



## PRISM North Western Ontario (PRISM NWO) Research Project

**Lead School Board** – Lakehead District School Board

**Lead Educator** – A. J. Keene– akeene@lakeheadschoosls.ca

### Participants

- Lakehead DSB, Northwest CDSB, Rainy River DSB, Superior North CDSB, Northern School Resource Alliance (2 of 11 School Authorities)
- 40 teachers, 30 completed all phases

### Lead Researcher

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### Project Design

Improve opportunities for students deemed at risk by building teacher capacity for teaching mathematics through the following professional learning opportunities:

- *PRIME Number and Operations Strand* teacher training for all participants - 3 days provided by publisher
- P/J Mathematics AQ as well for a subset of participants.

### Research Questions

- Were changes in math knowledge and beliefs measurable in 8 months?
- Which measures were most useful for showing teacher change?
- Were there differences between various types of professional learning opportunities for teachers?

### Research Instruments

1. Perceptions of Mathematics (POM)
2. Content Knowledge for Teaching Mathematics (CKT-M)
3. Teacher Attitude and Practices To Teaching Mathematics Survey

### Research Findings

1. Changes in teachers' beliefs about mathematics itself and what aspects are important for learning
2. Increases in teacher knowledge of mathematics for teaching in the strand for which the training was provided
3. No measurable change in teachers' beliefs about classroom math teaching

### Successes

- Using the strand-specific CKT-M and the beliefs portion of the POM measured change effectively
- Significant gains were evident in teacher content knowledge in strands where training was provided

### Conditions for Success

- There was a match between the training and the instruments used to measure its effectiveness
- Targeted training – many hours spent in one strand
- Board-level opportunities for collaboration; support for project goals through other initiatives

### Lessons Learned

- Measures of knowledge for teaching need to be specific to the content of the professional development.
- Beliefs about mathematics itself are important.

### Suggestions Based on Experience

- Instruments that include items from a broader range of content than did the professional learning opportunities may not show significant change.

### Further Recommendations

- Shifts in teacher beliefs about teaching mathematics are only likely to be gained through sustained, collaborative opportunities for teacher growth, and then only if training is supported at the school or board level, e.g., mentoring, coaching, lesson study, etc.
- Success of professional development opportunities can and should be measured using one or more of the instruments used in this project. Research has shown that student achievement directly correlates to teacher efficacy – improve teaching, improve learning.
- Keep the focus of training narrowed, e.g., one strand, or process expectation) with numerous opportunities for consolidation.
- Project indicates a need to provide for all teachers training in all strands of mathematics content.