

# Observing Teachers: The Mathematics Pedagogy of Quebec Francophone and Anglophone Teachers



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## Statement of the Problem

- Considerable range of student achievement in Mathematics across Canada.
- Factors that contribute to these differences have been documented (Anderson et al., 2006; Beaton & O'Dwyer, 2002; Schmidt, et al., 2001; Wilkins, Zembylas, & Travers, 2002).
- No insight into differences in teaching pedagogies.

## Nationwide Study

### Objective:

- Describe regional differences in mathematics teaching & underlying pedagogies in Canada, & relate with student achievement in mathematics.

### Guiding Questions:

- How do pedagogies in middle school mathematics in regions of Canada differ?
- How are these differences related to differences in average achievement & the range of achievement in regions of Canada?

For this study, we focus on the pedagogies between Francophone & Anglophone Quebec Teachers

### Goal:

- Comparing the teaching practices and pedagogies between Quebec Francophone and Anglophone teachers.

### Question:

- How are the mathematics teaching pedagogies similar and/or different between Quebec Francophone & Anglophone teachers?

## Theoretical Framework: Defining Pedagogy

- implicit cultural practices of teachers, by which we mean practices that though not taught explicitly in schools of education or written down in textbooks reflect an implicit cultural logic (Tobin, & al., 2009, p. 19).
- Professional knowledge rooted in classroom cultures (Anderson-Levitt, 2002, p. 109).
- Practices that emerge from embedded cultural beliefs about how children learn and how teachers should “teach” (Bruner, 1996. p. 49).

## Method

- 4 Francophone & 4 Anglophone Secondary 1 & 2 teachers.
- Phase 1: Filming of lessons.
  - Typical, exemplary & Introductory on fractions.
  - Edited (15 to 20 best minutes).
- Phase 2: Focus groups (video-recorded).
  - Viewing and discussion of videos.
  - Selecting a “model” video for each type of lesson.
  - Theme analysis (Butler-Kisber, 2010).



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## Results

	Typical Lesson	Exemplary Lesson	Introductory Lesson on Fractions
Francophone	<ul style="list-style-type: none"> <li>• Pre-established routine &amp; sequence.</li> <li>• Quiz on mental math &amp; prior concepts learned.</li> <li>• Vocabulary &amp; Synthesis.</li> <li>• Questioning by the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires planning &amp; originality.</li> <li>• Student centered activity, &amp; they have more control.</li> <li>• Manipulation, exploration &amp; collaborative work.</li> <li>• Clear expectations.</li> </ul>	<ul style="list-style-type: none"> <li>• Importance on mathematical vocabulary.</li> <li>• Link to prior knowledge.</li> <li>• Importance on various representations.</li> <li>• Synthesis at the end to situate the concept in the learning sequence.</li> </ul>
Anglophone	<ul style="list-style-type: none"> <li>• Pre-established routine &amp; sequence.</li> <li>• Talk &amp; Chalk lecture style..</li> <li>• Teacher-centered questions.</li> <li>• Differentiation: more modeling for weaker students.</li> </ul>	<ul style="list-style-type: none"> <li>• Student-centered activity.</li> <li>• High-order questioning by teacher &amp; students.</li> <li>• Importance on various representations &amp; mathematical vocabulary.</li> <li>• Students justify answers.</li> </ul>	<p>Since they only had 2 videos for this type of lesson, they did not feel the need to make criteria because the choice of the video was obvious.</p>

## Discussion

- Shared pedagogies between the 2 linguistic communities:
  - Structure of typical and exemplary lessons.
  - Vocabulary, questioning & representations.
- Same curriculum and designed textbooks.
- Questions for evaluation VS Questions for strategies.
- Importance of synthesis with Francophone teachers.
- Differentiation with Anglophone Teachers.

## Conclusion

- Results only allow for very preliminary conclusions regarding the differences in regional pedagogies on Canada and their connection to student achievement.
- There are differences between the 2 groups in Quebec.
- Next phase:
  - Comparing results of focus groups of other regions with Quebec.
  - Analyzing videos selected.