

The British Open University: two case studies

The British Open University was founded in 1969. It caters for students in the United Kingdom (134 000), other European Communion countries (8 000), and has a considerable enrolment from outside Europe (14 600; all figures 1996/7). The bulk of the student population is doing undergraduate work where courses are well-balanced between Science, Engineering and Mathematics (each faculty enrolling about 20 000 to 25 000 students) and Social Sciences, Business Management and finally Humanities.

The age profile is normally distributed around the end thirties. The total expenditure for 1996/7 has been indicated as £215.3 million.

Sometimes referred to as the Rolls Royce of distance education, the high quality teaching material has helped to free distance education from the image of second chance but second best education. Being well known for leading edge technology teaching the traditional print based material is also highly regarded and used in the universities as well as being bought by a wider public.

We were given the opportunity to look into the costs of two courses, one in the faculty of Health and Social Welfare one in the faculty of Mathematics. The first course was a 30 CAT point course and supported by print and video media, the second was a 60 CAT course and supported by print, CD-ROM, television and videocassettes.

The OU stands out of providing courses with a high level of cost per student learning hour. Though this is not by itself an index of quality, it is consistent with the image of the UKOU as a high-quality provider. At the same time the OU manages, because of its high enrolment level, to keep average cost per student at least in line with average costs observed elsewhere.

Case study 1

A second level undergraduate course offered by the School of Health and Social Welfare of the Open University/United Kingdom

The course examined here is a second level undergraduate course offered by the School of Health and Social Welfare. It requires at least 220 hours of study and carries 30 CAT points (Credit Accumulation and Transfer points). The course can be used as a module in different degree and diploma programmes. The course fees in 1996 were £250.

The course covers relevant concepts such as community and neighbourhood. It addresses such issues as the conflict of control and care, discusses local and government policies on community care and refers to the relevant legislation.

The media used are: text, video, audio. The respective material can also be bought as an independent package for group work in community settings.

In the following we consider as direct course costs development, maintenance, production, distribution and cost of student support. Administration costs are ignored since they are not specific to the course.

Resource media: inputs and costs

The media used in this particular course were text, audio and video. Development costs of these media involve authoring tasks and design tasks. Development costs include all activities which result in the resource material ready for replication.

Development costs

The printed material developed for the course consists of 13 units (generally a unit consists of 48 pp), five of them being labelled as supplementary material (because they are updated more frequently than the units), seven audio cassettes of 30 minutes each and one video tape of 25 minutes.

Sometimes courses have to be updated. These costs are part of the maintenance costs and incurred only after some years when the course needs to be partially updated. The maintenance costs average £5 000 from 1993 to 2000, i.e. altogether amounting to £40 000.

Table CS 1.1: Fixed costs of development**Currency: Sterling**

		1990	1991	1992	Totals
Salaries	Academics (4 staff over 2.8 years)	112 000	144 000	150 000	
	Other staff	30 000	31 125	32 250	
	Total salaries	142 000	175 125	182 250	499 375
Development	Fixed Print		8 125	7 150	15 275
	Audio production ^a		11 200	8 400	19 600
	Video production ^a			27 000	27 000
	Other ^b	3 600	20 213	34 242	57 305
Total Development	(excluding salaries)	3 600	39 538	76 792	119 930
	(including salaries)				619 305

Source: based on OU budget details of the course. NB Budget costs reflect internal recharge rates which may differ from actual costs. Costs are in 1996 prices. Notes: a: production costs in this case are in fact development costs rather than replication costs; b: the heading other includes all other headings than print, audio and video.

Production cost

Production costs are variable costs: they are sensitive to student numbers. In OU terminology they are referred to as 'stock purchases'. The unit costs of printing a unit (= 48 pp) is indicated as £0.96. The projected number of students was 8 000 over eight years. There were two consecutive print runs of 5 000 for four units in 1991 and another four in 1992. The cost is $2 \times £19\,200 = £38\,400$. However, the expected number of students up to the year 2000 is near to 8 000. Hence the print costs will eventually come up to slightly more than £60 000.

The supplementary material was not all printed in advance. In particular the TMA booklet is updated each year and therefore a variable recurrent cost factor. The production cost for the supplementary material up to 1996 amounted to £36 650. Additional costs of $4 \times £2\,010 = £8\,040$ are expected for the years 1997 to 2000 when the course will terminate. Hence the total production cost of supplementary material will amount to about £45 000. The total production cost of printed material then amounts to £105 000.

Audio and video replication is not done all in advance, but rather on a recurrent basis. Table CS 1.2 summarises the costs up to 1996.

Table CS 1.2: Audio and video production costs

Currency: Sterling

			1992	1993	1994	1995	1996	Total to 96
Audio	2xC60	number ^a	3 000	3 000	3 000	3 000	3 000	
		unit cost	0.3	0.3	0.3	0.3	0.3	
		Subtotal	900	900	900	900	900	
	1xC90	no	1 500	1 500	1 500	1 500	1 500	
		unit cost	0.39	0.39	0.39	0.39	0.39	
		Subtotal	585	585	585	585	585	
Total	Audio	1 485	1 485	1 485	1 485	1 485	7 425	
Video	1xE90	no	1 500	1 500	1 500	1 500	1 500	
		unit cost	2.15	2.15	2.15	2.15	2.15	
	Total	video	3 225	3 225	3 225	3 225	3 225	16 125
Total	Audio+	Video	4 710	4 710	4 710	4 710	4 710	23 550

Source: based on OU budget details of this course. NB Budget costs reflect internal recharges which may differ from actual costs. Costs are in 1996 prices. Notes: a: the number here is 3 000 because we have 2 x 1 500 copies of 60 min cassettes.

The projected number of students up to 2000 is about 8 000. In addition to student use, copies of course materials are also produced for course team members and other colleagues, for tutors, for pack and other sales, and for the OU library and regional centres. However, if we base our calculation on a target figure of 8 000 students we have to add 500 copies of each category since, as the numbers in CS 1.2 indicate, only 7 500 copies were produced so far. Therefore additional costs of £ 300 (for the 2xC60), £195 (for 1xC90) and £1 075 (for 1xE90) will be incurred. This means we will end up with a total of £7 920 for audio, and a total of £17 200 for video. Hence the production cost for non-print media amounts to slightly more than £25 000 till the end of the course.

Adding up the production cost of print (i.e. £105 000, for the units plus the supplementary material) to the total production cost of video and audio given above, the production costs will amount to £13 000. Given the target of 8 000 students we have a unit production cost of about £16.

Distribution cost

Postage packing and handling costs were as listed in the table CS 1.3.

Table CS 1.3: Distribution costs

Currency: Sterling

	1993	1994	1995	1996	Total to 96
Student no	1 244	1 325	1 158	963	
Postage, packing + handling	6 531	6 956	6 080	5 056	24 623
Unit cost	5	5	5	5	

Source: OU budget details of this course. NB Budget costs reflect internal recharges which may differ from actual costs.

The distribution cost will eventually amount to $\pounds 5 \times 8\,000 = \pounds 40\,000$.

Cost of student support

Student support consists of two elements (i) correspondence tuition, which consists of detailed feedback to students to their assignments (i.e. tutor-marked assignments or TMAs) and (ii) face-to-face tutorials. For a 30 CAT point course, like the one under consideration, four assignments and eight contact hours are normally planned. A tutorial group consists of 20 students.

Tutor-marked assignments

The assignments are marked with great care and are commented on in detail. To mark an assignment cost $\pounds 12$ plus an additional element of expenses ($\pounds 0.75$). Given the number of assignments (four), we have $4 \times (\pounds 12 + \pounds 0.75) = \pounds 51$, the corresponding per student cost.

Tuition

The hourly rate for tuition is about $\pounds 25$ which amounts to $\pounds 200$ for eight contact hours. Additional student-related fees of $\pounds 7.70$ are to be taken into account leading to an additional $\pounds 154$. Hence the tutorial element cost per student is $\pounds 200/20 = \pounds 10$. To get the unit cost due to tuition we have to add the $\pounds 7.70$ to that and get $\pounds 17.70$, or $\pounds 18$. Hence the total unit cost of student support (TMA and tuition) is about $\pounds 69$.

These are planning figures. The actual figures in the cost summary presented in table CS 1.4 vary slightly for TMAs, since not all students complete all the assignments (payments are made to tutors for completed assignments).

Table CS 1.4 corresponds largely with the benchmark figure, which indicates the total student support cost as about $\pounds 69$. We take the aggregate unit costs to be about $\pounds 90$ (i.e. $\pounds 69$ for support, $\pounds 16$ production and $\pounds 5$ distribution).

Table CS 1.4: Student support**Currency: Sterling**

	1993	1994	1995	1996	Total
Student numbers	1 244	1 325	1 158	963	
TMA	63 879	70 080	56 776	48 632	239 367
Unit cost TMA	51	53	49	50	
Tuition	24 880	26 831	24 318	20 223	96 252
Unit cost tuition	20	20	21	21	

Source: based on OU budget details of course.

Cost analysis

The cost analysis includes the calculation of the total and average cost function for the projected student number and the cost per student learning hour.

Cost functions

The assembled data allow us to determine the total cost function:

$$TC = F + V \times s$$

$$TC = \text{£ } 660\,000 + (\text{£}90 \times 8,000) \Rightarrow$$

$$TC = \text{£ } 660\,000 + \text{£ } 720\,000 \Rightarrow$$

$$TC = \text{£ } 1\,380\,000$$

as well as the average cost function:

$$AC = \frac{F}{s} + V$$

$$AC = \frac{\text{£ } 660\,000}{8\,000} + \text{£ } 90 \Rightarrow$$

$$AC = \text{£ } 83 + \text{£ } 90 \Rightarrow$$

$$AC = \text{£ } 173$$

The average cost reflects the economies of scale: high fixed costs of development can be distributed over the number of students. In this case the cost per student resulting from the development of teaching material does not exceed the variable cost per student.

Cost per student learning hour

The costs of development and maintenance amount to £ 660 000. The number of student learning hours the course generates is said to be at least 220. The cost of developing one student learning hour based on the stipulated number of learning hours for the course is:

$$\text{Cost/SLH(course)} = \frac{\text{£ 660 000}}{220} = \text{£ 3 000}$$

The OU does not specify the amount of study time to be devoted to each medium. For these purposes, however, we have assumed that the number of student learning hours the course provides for (in terms of material generated for it), amounts to at least 13 units of print or 130 SLH(print), 3.5 SLH(audio) and 1.5 SLH(video). According to our assumptions, therefore, the student learning hours for which material was developed amounts to 135. Consequently, we can calculate the cost per student learning hour provided for:

$$\text{cost/SLH(medium)} = \frac{\text{£ 660 000}}{135} = \text{£ 4 889}$$

It is not possible to determine the cost per student learning hour by medium since the main cost driver, staff time (especially academic staff time), is not attributed to specific media. However, we know the OU benchmark costs for academic time per medium and can calculate the cost using information about the general salary scale in higher education. Based on this we get the following cost per student learning hours:

cost/SLH(print) between £300 and £1 500

cost/SLH(audio) between £1 000 to £16 000

cost/SLH(video) between £10 000 and £80 000

The variations are partly due to the quality specification of the product (this is true for all three cases), partly (in the print case) on the choice between commissioning an external writer and developing a unit in-house.

Table CS 1.5: Cost summary of an undergraduate course offered by the School of Health and Social Welfare/OU

Currency: Sterling

	Subtotals	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Student numbers		0	0	0	1 244	1 324	1 158	963	850	850	850	850
Accumulated student					1 244	2 568	3 726	4 689	5 539	6 389	7 239	8 089
Development cost												
Staff		142 000	175 125	182 250								
Other		3 600	39 538	76 792								
Subtotal		145 600	214 663	259 042								
Total development cost	619 305											
Maintenance cost					5 000	5 000	5 000	5 000	5 000	5 000	5 000	5 000
Total maintenance cost	40 000											
Development plus maintenance cost	659 305											
	Unit											
Production	16											
Distribution	5											
Support												
Tuition	18											
TMA	51											
Total support costs	69											
Total unit costs	90				111 960	119 16	104 220	86 670	76 500	76 500	76 500	76 500
Accumulated unit costs					111 960	231 12	335 340	422 010	498 510	575 010	651 510	728 010
Total cost function				619 305	736 265	855 42	959 645	1 046 315	1 122 815	1 199 315	1 275 815	1 352 315
Average cost function					592	335	260	226	206	192	180	172

NB Budget costs reflect internal charges which may differ from actual costs.