices (e.g., learner profiles, diagnostics, pedagogical documentation, technology, reflection) to respond to the needs of each learner through precise, personalized instruction?
- How are key educator practices supporting students' learning and achievement in math? (specifically, sense of number and process of representation)

Spread and Sustainability

- How is a whole-school approach contributing to shared ownership of students' math achievement among all educators?
- How is collaborative leadership being cultivated in schools, districts, and the region to promote spread and sustainability of enhanced math learning, teaching, and leading? (e.g., through math coaching, fostering data fluency among educators, monitoring students' learning across grades)



Professional learning is richer and most impactful when it begins at the student desk.
~Project Lead



Educator Participants' Learning and Practice

Our Data

Participant Group	Data Collected
Project Leads • Director, Coordinator, Research Partner	Questionnaire (3) Documentation (regional sessions)
District Facilitators • 25 Math and Special Education Leads representing 9 DSBs in EOSDN region	Educator Participant Survey (18) Documentation (regional sessions) Artifacts and Exit Surveys (regional sessions)
School-based Educators • 84 classroom teachers • 42 school support teachers • 42 school administrators	Educator Participant Survey (45) Artifacts and Exit Surveys (regional sessions)



Year 1 (2013-2014)

What matters most?

Readiness-Recognizing and addressing educators' mindsets and previous learning experiences supports their engagement.
Ownership-Educators identify their own area of inquiry so the learning is meaningful and relevant.
Alignment-Strategically aligning learning to a meaningful focus promotes depth and spread.
Relationships-Building trusting, supportive relationships among participants promotes a culture of risk-taking.
Intentionality-Devoting time and personal resources contributes to meeting professional learning goals.



Year 2 (2014-2015)

What matters most?

Loose-Tight Structure-Focusing on common project goals while supporting related, nested district, school, and classroom inquires responsive to local needs and priorities fosters educator engagement.
Sustained Focus-Maintaining regional focus on project goals and research-based strategies cultivates depth and spread.
Increased Precision-As educator fluency develops, the focus of learning and implementation becomes increasingly precise.
Supported Implementation-Providing responsive, context-embedded support for educators promotes transfer of learning into practice.
Collaborative Leadership-Educators working together within and across regional contexts supports the development and attainment of professional learning goals, shifts in learning culture, and educational leadership.

Year 3 (2015-2016)

What matters most?

Educator Fluency-Educators leverage previous learning and experiences, exercising sound professional judgement, based on knowledge of math content and processes.
Embedded Learning-As fluency increases, educators prioritize personalized learning opportunities, embedded within their context of practice and rooted in local needs and goals.
Evidence-informed Practice-Collecting, analyzing, and using multiple sources of data over time enhances and demonstrates impacts on math teaching and learning across the region.
Collaborative Leadership-Educator fluency, coupled with embedded learning opportunities and trusting relationships, contributes to collaborative leadership among educators.
Collective Ownership-As educator fluency and collaborative leadership emerge, collective ownership of shared professional learning goals is increasingly important.

Year 4 (2016-2017)

What matters most?

Purposeful Alignment-Aligning regional project goals with provincial, DSB, and school priorities supports educators' ownership and engagement in networked regional professional learning.
Precise Focus-Articulating a precise regional focus on supporting *students of mystery* enables targeted professional learning and responsive implementation among educators within and across classrooms, schools, and districts.
Whole-school Approach-Engaging school administrators, support teachers, and classroom teachers at regional and school-based sessions cultivates a whole-school approach and promotes spread throughout schools.
Conceptual Assessment-Monitoring struggling students' conceptual understanding through multiple forms of assessment (observations, conversations, and products) supports learning and informs instruction for all students.
School-based Support-Formal time for facilitated, school-based support of planning, implementation, and reflection helps administrators, support teachers, and classroom teachers apply new learning in their own contexts of practice.

Year 5 (2017-2018)

What matters most?

Promoting Common Approaches-Common approaches to math teaching and learning, nested within provincial RMS priorities, enables a common language among educators and spread in classrooms, schools, DSBs, and the region.
Regional Capacity Building-Differentiated opportunities for regional capacity building supported by knowledgeable others helps educators explore and apply new learning during regional sessions and in their respective contexts of practice.
Sustained Educator Engagement-Involving educators and schools in the project for multiple years enables depth and spread of learning and promotes collaborative leadership among educators within and across schools in DSBs.
Focus on Conceptual Understanding-Focusing on students' development of conceptual understanding in math enables related shifts in instructional practice, assessment approaches, and classroom culture.
School-embedded Support-District and school-based educators involved in the project support each other's implementation of new strategies in classrooms and collaboratively spread strategies to colleagues within schools.