



Qualifications and
Curriculum Authority

Evaluation of participation in GCE mathematics

Appendix H: Report on case study centre staff questionnaire

QCA Research Faculty

November 2007

QCA/07/3388

Report on case study centre staff questionnaire

Background

The evaluation's 19 case study centres were asked to respond to a short questionnaire between January and February 2006, as they had done at the same point in 2005. Sixteen of the case study centres responded to the questionnaire (the same number as last year but not the same group of centres). They answered all of the questions except for three. In these three questions, 13 of the 16 centres provided answers.

There were eight questions in the questionnaire and all but one related to A level mathematics student numbers. These questions were designed to update or build on the data collected in the previous year's questionnaire. The single exception is the final question, which reviews 2004/5 exam results.

The base for each question varies from n=11 to n=16 because of nil returns, incomplete responses, or, in one case, an anonymous response.

Q1. Please give the total number of Curriculum 2000 students (those studying GCEs and/or Vocational Certificates of Education but excluding other Advanced level vocationally related qualifications) in your school/college as at the beginning of September 2004/2005.

Curriculum 2000 (C2K) student numbers in 2005/6

C2K, n=13	Mean	Minimum	Maximum	Total
1st year	171.5	14	1280	2229
2nd year	143.3	19	1016	1863

Second year C2K numbers are 83.6% of 1st year C2K numbers.

C2K student numbers in 2004/5 and 2005/6

The following two tables compare C2K student numbers over the past two years. It was possible to match 2004/5 and 2005/6 data for 11 of the case study centres, so n=11.

C2K1styear, n=11	Mean	Minimum	Maximum	Total
2005/6	193.7	14	1280	2131
2004/5	186.6	20	1183	2052

Above: There has been a 3.9% increase in first year C2K student numbers from 2005 to 2006. On average, a centre has seven more of these students this year than last year. Below: There has been almost no change in the number of second year C2K students (a 0.2% increase).

C2K2ndyear, n=11	Mean	Minimum	Maximum	Total
2005/6	159.7	19	1016	1757
2004/5	159.5	17	958	1754

Q2. Of these students, please indicate the number taking GCE A level mathematics as at the beginning of September 2004/2005.

For comparison with the data in question 1, data from 11 case studies is used here. Data for 13 centres is provided below in question 3 for comparison with other data.

AS, n=11	Mean	Minimum	Maximum	Total
2006	56	3	305	616
2005	52	4	256	572

There were 7.7% more students starting AS mathematics in 2005/6 than in 2004/5. On average, there were four more students in each centre. However, C2K year 12/first year student numbers also increased noticeably in 2005/6 meaning that there was a large pool of potential A level mathematics students.

A2, n=11	Mean	Minimum	Maximum	Total
2006	35.5	3	140	390
2005	33.6	1	140	369

There were 5% more students starting A2 mathematics in 2005/6 than in 2004/5 but very little change in the total number of C2k Year12/second year students (+0.2%, as above). On average, this means about two more students per centre.

C2K students taking A level mathematics

n=11	ASmaths/C2K1styear*100	A2maths/C2K2ndyear*100
2006	28.9%	22.2%
2005	27.9%	21%

Mathematics student numbers can be set within the context of C2K student numbers by calculating the number of mathematics students as a proportion of C2K students. By this measurement, there has been a small increase in the number of mathematics students. The data suggest a small improvement in both the percentage of AS mathematics students and A2 mathematics students choosing the subject.

Q3. How many of these students have dropped GCE A level mathematics since the beginning of September 2004/2005?

It was possible to match 2004/5 and 2005/6 data on the number of students starting mathematics and the number of students dropping mathematics for 13 of the centres.

AS mathematics in 2005/6 and 2004/5

AS maths, n=13	Mean	Minimum	Maximum	Total
2006 drop	3.9	0	35	50
2006 start	54.9	3	305	713

AS maths, n=13	Mean	Minimum	Maximum	Total
2005 drop	2.31	0	11	30
2005 start	48.9	4	256	636

These data show 4.7% of AS mathematics students dropping the subject by February in 2004/5 rising to 7% in 2005/6. However, one large centre reported an increase in drop from 4.3% to 11.5% at AS. This centre accounts for a substantial proportion of the number of students across the sample dropping mathematics in 2006. Excluding this centre from the analysis yields a drop of 5% (slightly higher) in 2004/5 falling to 3.7% (rather lower) in 2005/6.

The tables below show the frequency (the number of centres) for each number of students dropping mathematics. Most centres reported between 0 and 2 students dropping mathematics by the February of the first year of study. Two outliers are visible (11 and 35 students) both reported by the same centre excluded above. For the remainder of the centres there is little difference between 2005 and 2006.

No. dropping AS maths	Frequency	
	2005	2006
0	4	6
1	4	4
2	1	0
3	2	0
4	0	0
5	0	1

6	0	1
7	1	0
11	1	0
35	0	1

A2 mathematics in 2005/6 and 2004/5

A2 maths, n=13	Mean	Minimum	Maximum	Total
2006 drop	0.7	0	8	9
2006 start	33.5	3	140	435

A2 drop, n=13	Mean	Minimum	Maximum	Total
2005 drop	0.4	0	2	5
2005 start	31.1	1	140	404

These data show 2.1% of A2 students dropping mathematics by February 2004/5 falling to 1.2% in 2005/6. Excluding the large centre with a high number of mathematics students reduced the overall proportion of students dropping A2 mathematics in 2004/5 to 0.3% and 1.1% in 2005/6. The small number of students dropping out means that this measure is less useful than the frequencies given below.

The table below shows the number of students dropping A2 mathematics and the number of centres (frequency) reporting these numbers. In each year, many centres reported that none of their students had dropped A2 mathematics. All of the centres reported the number of student dropping the A2 mathematics as between 0 and 2 with the exception of once large centre (excluded above) reporting a drop of eight in 2006. There are therefore no major differences between the data for the two years.

No. dropping A2 maths	Frequency	
	2005	2006
0	10	11

1	1	1
2	2	0
8	0	1

Q4. How many students completed AS/A2 mathematics in 2004/5?

This was a new question in 2006. It was designed to be used in conjunction with the data collected in February 2005 on the number of students starting A level mathematics in September 2004 (see question 2 above for the 2005 data). It was possible to match 2005 and 2006 data from 13 centres.

2004/5, n=13	Mean	Minimum	Maximum	Total
AS completions	45.6	0	230	593
AS starts	48.9	4	256	636

Using these data, we calculate that 93.2% of the 636 AS students (above) and 98% of the 404 (below) A2 students starting AS/A2 mathematics in 2004/5 completed it in 2004/5.

2004/5, n=13	Mean	Minimum	Maximum	Total
A2 completions	30.5	0	137	396
A2 starts	31.1	1	140	404

Q5. How many students completing AS mathematics in 2004/5 decided to begin A2 mathematics?

This was a new question in 2006. One of the 16 centres did not answer this question, so n=15.

n=15	Mean	Minimum	Maximum	Total
AS completion and begin A2	27.1	0	136	421
AS completion	41	0	230	615

Of the students completing AS mathematics in 2004/5, 68.5% ($421/615 \times 100$) decided to continue the subject at A2.

Q6. How many students not completing AS mathematics in 2004/5 decided to begin A2 mathematics?

This was a new question in 2006. Students at only two of the centres had begun A2 mathematics without completing AS mathematics. At one centre, all 15 students beginning the A2 in 2005/6 had done so without completing AS. At the other centre, the same pattern was apparent. All 13 students beginning the A2 in 2005/6 had done so without completing AS. It would seem that both centres have a policy of delaying the assessment of the entire AS until the second year of the course of study. On the whole, however, students at the case study centres are finding it possible to complete the AS units and their assessments in a single year.

Q7. Approximately how many of the students completing AS mathematics in 2004/5 do you think originally intended to proceed to A2?

This was a new question in 2006. The two centres reporting no students completing AS mathematics in 2004/5 are excluded from this analysis, so $n=14$.

n=14	Mean	Minimum	Maximum	Total
A2 intended	37.7	3	180	528
AS completions	46.9	3	230	656

80.5% ($528/656 \times 100$) of the students completing AS mathematics in 2004/5 originally intended to proceed to A2.

In question 5 we saw that 68.5% of students completing AS mathematics decided to continue the subject at A2. So whereas about 80.5% of students completing mathematics originally intended to continue the subject at A2, only 68.5% of them actually did decide to proceed onto A2. Thus, according to their teachers, about 12% of these successful students (79 out of 656) changed their minds about A2 mathematics during the course of their AS year.

Q8. How did your centre's 2004/5 exam results for the new mathematics A level compare with your expectations?

This was a new question in 2006 and 15 of the 16 centres that returned questionnaires made a response to this question. Of the 15 centres responding to this question, almost all had found that their students' 2004/5 A level mathematics results met their expectations. Only two found that the 2004/5 results were different to their expectations and in both cases the results were higher than they had expected. No centres reported that their results were lower than they had expected. These data tend to suggest that staff from the case study centres understand the standards required for A level mathematics.

