My Experience as a Teach for Mastery Specialist

Until recently, my efforts to introduce a *Teach for Mastery* pedagogy at my own school, and many others I work with, had relied on my trusting in the research and the opinion of others. Despite reading all the literature and attending all the lectures, the only evidence I had that this project was worthwhile, came in the form of the dazzling PISA results of Pacific Rim countries – it had not been something that I had seen for myself, first hand.

For this reason, I had reservations about the approach, and my drive to change teaching practice in my own school had been tentative and conditional. Yes, it was clear that places like Shanghai and Singapore had outclassed us in international maths tests, but with pronounced differences in culture and educational infrastructure, I found myself questioning whether we were right to invest so much time and energy in trying to replicate what they do.

My attitude changed however, when I was invited to attend the Maths Hub exchange programme in China. After two weeks observing lessons, attending planning meetings and 'teacher research groups' with Chinese teachers, I finally began to see why people were so dedicated to this cause, and why there was so much enthusiasm for it. Having witnessed some of the best maths lessons that I have ever had the privilege to observe, I could at last see for myself why we would be foolish not to take note of what they do.

I realise that I am now asking the reader to put their trust in yet another article, in yet another person's opinion, but please be assured it comes from someone who has taken a critical approach to this initiative right from the start, and from someone in a good position to make an informed judgement about its virtues.

So what was it that caught my attention? The first stand-out feature for me, and one that I have found easy to replicate in my own classroom, is the use of mathematical language and stem sentences. Children are regularly asked to chant new mathematical vocabulary and even Grade 1 pupils are expected to use the correct terminology every time they answer a question. Stem sentences are rehearsed again and again, and teachers insist that the children use them for every response they give. The notion of this seemed ludicrous to me at first; why restrict how children can respond to a question? But now I realise that often my own students don't know how to explain what they have done, not because they don't understand the process they have undergone in their heads, but because until recently, I have never given them the language skills to do so. Now that I am building these elements into every lesson, I am seeing an improvement in my children's ability to reason out loud.

The children's fluency skills and number knowledge in Shanghai are second to none. From Grade 1, children are expected to learn and recite addition and subtraction facts to 20 (and then later on their times tables); most lessons start with a quick test or with children chanting facts. Although this is indisputably rote learning, something not popular in British schools, I think it has a useful place in our classrooms. As children are able to quickly recall the facts they need, when they need them (and there's no denying that our own children struggle with this), the focus of the lesson never has to shift

from the intended learning. But this is not the only benefit of making children learn facts by heart: long gone are the days when people, particularly children, are expected to memorise things, but evidence has shown that without exercising this memory function on a regular basis, it can become harder and harder to retain information. We should be asking our children to frequently rehearse memorised facts, not just to improve their fluency skills but also to develop their memorisation capabilities.

My time in Shanghai has also caused me to re-evaluate my use of manipulatives. I have always held them in very high regard, and still believe in their ability to expose children to the structure of the maths in hand. But is there an overreliance on them? Are my children not just using them for the why, but for the how as well? In China, once the concrete and pictorial representations have revealed the structure of the mathematical concept, children are quickly moved onto the abstract, and in the later years of primary school, there is very little reliance on manipulatives at all. Perhaps we should be moving away from them sooner too.

But the most impressive thing, without a doubt, is the journey the teachers take their children through in the lesson; how the learning unravels using a carefully planned and well thought through sequence of questions. This was what struck me most about how these teachers taught maths. There was no 3-part lesson structure (input – activity – plenary), typical to our pedagogy in the UK. Nor were the children simply told mathematical facts, or taught mathematical procedures; instead, new ideas were revealed to the children in small, incremental steps so that they could either readily connect it to their existing knowledge, or restructure what they knew already to accommodate it. Every example given, every question asked, counted, each derived with a very specific purpose – either to highlight a pattern, or to challenge it. Not a moment of any lesson was wasted.

However, recreating this level of procedural and conceptual variation in our own classrooms won't happen overnight, and a lot of time and thought is needed in order to provide teachers with the knowledge base they need to plan lessons this skilfully, although many current textbooks go some way to achieving this already.

My involvement in the exchange programme is now over, but as I continue to promote different approaches to maths pedagogy back home, I no longer feel like I am trying to endorse revolutionary change. This pursuit for 'maths mastery' (a term I often hear people use) is not about making radical alterations to your school philosophy, nor does it involve a shift in mind-set of your teachers; it is just about encouraging really good maths teaching.