



Queen's
UNIVERSITY

Critical Transitions CoP

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There are four distinct projects associated with the Critical Transitions CoP

- Early Math Development (preschool/Kindergarten to Grade 1)
- Elementary to Secondary Math
- Locally Developed Grade 9 Math Courses (Grade 9 to 10)
- Secondary to Post-Secondary Math

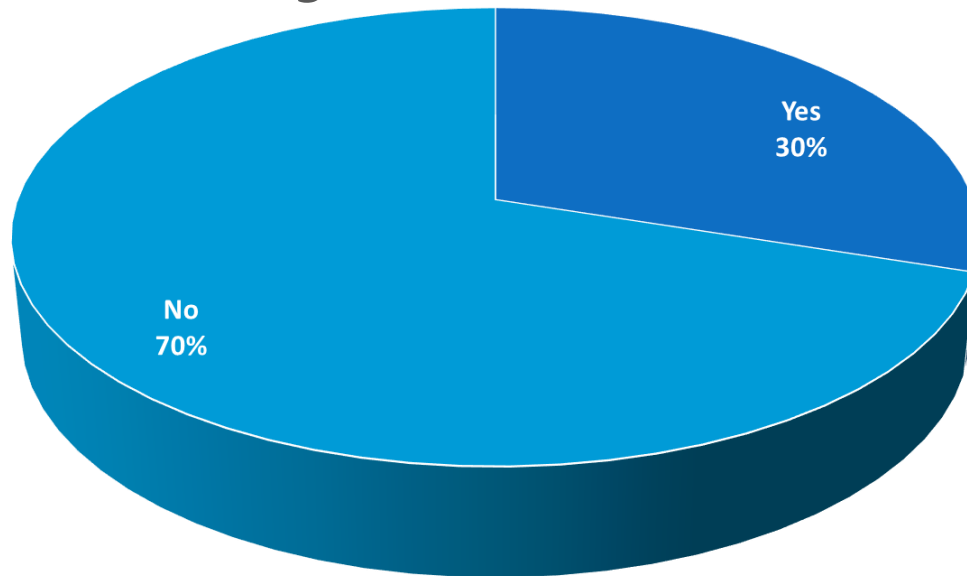
Critical Transitions in Early Math Development

- Lead: Dr. Lynda Colgan
- Administered a needs assessment survey to 178 early childhood educators (ECEs) and teachers (Kindergarten and Grade 1)
- Reviewed pre-service educator training programs in Ontario to identify how much early math training is provided
- Hosted a Kindergarten Forum on Early Math Development for multiple stakeholders
- Provided professional development for the Greater Essex County District School Board

Early Math Development: Key Learnings

In general, ECEs and teachers in Ontario receive little or no early math training

Q: Did you learn about early math development and education (preschool to Kindergarten) during your educator training?



Early Math Development: Key Learnings

Q: Rate the importance of these knowledge and skills in early math learning using a four-point scale (4= very important, 3= important, 2=somewhat important; 1= not important).

Strand	Mean
Numbers	3.26
Problem Solving	3.18
Patterning	2.94
Measurement	2.78
Geometry	2.74
Data Management	2.68

Early Math Development: Key Learnings

- ECEs and teachers reported feeling most comfortable teaching areas of math that they identified as their personal strengths or received professional development in
- They also reported feeling most comfortable teaching areas of math that were fun and engaging, particularly strands that could be facilitated through math manipulatives

Early Math Development: Key Learnings

- ECEs and teachers reported feeling less comfortable teaching areas of math they lacked knowledge and understanding about and lacked resources for
- They also reported feeling less comfortable teaching areas of math that were less interesting or developmentally inappropriate (e.g., too abstract, too hard)
- Educators identified needing more resources and math-related PD opportunities

Early Math Development: PD in Windsor



Elementary to Secondary Math

Lead: Dr. Daniel Jarvis, Nippising University

Critical Transitions in Student Mathematical Development, Elementary to Secondary School: Literature Review and Research Study Findings

Available on the MKN website:

<http://mkn-rcm.ca/wp-content/uploads/2017/09/JARVIS-MKN-REPORT-2017-08-31-1.pdf>

Elementary to Secondary Math: Key Findings

- There are multiple and significant changes for students transitioning from Grade 8 to Grade 9
- Elementary math teachers are not familiar with curriculum expectations for high school
- High school teachers are not familiar with elementary math curriculum expectations for Grade 8
- There needs to be more dialogue and discussion across panels

Elementary to Secondary Math: Supporting Successful Transitions

- A focus on work habits and learning skills in elementary math
- Alignment of pedagogical strategies across panels (e.g., family of schools PD model)
- Family nights
- Participating in a high school math class during Grade 8
- Participating in summer “Head Start” programs

Elementary to Secondary Math: Supporting Successful Secondary Math Learning

- Ensure experienced, high quality math teachers in all three streams in Grade 9
- Full year math courses
- Parallel course scheduling of math courses so students can move across streams as needed
- Resource period for help when students take math
- Tutoring support
- OME/TVO Math Help
- Student Success Teacher
- Varied teaching and assessment strategies
- Blended learning

Locally Developed Grade 9 Math Courses

- Lead: Dr. Anne Kajander, Lakehead University
- Gain an understanding of what's happening in Grade 9 locally developed math classes in Ontario
- Develop resources based on the needs of students and teachers
- Provide teachers with a set of strategies and resources to help students who struggle with math (e.g., learning difficulties and formal or informal IEPs)

Locally
Developed
Grade 9 Math
Courses:
Work in
Progress

- Case studies of sample classrooms
- Resource development
- Evaluation of the effectiveness of the resources

Secondary to Post- Secondary Math

- Lead: Dr. Peter Taylor, Queen's University
- Instructors at the post-secondary level have identified a gap in the knowledge and skills that first year post-secondary students need to be successful in math
- The focus of this CoP is developing conceptual knowledge in high school students that they need to be successful with postsecondary math

Secondary to Post- Secondary Math: Work in Progress

- Development of enrichment math modules at the high school level
- Collaboration with students and teachers in the development of modules through workshops and field testing

Secondary School Math Enrichment Modules

For more information about high school math enrichment modules, visit this website:

<http://mast.queensu.ca/~math9-12/>