

## Starting 'training'

Student teachers and tutors will have views about what mathematics teaching will be, or ought to be, like. These views will come from their own experiences as pupils and their observations in school, as well as any reading and thinking they may have done. A common statement at interview is that teaching involves being able to explain clearly, and motivating students involves using relevant contexts which show how mathematics is useful. Often these ideas come from one-to-one tutoring experiences, although when questioned strong mathematicians might claim that they do not themselves need 'usefulness' to sustain interest in the subject, but that pupils, who are not like them, might do so.

The following views are not contradictory or exclusive.

### A training/strategy view

**Teaching is** a process of putting certain actions into practice, stringing actions together in different ways and seeing which way works in a given classroom at a given time.

**Student teachers expect** a sequence of opportunities to learn about and test different strategies until they can be used effectively at the right moment.

**Learning to teach** can be seen as hearing, reading, remembering, and acting out lists of possibilities and having expert teachers tell them at the end of lessons about the other things they could have tried to do. There may be some things about teaching which can be learnt in this way, such as disciplinary procedures, covering the school scheme of work, setting and marking work and so on.

**The introductory session** which fits this view could include dissemination of documents, explanation of the course calendar and timetable, introductions to resources, procedures and key personnel.

**Course texts** would consist of books with chapter headings which relate to what teachers do, and which contain lists of strategies and when to apply them, perhaps with examples of their use.

**Sessions** would then follow similar lines, with methods of teaching particular mathematical topics introduced in a sensible order, possibly relating to certain school text books or software packages.

### A personal development view

**Teaching is** listening and talking to others in ways which allow them to flourish as well-rounded people, or at least as mathematicians of some kind.

**Student teachers expect** support, resources, time to explore and share ideas, and information.

**Learning to teach** involves learning to listen and talk to others about mathematics, and becoming someone who can be entrusted with the minds of children.

**The introductory session** One mathematics tutor starts his work by getting student teachers to shake each other by the hand and talk about their lives; another sits and waits until someone asks 'what are we waiting for?' and the tutor says 'well what are you expecting?' and conversation starts and grows between student teachers about what they feel learning to teach will be like.

**Course texts** may supplement this discussion/development view either by providing detailed strategies which can be used within a well-thought-through way of working, or by supplying further input for the discussions from research, or from key authors in the field.

**Sessions** involve discussion of student teachers' concerns and experiences, with the tutor pointing them towards supportive or challenging literature, or organising groups in which contrasting ideas can be explored.

### **A mathematical thinking view**

**Teaching is** the creation of classrooms in which work on mathematics is shared and enjoyed by all.

**Student teachers expect** to work on their own mathematics; to access and use a range of interesting mathematical ideas.

**Learning to teach** involves engagement with mathematics as a starting point for learning and discussion, modelling a range of different kinds of mathematical task at the same time as modelling many pedagogic strategies.

**The introductory session** might consist of an extended exploratory task, chosen so all student teachers can access it, with the option of working in groups or individually, followed by discussion of how people worked on it, what they learnt and how they learnt.

**Course texts** include discussion of what it means to do mathematics and descriptions of classrooms in which mathematics is enjoyed.

**Sessions** might involve groups working on tasks which relate closely to school level mathematics, with the tutor drawing attention to various organisational aspects of the session. For example:

- Notice how I arranged you in groups
- What could I do about those who arrived late?
- Look at how you are playing with the equipment
- How can you ensure that everyone in your group gets a chance to speak?