


Singapore Math Is “Our Dirty Little Secret”

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The following guest post is from Barry Garelick, co-founder of the U.S. Coalition for World Class Math, an education advocacy organization that addresses mathematics education in U.S. schools.

The New York Times ran a story on September 30 about Singapore Math being used in some schools in the New York City area. Like many newspaper stories about Singapore Math, this one was no different. It described a program that strangely sounded like the math programs being promoted by reformers of math education, relying on the cherished staples of reform: manipulatives, open-ended problems, and classroom discussion of problems. The only thing the article didn't mention was that the students worked in small groups.

Those of us familiar with Singapore Math from having used it with our children are wondering just what program the article was describing. Spending a week on the numbers 1 and 2 in Kindergarten? Spending an entire 4th grade classroom period discussing the place value ramifications of the number 82,566? Well, maybe that did happen, but not because the Singapore Math books are structured that way. In fact, the books are noticeably short on explicit narrative instruction. The books provide pictures and worked out examples and excellent problems; the topics are ordered in a logical sequence so that material mastered in the various lessons builds upon itself and is used to advance to more complex applications. But what is assumed in Singapore is that teachers know how to teach the material—the teacher's manuals contain very little guidance. Thus, the decision to spend a week on the numbers 1 and 2 in kindergarten, or a whole class period discussing a single number is coming from the teachers, not the books.

The mistaken idea that gets repeated in many such articles is that Singapore Math differs from other programs by requiring or imparting a “deep understanding” and that such understanding comes about through a) manipulatives, b) pictures, and c) open-ended discussions. In fact, what the articles represent is what the schools are telling the reporters. What newspapers frequently do not realize when reporting on Singapore Math, is that when a school takes on such a program, it means going against what many teachers believe math education to be about; it is definitely not how they are trained in ed schools. The success of Singapore's programs relies in many ways on more traditional approaches to math education, such as explicit instruction and giving students many problems to solve, in some ways its very success represented a slap in the face to American math reformers, many of whom have worked hard to eliminate such techniques being used.

Singapore Math does not rely heavily on manipulatives as so many articles represent. It does make use of pictures, but even that is misrepresented. Singapore makes use of a technique known as “bar modeling”. It is a very effective technique and is glommed onto as the be-all end-all of the program, when in fact, it is only a part of an entire package. People mistakenly believe that all you have to do is teach kids how to draw the right kind of pictures and they can solve problems. (In fact, there are now books written that provide explicit instruction on how to solve problems using bar modeling—meant to supplement Singapore’s books. That such books rely on a rote-like procedure is ironic considering that reforms criticize US programs as being based on rote instruction.) Pictorial representation is indeed a gateway to abstraction, but there are other pathways that Singapore uses as well. Singapore’s strength is the logical consistency of the development of mathematical concepts. And much to the chagrin of educators who may have learned differently, mastery of number facts and arithmetic procedures is part and parcel to conceptual understanding. Starting with conceptual understanding and using procedures to underscore it is an invitation to disaster—such approach is making profits for outfits like Sylvan, Huntington and Kumon.

The underlying message in articles such as the Times’ is that math education is bad in the U.S. because it is not being taught according to the ideals of reforms—and the reason it is successful in Singapore is because it is being taught that way. Never considered is the possibility that the reform minded methods and textbooks written to implement them are one of the root causes of poor math education in this country. Katharine Beals in her blog “Out in Left Field” does an excellent job describing this.

A friend of mine recently admonished me for my criticism of the article. At least schools are using Singapore Math and it is getting worthwhile publicity, he said. Fortunately, the logical structure and word problems in Singapore’s books are so good it will work in spite of the disciples of reform. My friend is right. If the education community wants to think that Singapore Math is student-centered and inquiry-based and the realization of US reforms, let them think it. For those of us who know better, it will remain our dirty little secret.

Barry Garelick is an analyst for the U.S. EPA and plans to teach math when he retires this year. He has written articles on math education in Education Next and Educational Horizons.