

It Takes Two Hands to Clap
My Visits to Schools in Singapore
Chris Shore, OCMC Symposium, Feb 2020

Secondary School

- Homeroom system since the 1990s.
- Attempting to instill common implementation of Kagan Research (collaborative Learning), as well as Metacognition, 5 Practices, Concept-Based, Differentiation/Inquiry, as well as Joyful Learning... "If math is not fun, I have failed."
- Teacher Hiring Process: 1st Quick Sample Lesson, 2nd Essay, 3rd Interview
- "Would you track by ethnicity?" ... "No Way!"
- Holiday training for EL Students (20 hours)
- PLC one hour a week. Job-Embedded PD by the Head of Department (HOD).
 - "Must develop teachers through persuasion, not coercion."
 - One class for HOD = half the number of students.
- Class of HOD has 6 tables of 6.
- 50% of the day with students?? Three 1-hour classes. 2 periods to reflect and mark. 1 period department work.

National Institute of Early Childhood Education

- Primary School schedule: 7:30-1:30 plus supplemental lessons in the afternoon.
- Ranking of teachers before panel of 16 for performance bonuses that can be worth 2-month salary.
- The challenge for progressive change is that the NIE trains one way, then the culture of the school takes over.
- Teachers are hired first, trained for 1 year at NIE, then 6 months on the job training (teacher salary throughout training). Teachers are then bonded for 3-year service.

Singapore American School

- Teachers teach 5 of 8 periods, 80-minute blocks (63% of the day vs 86%)
- Students go to class 6-7 of the 8 blocks. They are given time to do school work on campus.
- American curriculum: Common Core & NGSS, AP exams, plus Advanced Topics.
- 10% SpEd, 100% College placement
- Experimental more than innovative.
- Facility is Amazing!
- 22:1 ratio

Primary School

- Students: 5 hours English, 5 hours Maths, 2.5 hours Science, 2.5 hours Mother Tongue, plus other subjects.
- Teachers: 17 hours a week
- Dual Subject specialists
- Visions & Mission
- Principal is very knowledgeable of the changes & vision
- Reading Hattie & D. Williams
- Ministry of Education may ask for copy of common exams

Afterschool PD

- “Does metacognition matter for primary mathematics students?”
- “Does this solution show the child’s control?”
- Huge emphasis on teaching student self-regulation
- 5 of 32 teachers male
- Metacognition, part of the Pentagon (Attitude, Metacognition, Process, Concepts, Skills = Mathematical Problem Solving)
- PD was horribly presented
- RCC = Reasoning, Communication, Connection
- Types of Understanding
 - Conceptual (what) - meaning/representations, examples, non-examples
 - Relational (why)
 - Instrumental (How) – Algorithm
 - Formal (symbol/notation)
- Lesson Closure on Regulation
 - Pupil’s close their eyes and think about the main point of the lesson.
 - Share with a partner.
 - Teacher captures answers on board.
 - Teacher to fill in the gaps.
 - Students start on HW.

Sample Lesson Observation

- 6th grade (7th grade here, 12-year old cohort) on dividing a unit fractions by a whole number
- Very much like my lessons.
- Teacher is HOD and leading other teachers.
- “Wrong thinking okay; in math we adjust our thinking.”
- “Who has a different equation?”
- Students very articulate with explanations, questions or challenges... It took 6 months to get the students there.
- RE: $\frac{3}{4} / 3 = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$, “Can you explain how you got this intermediate answer?” (from students)
- When students presenting solution:
 - “Look around and see if all your friends are ready.”
 - “Any feedback? Do any of you disagree?”
- Teacher: “I have a key question: $\frac{5}{6} / 5 = \frac{1}{6}$ Why when I divide by 5, do we get a denominator of 6?”
 - “I hear key words, ‘Part of the whole’”
 - “I want to hear more of your ideas before I share mine.”
 - “Can you link your idea to his?”
 - “I am still missing a key word in the definition of a fraction. It’s on your activity sheet.” (EQUAL)
- Other teachers still aren’t all there. Still teaching directly to the test.
Q: So, what is it that puts them so far ahead?
A: Problem Solving on the test.
Rigor is far greater than in U.S.
The system offers Prep workbook.

Ministry of Education/Textbook Publisher

- Why is Singapore so good in Math Education?
 - Combination of East & West
 - English as primary language to unite nation
 - Balance – small laboratory
- Regarding Equity
 - Chinese abacus was removed– cultural relevance
 - More girls in curriculum
- Curriculum rollout, little by little, year by year
- The 2-Handed Clap: The Culture & the System
 - Trying to dial back on testing
 - Parents take care of children, because children will take care of parents when old
 - Since parents take the tests seriously, the students & teachers do also.

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Sample of PSLE (Primary School Leave Exam)

The figure shows a path of width 2 m in a rectangular garden of length 28 m. The outline of the path is made up of quarter circles with centre W, semicircles with centre Z and straight lines. $WX = YZ$.

- (a) What is the width of the rectangular garden?
- (b) Find the area of the path. Take $\pi = 3.14$.

