

Shanghai Surprise!

What is the 'Shanghai approach' and strategies for implementing the 'Shanghai approach'

Charlie Stripp
Director, the NCETM

National Centre
for Excellence in the
Teaching of Mathematics



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What was the surprise?

I expected rote learning and an oppressive classroom atmosphere. Instead I saw what I believe would be recognised as very good maths teaching anywhere in the world.

My impression of the Shanghai approach

- Teachers specialist and highly expert – both subject knowledge and pedagogy – both primary and secondary
- Large amount of non-contact time:
 - ‘Research’ – reflect on teaching, refine and plan lessons
 - Feedback – mark work, help students who are having difficulties
- Maths every day – 40/45 minute lessons

My impression of the Shanghai approach

- ‘Mixed ability’ teaching – pupils seem to have developed numerical fluency before lower secondary – mastery approach

‘We rank world best in Maths and Science, not because of the performance of our top students, but because of the small gap between high and low performers. High quality is matched by high equality’.

Professor Zhu Xiaohu, Shanghai PISA Centre

My impression of the Shanghai approach

- Teaching highly structured, developing conceptual and procedural fluency in parallel
- Short bursts of teacher input – most of the time the students are working on solving problems
- Students highly engaged
- Large classes: 45 - 60

A question at the end of a lesson on rational division

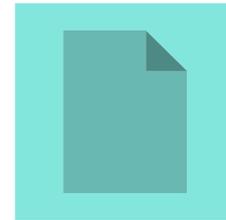
Ben Nevis is the highest mountain in England (!!). On a summer's day, the temperature at the base of Ben Nevis is 24 degrees Centigrade and at the summit the temperature is 13.25 degrees Centigrade. If the temperature falls by 0.8 degrees Centigrade per 100m of altitude, how high is Ben Nevis?'

Unanswered questions

- How representative are the schools, teachers and pupils we saw?
- How exactly do teachers give feedback to pupils?
- What happens to pupils who can't keep up?
- What exactly are the teachers doing when they are not teaching?
- How does formative assessment work in China?

What is the Shanghai approach?

From the horse's mouth:



Five Shanghai systems: Jan 2014 Shanghai/Ningbo

System 1: Practice and consolidation

Early training in number is the basis of all Maths learning with constant formal practice and repetition so that children demonstrate an assured fluency of use which supports accelerated progress. Mastery is achieved, not through reliance on repetitive drills, but through a rich variety in styles and approaches of practice questioning.

Five Shanghai systems: Jan 2014 Shanghai/Ningbo

System 2: Specialist Maths teaching

In order to qualify, teachers are required to have a degree in their specialist subject.

Graduate Maths specialists teach primary Maths, whereas in England, primary Maths teachers are unlikely to have Maths beyond GCSE level.

Five Shanghai systems: Jan 2014 Shanghai/Ningbo

System 3: Efficient teaching

Low class contact ratios mean the Chinese teach a small number of collaboratively planned lessons each day with a smaller spread of teaching groups so that some lessons are repeated with the same age classes. Teachers work together rather than in isolation.

Five Shanghai systems: Jan 2014 Shanghai/Ningbo

System 4 Immediacy of feedback and interventions

Maths is taught in the morning: work is marked and returned by the end of the day. Prompt assessment supports rapid progress.

Homework, handed in at the start of the day, is marked in time for the lesson later that day- a virtuous cycle of assessment supporting learning.

Five Shanghai systems: Jan 2014 Shanghai/Ningbo

System 5: Preventing rather than closing the gap

Children are given additional help before they can fall behind, in the belief that everyone is capable of learning and that there are no intellectual boundaries to knowledge. Whereas in Shanghai, children work immeasurably harder than their teachers, in England the opposite is true.

Implementation: what's already happening?

- What are you already doing to implement any of the practices you saw in China?
- What might you plan to do?

Implementation: China teacher exchange

- The new network of 30 ‘Maths Hubs’, coordinated by the NCETM, were announced on Wednesday
- The first ‘national project’ for the Maths Hubs will be to implement a China teacher exchange programme
- This will be managed through the NCTL and the NCETM

Implementation: China teacher exchange

- Up to 60 teachers each way over an 18 month period
- First 20 each way starting in the autumn, to Shanghai. Later cohorts might also go to Beijing, Hubei or Ningbo