
Crisis in A level mathematics

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Twenty-nine per cent of candidates failed AS level mathematics in the summer of 2001. This failure rate is in contrast to a failure rate of 13% across all AS subjects. The immediate consequence is that the number taking A level mathematics in 2002 will be reduced significantly from last year's figure.

The image of mathematics as a relatively difficult subject has been reinforced, acting as a deterrent to would-be students in the future. Whatever action is taken in the short term, it is hard to see that it can have a significant effect on the number taking A level mathematics in 2003. In the longer term there is likely to be a further reduction in the number of graduate mathematicians entering the teaching profession. Coming hard on the heels of this is the depressing news that the number of qualified mathematics teachers fell from 40,000 or so in 1983 to 25,000 in 1987 - the last year for which figures have been released; we must expect that the current figure is considerably lower.

The overall content of the A level syllabuses was made slightly more demanding in response to requests from Higher Education, among others. In a separate development Curriculum 2000 required students to complete at least four subjects at AS level in Year 12 and, for many, then to carry forward three subjects to the full A level standard in Year 13.

There was general support for the broadening of the post-16 curriculum so that England, Northern Ireland and Wales could be brought more in line with other countries. The opportunity existed for more students to continue their mathematics education post GCSE; this was welcome. The reality is that, instead of numbers rising, they have fallen, perhaps because many students saw the prospect of taking AS mathematics as too daunting.

The problems with AS mathematics result from a combination of three changes all coming together. The first change was having to study half the A level syllabus and undergo the attendant assessment in the first year post GCSE. In many schools the policy had been to spend the first term of Year 12 consolidating GCSE material - especially important for those having taken the Intermediate tier syllabus. Two of the six A level modules were taken in Year 12 and the remaining four in Year 13. This gradual build-up of confidence and competence is essential for a structured subject like mathematics.

The second change is the increased pressure of studying more subjects. Unless we expect 16 to 18 year-olds to invest more time in their studies - a laudable but probably unrealistic expectation - then we must accept that less time will be spent on each subject, perhaps as much as 33% less. Yet at the same time the students are presented with a somewhat more demanding syllabus, the third change.

The Government must act quickly; it has made a start by conceding that the 'two module - four module' pattern can be re-instated; whether this will have sufficient impact remains to be seen. Even so, the current Year 12 is in the same boat as its predecessor.

Universities must act quickly to absorb the impact of these changes. Syllabuses will have to be adjusted to cater for the reality of the current situation and liaison with serviced departments must acquaint them of the likely knock-on effects of the reduced candidature for A level mathematics.

We must hope that the implementation problems of Curriculum 2000 can be resolved before any long-term damage is done.