

The English - Shanghai Maths Exchange programme is an exciting initiative funded by the Department for Education and the National Centre of Excellence in the Teaching of mathematics (NCETM) and is now in its fourth year. It provides teachers from England with the opportunity to visit Shanghai to develop their understanding of Maths Mastery and observe its key philosophies in action in Chinese schools.

As a Year 6 teacher working at Sturton By Stow Primary School in Lincolnshire and a Mastery Specialist with the East Midlands East Maths Hub, I was lucky enough to gain a place on the exchange element of the programme this year and spent 2 weeks in Shanghai in September. Prior to visiting Shanghai, I had spent 12 months working with the NCETM and gaining an understanding of the key elements of a mastery approach to maths. My school had then embarked upon the journey of integrating elements of mastery into our maths teaching, focussing upon key aspects such as mathematical language, conceptual and procedural variation, coherency and fluency. Developing these changes had a very positive impact on the attainment of our children in maths and their confidence in the subject. Our school being involved in the Shanghai exchange was an opportunity for us to see these philosophies in action and further understand and employ them.

In September, I travelled to Shanghai and began our exchange. I was able to see how these elements had been embedded in schools over the last 30 years. During the 2 weeks I spent there, I was privileged to spend time in 2 primary schools, one with 720 pupils and a second with 3200 pupils. Whilst at each school, I was lucky enough to observe a selection of lessons being taught in different year groups ranging from Grade 1 (Year 2) to Grade 5 (Year 6). Through the opportunity to observe, with the help of some very skilful interpreters, we were able to begin to understand the essence and applications of the theory and philosophies we had begun to unpick in the UK.

So, what did we see?

We saw active, enthusiastic and engaged children who demonstrated a love of learning and an excitement about maths, busting the myth instantly of the picture of Chinese children sitting in rows and passively engaging in rote learning. The key features of the lessons which fascinated and excited the English teachers included:

Mathematical language. All Shanghai lessons demand specific and accurate maths language, which is developed often into a stem sentence repeated by the children. This process allows the children to rehearse the language which will then aid them in explaining their own thinking and provide them with the tools they need in order to justify and convince themselves and others of their thinking. This was a key element of mastery, which provided the children with the skills they needed to reason. This is particularly important for those children who often find reasoning aloud about their thinking difficult

Fluency. The children's fluency in number knowledge in Shanghai was incredible and often underpinned their comfort and confidence when exploring new number concepts. Whilst the manner in which the children developed these skills was no doubt centred on rote learning the fact that the children knew these facts so quickly and efficiently meant that no time within the lesson was wasted and the learning objective was always the focus.

Lesson Design. Within every lesson, a small step design was adopted in order to move the children through the learning in a structured and deep manner. The small step movement between teacher and learner in a 'ping pong' structure, meant that ideas were revealed or developed in a manner that meant the children could build upon or make connections with existing knowledge and concepts. Every choice of question, every conceptual or procedural variation made was intentional and designed to expose a concept, what something was or wasn't. It allowed the children to embed their understanding and link it back to the previous idea and forward to the next.

It was also interesting during the 2 weeks to observe the Chinese teachers engaged in the professional development model employed in Shanghai. In order to develop the expertise of their maths teachers and therefore the effectiveness of the learning for the children, each week the teachers spend time observing one another and then meet together to discuss successes and make improvements to their lesson design. This felt like a very positive process for the teachers involved, and engaged them regularly in professional dialogue which moved the maths forward and ensured that the intelligent practice within each lesson was exploited to its fullest potential.

In November of this year, the second part of the exchange has taken place. Teachers from the schools I visited in Shanghai have spent 2 weeks teaching maths in our school, one teacher in Year 2 and one teacher in Year 5/6. During that time we have had over 240 professionals from schools all over Lincolnshire and beyond visit to observe lessons. This has included teachers, head teachers, members of the maths hubs and representatives from the DfE and NCETM amongst them. Observing our visiting teachers teaching in a second language to unfamiliar children in unfamiliar settings, with up to 70 professionals observing has been an incredible process for our school to be part of. It revealed that Maths is a language that is universal and every day our visitors have engaged in vibrant discussions about the maths they have seen, picking out key pedagogy which they have taken away with them to consider further and develop in their own classrooms and schools.

Sturton By Stow Primary School, in partnership with the East Midlands East Maths hub and NCETM, is proud to have been a part of this international professional exchange and we are excited to see how our experience takes our own and other schools that visited us forward as we continue on our Mastery journey.

Kerry Bateman, Primary Teaching for Mastery Specialist