

Taking the teaching of mathematics seriously: making mathematics teaching public

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Three models of mathematics teacher education

- Look at me (Copy the expert teacher)
- Look at you (Become a reflective teacher)
- Look at practice (Recognise & co-research the dialectic nature of mathematics teaching: respect & investigate 'the swamp').

Taking learning seriously

I have argued in this article that if we are to take learning seriously, we must profess teaching, and take our profession as teachers seriously. At the heart of the concept of a profession is a public and moral commitment to learning from pedagogical experience and exchanging that learning in acts of scholarship that contribute to the wisdom of practice across the profession. (Lee Shulman, 1999)

The culture in Ireland ...

- Remedial teachers/withdrawal method of learning support
- USA teacher exchange 1980s
- Team teaching: newly built schools (partitions put up instead of taken down)
- 'Egg-box' mentality
- Teaching continues to be “invisible and silenced, the silent discourse of the reform process” (Sugrue, 2004, p. 191).

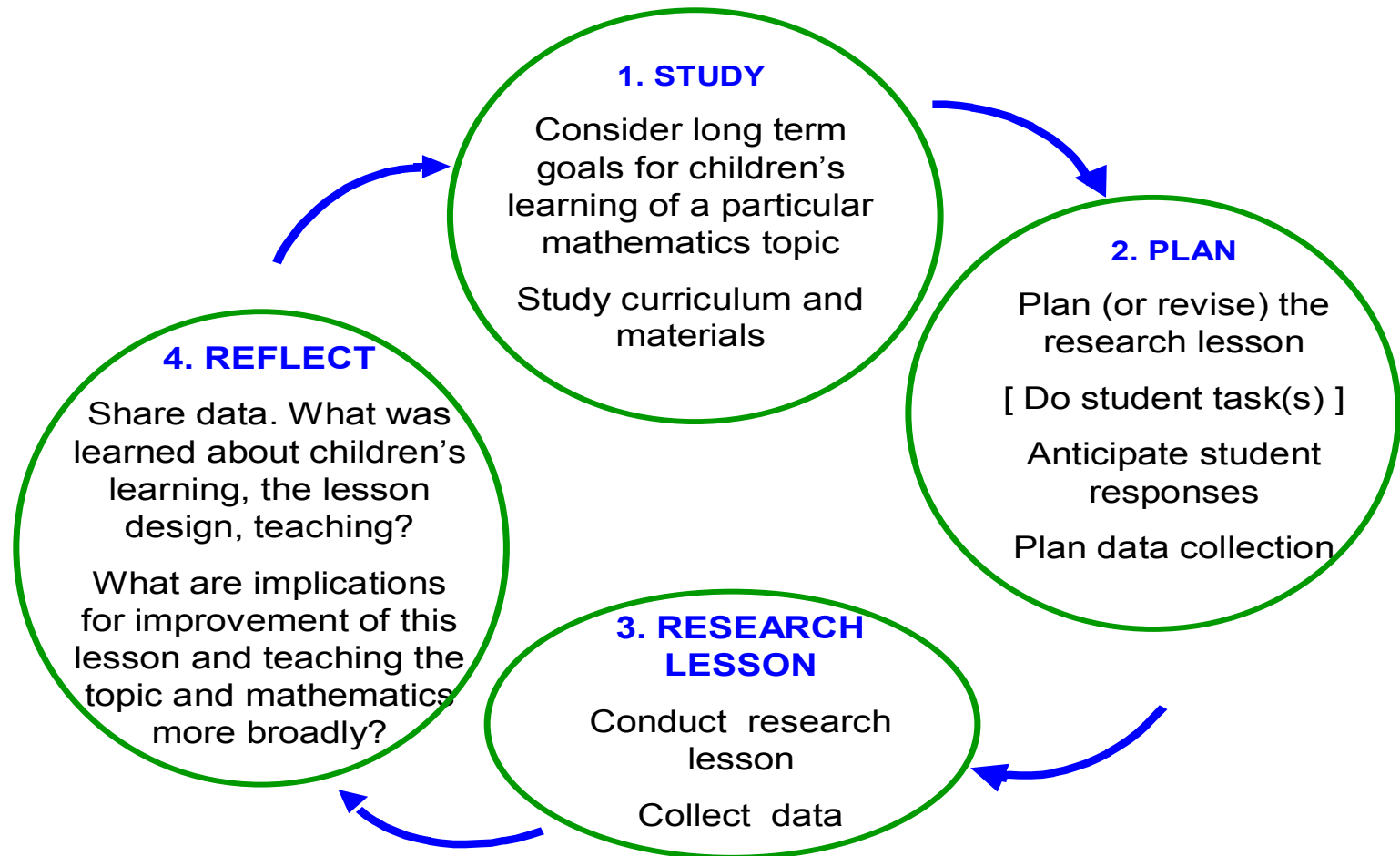
2005 as a watershed ...

2003 Kelly & Sloane mention of lesson study in ESAI article

2005 Conway & Sloane mention lesson study as a means of mathematics teacher development in

2006-2007 The 'Dublin Study' researched & theorised lesson study in primary mathematics teacher education

The lesson study cycle (Lewis, 2006)



A 4-6 step Lesson Study process

- Step 1-Collaboratively planning the study lesson
- Step 2-Seeing the study lesson in action
- Step 3-Discussing the study lesson
- Step 4-Revising the lesson (optional)
- Step 5-Teaching the new version of the lesson (optional)
- Step 6-Sharing reflections about the lesson (Krainer, 2011)

Lesson study in the digital age

- The lesson study app!

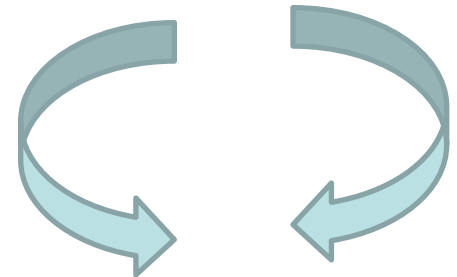
<http://lessonnote.com/>

A very useful tool but needs ...

Knowledge Quartet

- Foundation dimension
- Transformation dimension
- Connection dimension
- Contingency dimension

(Rowland et al., 2005)



The Knowledge Quartet

FOUNDATION

adheres to textbook; awareness of purpose; concentration on procedures; identifying errors; overt subject knowledge ; theoretical underpinning; use of terminology

TRANSFORMATION

choice of examples; choice of representation; demonstration

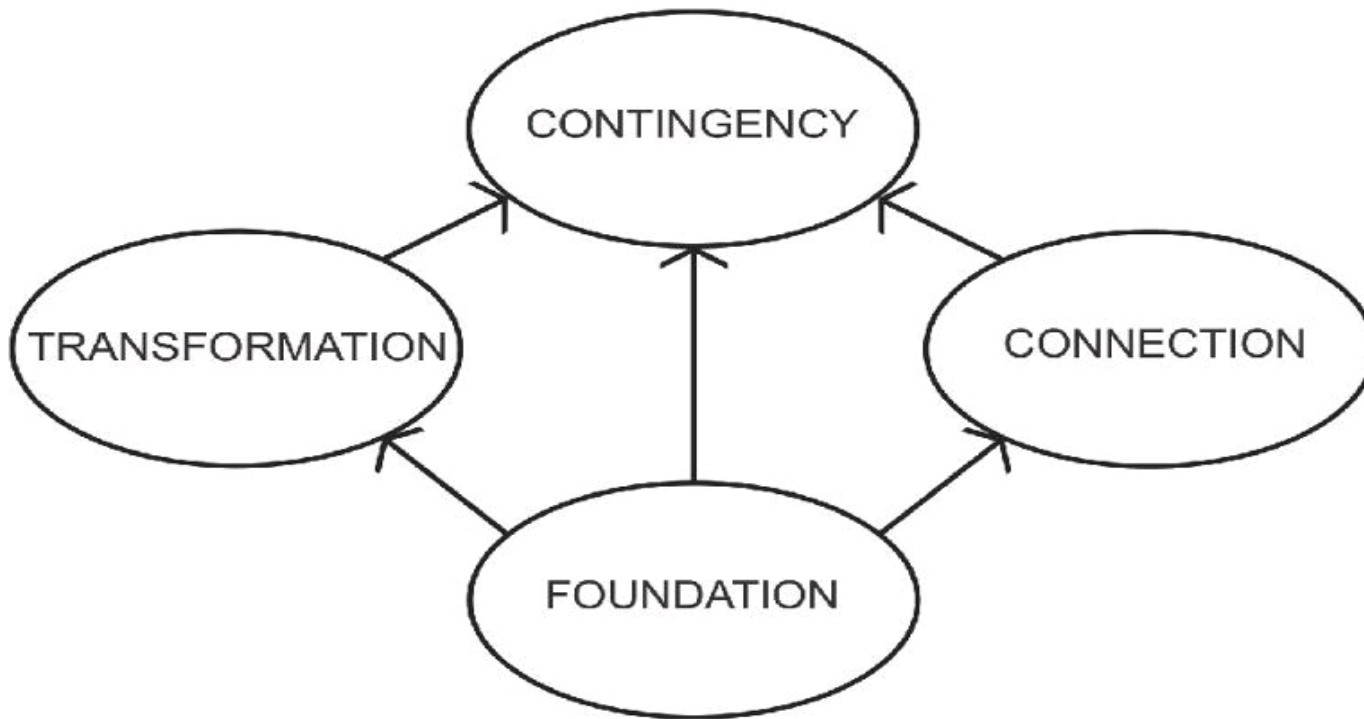
CONNECTION

anticipation of complexity; decisions about sequencing; making connections; recognition of conceptual appropriateness

CONTINGENCY

deviation from agenda; responding to children's ideas; use of opportunities; teacher insight.

KQ on Facebook



Bringing it all together ...

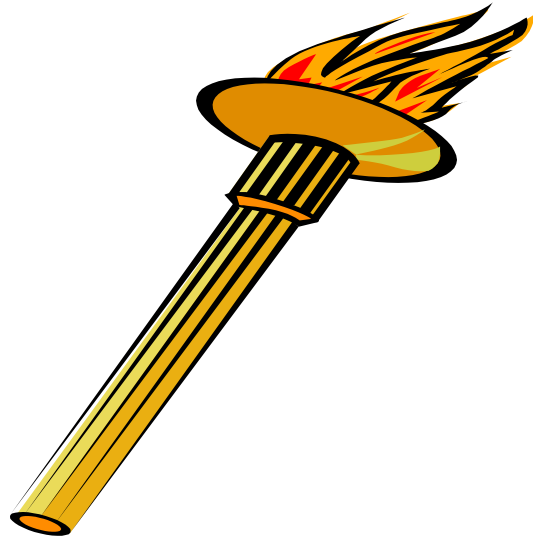
- Sustained ...
- Collaborative ...
- Focussed study of children's responses.

Resulting in

- Shared language & meanings
- Discussion & alignment of norms
- Public artefacts (research lesson plans & DVDs)
- A democratic & dynamic **scholarship of teaching** with infinite possibilities for enhanced development of mathematical thinking.

Research possibilities ...

- Goals for teaching mathematics?
- Increased test scores
- Improved uptake



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