Why Alex can't add (or subtract, multiply or divide)

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A parent I know went to an information session about math at his kid's school. After listening to the visiting curriculum expert explain how important it was for students to "understand" the concepts, he asked: "So, how important is it for them to learn the times tables?" The expert hemmed and hawed and wouldn't give an answer.

Parents across Canada might be surprised to learn that the times tables are out. So are adding, subtracting and dividing. Remember when you learned to add a column of numbers by carrying a number over to the next column, or learned to subtract by borrowing, then practised your skills until you could add and subtract automatically? Forget it. Today, that's known as "drill and kill," or, even worse, "rote learning." And we can't have that.

"The designers of the new curriculum have decided it would be a really good idea not to teach these things," says Robert Craigen, an associate professor of mathematics at the University of Manitoba. He sat on the province's math curriculum committee for years. Unfortunately, nobody was interested in what he had to say. So today, he's got calculus students who never learned long division. "The undergirding motive is: We want to teach understanding, and all this mechanical detail gets in the way of understanding."

The common methods used to add and subtract are known as standard algorithms. They are efficient and foolproof. But, instead of being taught these methods, students are encouraged to find "strategies," such as breaking numbers into units of thousands, hundreds, tens and ones and working horizontally. It works, but it's not efficient. And every time a student sees a new problem, he has to start from scratch – and pick his "strategy." It's like playing the piano without ever learning scales, or hockey without basic drills.

The loony thing is that Canada is way behind the times. After a decade of disastrous experimentation in theUnited States, this approach to math education has been repudiated. The leading U.S. heavyweights in mathcame out decisively against it in 2008. Sadly, it seems this news has not yet reached Canada. Here,curriculum developers and boards of education are pressing forward, undeterred by the objections of mathexperts or the bafflement of parents and children alike.

Maybe it's all a plot by Kumon to drum up business. Kumon is a wildly popular chain of math-tutoringschools. It has 321 centres in Canada, with a total of 54,000 students. "I wait with many mothers and we talkabout the education system," one Kumon mother told me. "This group is, of course, very upset with the lackof basic knowledge taught in the public schools. Most are teaching math at home after dinner."

Another parent says: “My son used to love math when it was just about numbers, but now that it’s all writing words and describing how he feels about triangles, he’s not so enthusiastic. The math teachers at the high school where my husband works grumble that Grade 9 students come in not knowing their basic facts well enough.”

Lots of teachers are upset, too. Here’s part of a letter to Anna Stokke, another math professor who, with Prof. Craigen, has launched a reform movement to restore some common sense to math education. (Their site, wisemath.org, is worth a visit.) “I feel what is occurring in the schools is almost criminal,” the teacher wrote. “The difficulty which faces me every day is that I am *prevented* from teaching the ‘basic skills’ to my students. … Math worksheets and drills are frowned upon. Written tests are a definite no-no. … Marks on report cards are not to be less than 50 per cent. … How can one teach algebra/fractions/per cent/ratios when the basic facts are lacking? How can one pursue higher-level problem-solving when the foundations of mathematics don’t exist?” But many teachers don’t know enough to be upset, because their grounding in math is dismal to begin with.

The biggest losers aren’t your kids, of course. The biggest losers are the kids of parents who can’t afford tutoring, or don’t have the time to teach them times tables, or don’t even know their kids need help. It’s called two-tier education. And it’s here.

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