



Improving preparation and requirements for teachers of mathematics

Walter Whiteley

Professor of Mathematics and Statistics

York University

Member of the Graduate Programs in
Mathematics, in Education, in Computer
Science, in Interdisciplinary Studies



My background

- Teach future teachers in undergrad Mathematics Courses and in-service teachers in graduate math and math ed courses;
- Fact checker for recent K-10 math curriculum
- Part of the team for the recent 11-12 curriculum, as chair of the COU Math Curriculum panel.
- Researching early years spatial reasoning (ages -3months to 8 years)



Current Key Concerns

- Children are amazing, our curriculum is not.
- Some teachers are amazing –
- but some are scared of math, and not supported to do rich explorations, with multiple representations, and differentiated instruction.
- No math entrance expectations in most (all?) faculties of education. (Compare language.)
- No graduation requirements in math pedagogical content knowledge (except at Lakehead, grade 6 competency exam).



Current Key Concerns

- Graduating teachers of Primary Junior who are not fluent in Grade 6 math
- Graduating teachers for 6-8 who are not fluent in Grade 9 math
- Assigning high school teachers to math courses without any requirement for background related to math, and math pedagogy.



Current Key Concerns

- Teachers are not prepared for new math expectations that should come within their working careers:
- E.g. Statistical inference; spatial reasoning
- Too limited support for professional development;



Suggested Steps:

- Make math a protected subject in high school.
- Require math competency at appropriate level for graduation with a B.Ed.
- Possible role for entrance requirements.
- Fund faculties of education to develop mathematical pedagogical content knowledge among students.
- Support math leaders in all elementary and middle schools.