

Nuffield Mathematics Seminars April 2007 - Manchester

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Group focus: conceptualising and theorising mathematical knowledge in teaching.

A few topics arose before a kind of central thesis was set out. Firstly, there was the question of the extent to which the papers considered today took into account the situated element of knowledge drawn out by Jeremy at the Cambridge session. Also, there was a concern that the dismantling of knowledge by teachers – especially primary teachers – is a difficult but essential task. It is difficult because such teachers are often *defensive*. In this respect there is possibly a great difference between primary and secondary teachers.

In teaching any subject, however, one issue that was of special interest to the group was the difficulty that a teacher often has in determining how to teach a topic –especially for the first time - when there are many different approaches that one can take, each one of which might seem reasonable. What s/he wants to know is which is the *best* one.

This question led to the view that the decision should be made by a community rather than the individual teacher. This in a sense flies in the face of the view that the individual teacher is in a special position to make such choices and therefore should do so. To do otherwise, it is sometimes said is to view the teacher rather more as a technician. Indeed, before the National Curriculum the teacher – or perhaps school and LEA – were responsible for devising the curriculum content. With advent of the NC and the NNS it is often pointed out that although the content has been determined the *method* remains in the individual teacher's domain. The group thought that the teacher might be thought of rather like other professions as requiring a tool kit which is part of a whole resource system.

I'd like to add that this is philosophically interesting, too. Amongst many so-called social epistemologists there has been an interest in the epistemology of *testimony* which has a long history but roughly questions the overriding prominence of first-hand experience in providing evidence for knowledge claims. So much of our knowledge - more than we often realise, these epistemologists point out - is taken on trust anyway. Moreover, the usual sources of first-hand experience – perception and memory - are often no less subject to unreliability than testimony. Analogously, perhaps, In the teacher's choice of pedagogy what one has to get over is the objection in terms of *ownership* which might appear to do more work than it warrants. Just as I know *p* because I saw it or I remember it has limitations in non-trivial cases so, perhaps, is the claim that this teaching method is right because I chose it on my criteria. Such personal grounds need not necessarily be the final arbiter of good practice.

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