Discussion on Active Learning

One session of the conference was devoted to consideration by the participants of "active learning". This session took the form of five discussion groups each of which independently considered a number of issues around the concept of active learning. This was followed by a plenary session at which each of the five groups reported the main conclusions of their deliberations. This short note is a summary of the plenary session conclusions as perceived by the chairman of the session.

Firstly the discussion addressed the nature of active learning and whether there is such a thing as "passive learning". It was largely agreed that all learning is, in some sense, active; the nature of the activity may differ and cerebral activity may be as useful as physical activity. What is important for teachers and lecturers to understand is that the more actively involved students are in their learning the deeper and more permanent the learning is likely to be. Hence lecturers should seek to use a wide variety of active learning techniques to achieve effective learning. A theme which emerged from several groups is that reflection is vital for effective learning and learning activities should therefore be designed to encourage appropriate reflection.

A wide variety of active learning methods were identified including problem solving (perhaps in groups), discussion, learning by teaching, questioning, and written exercises in mathematical communication. Students benefit from being offered all these activities but different students benefit to different extents from any particular activity. Technology has the potential to increase both the level of active learning and also the range of active learning activities in a degree programme.

Groups were asked to consider whether all activity was necessarily beneficial – the example of group chanting of tables was given as something which is definitely active but which may not engender particularly deep learning. There was considerable support for the idea that, despite any arguments against it, some rote learning (like multiplication tables) can be made more effective by an active approach and such rote learning remains a vital basis for further and deeper mathematical understanding.

The general view of the efficiency of active learning was to question whether 'efficient' is as useful a concept as 'effective' when considering modes of learning. Active learning was certainly felt to have potential to increase the effectiveness of learning.

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