

Case study 7

Domestic Violence and Sexual Assault: a course offered by the School of Advanced Nursing, Midwifery and Professional Health Studies at Anglia Polytechnic University/United Kingdom

The course was developed and taught by the School of Advanced Nursing, Midwifery and Professional Health Studies of the Anglia Polytechnic University. It was published as part of APUs Flexible Learning series¹.

The course is taught as part of the WIRE project. This project is an initiative of the European Association of Distance Teaching Universities (EADTU). The EADTU was founded 1987 (headquarters being in Heerlen, Holland) with the remit to foster co-operation between European distance teaching universities. British members are the Open University (OU) and the Open Learning Foundation (OLF). The latter is a consortium, in which a number of universities have pooled resources for developing distance-teaching material as well as providing advice on its implementation. Membership in the OLF also links all the participating universities to EADTU. It is via this link that Anglia Polytechnic University (APU) and other OLF members including Sunderland and De Montfort Universities participate in the WIRE project.

The remit of this particular pilot project is to explore the potential of new technologies such as ISDN technologies and the WWW. Such technologies allow universities to offer courses in different parts of Europe. However, students must have access to the respective technologies. Access points are provided in the EuroStudyCenters, many of them attached to the EADTU universities.

This module, Domestic Violence and Sexual Assault, developed at APU (jointly at Brentwood, Chelmsford and Cambridge), is addressed to healthcare and public-sector workers. The following EuroStudyCenters are involved: Antwerp and Leuven (Belgium), Kortrijk and Heerlen (Holland), APU Chelmsford, and Norwich Campus, De Montfort University and the University of Sunderland. If students follow the course and pass the assessment they are given 20 credits, transferable to any of the participating institutions.

¹ The full title is: L. Shipway (1996), Facilitating Survivors of Domestic Violence and Sexual Assault; Biological, Social and Psychological Aspects of Intervention, APU Flexible Learning.

Resource media: Inputs and costs

The teaching material provided consists of a printed text and an interactive hypertext edition based on this text.

Print

The textbook has about 150 pages. The first 100 pages contain the four teaching units each of about 25 pages, the remaining 50 pages consist of supporting articles. The four teaching units are made interactive by in-text questions and in-text activities.

The author was paid £2 000. No further compensation in terms of a reduction of teaching load was made. The time required to write the text amounted to 120 hours (i.e. 24 days of five hours a day). This would mean the cost of the author was less than £17 per hour. The estimate is conservative and does not include research time.

The time for editing and layout was estimated at 250 hours (i.e. 50 days at five hours a day).

Table CS 7.1: Fixed costs of development

Type of Inputs/costs	Number/amounts	Unit costs	Total costs
Number of students	75		
Print inputs UE ^a	3		
Development costs			
Author related ^b			2 000
Design related			2 175
Internet version ^c			5 500
Subtotal			9 675
Production costs			
Printing		3.50	263
Distribution		1.15	86
Subtotal		4.65	349
Total (s = 75)			10 024

Source: APU; Notes: a: UE (Unit Equivalent) a text of about 50 pages; b: the text is about 100 pages long; c: the text was re-edited with hyperlinks for Internet.

The Internet

An Internet version of the module was produced and made accessible (with code word) under the web address <http://www.ion.anglia.ac.uk>. It included the editing-in of hyperlinks and multiple choice self-assessment questions and various other features of computer assisted learning (CAL) to

make the text interactive. These features also monitor student's progress: students can only move from one chapter to the next if they have completed a test.

The author was given a one-off payment of £5 500. The time required only for editing-in the hyperlinks requires about 16 working days of six hours per day: per page we have on the average six hyperlinks. To edit them in and to test them requires one hour's work per page. A text of 100 pages therefore requires 2 x 50 hours total or 16 working days at £200 a day. However, hyperlinks were only part of the editing treatment required.

Student support: inputs and costs

Several forms of student support were provided: a marked assignment, computer-mediated communication and videoconferencing.

TMA's and CMC

For assessment an assignment of not more than 4 000 words has to be completed. The marking time is about two hours per student. The support students are given for the assignment is provided via computer mediated communication (CMC).

Table CS 7.2: Cost of student support TMA & CMC

Type of support/personnel	No of hours	Cost per hour	Total cost	Unit cost (s = 75)
TMA^a				
Senior lecturer	2	28	4 200	56
CMC				
1 x senior lecturer	64 ^b	28	1 792	24
3 x senior lecturer	16 ^c	28	1 344	18
Subtotal			3 136	42
Total			7 336	98

Source: APU; Notes: a: a TMA of 4,000 words; b: main tutor at 4 hours per week over 16 weeks; c: support tutors at 1 hour per week over 16 weeks.

All tutorial work is done by lecturers. The midpoint salary of a senior lecturer is £23 800. The lecturer is supposed to teach 550 hours per year. In addition a lecturer is supposed to spend 35% of the time in research. Neglecting the administrative duties, the lecturer then has to work $296 + 550 = 846$ hours per year. This would give us the estimate of the cost per hour of $£23\,800/846 = £28$ per hour.

The main cost driver of CMC is the cost of the tutor. The server, computers and software are part of the infrastructure provided by the EurostudyCenters and should not be attributed as direct course costs.

It was estimated that the main tutor (in this case a senior lecturer and at the same time the author of the module) would be required for four hours a week for 16 weeks to lead the CMC discussion. Three other senior lecturers took part one hour a week.

Videoconferencing

Five videoconferences were to be held. However, each such conference demands about one extra hour of preparation involving teaching staff as well as technical and support staff. Two guest speakers have been invited.

Table CS 7.3: Videoconferencing

Inputs	Cost per hour	No of hours	No of sites	Total costs
Depreciated equipment cost ^a	6.5	10	8	520
Line cost	25	10		250
Personnel cost				
3 lecturer	28	10		840
1 guest speaker	45	2		90
1 support staff	8.5	10	8	680
Total				2 380

Source: APU; Notes: a: depreciation over five years at a usage rate of 51 weeks, 5 days a week and 3 hours per day.

A video system is available at a wide price range. It was indicated that the system used in APU costs about £20 000 + VAT. We entered the cost here as £25 000. The initial cost has been depreciated here over three years assuming a usage rate of 765 hours per year (i.e. 51 weeks five days a week for three hours).

We may calculate the unit cost due to videoconferencing as $£2380 / 75 = £31$.

Cost analysis

The cost analysis includes an estimation of the projected total direct costs of the course, the average cost (including the average cost function) and the various costs per student learning hours.

Total direct costs

Tables CS 7.1 to CS 7.3 allow us to tease out the total (direct) costs of the course.

Table CS 7.4: Total costs

Type of costs	Subtotals at s = 75
Fixed costs	
Development print	4 175
Internet	5 500
Subtotal	9 675
Variable cost	
Production cost (print)	349
Student support	
TMAs	4 200
CMC	3 136
Videoconferencing	2 380
Subtotal variable	10 065
Total cost	19 740

Source: APU

Average cost per student

The average cost per student are the total cost divided by the number of students. We have:

$$AC = \frac{\pounds 19\,740}{75} = \pounds 263.$$

Tables CS 7.1 to CS 7.3 allow us to tease out the aggregate unit costs. We have £4.65 for production and distribution, £98 for support by computer mediated conferencing and tutor marked assignments, and finally £31 due to videoconferencing. This amounts to £134 as aggregate variable cost. This allows us to determine the average cost function:

$$AC = \frac{\pounds 9\,675}{75} + \pounds 134 = \pounds 129 + \pounds 134 = \pounds 263$$

It has to be recalled that the course was experimental in a double sense: it experimented with a combination of new technologies and it experimented with international co-operation in higher education. The high average costs are to a large extent due to the small number of students.

Cost per student learning hour

The course is a 20 CAT point course and can be rated as requiring 200 student learning hours. Hence, the cost per student learning hour of the course as a whole is:

$$\text{cost/SLH(course)} = \frac{\pounds 9\,675}{200} = \pounds 48$$

Since the printed text is 150 pages long, it is rated to be equivalent to 30 hours of study time. The cost per student learning hour provided for by print is:

$$\text{cost/SLH(print)} = \frac{\pounds 4\,175}{30} = \pounds 139$$

However, it could be argued that the interactive features of the text (in-text questions, in-text activities) increase the study time. An inspection of the numbers of questions and activities suggest that the study time might be increase by three hours per unit (i.e. 12 hours altogether) if the students follow the interactive features. Since the study time increases, the cost per student learning hour falls:

$$\text{cost/SLH(print)} = \frac{\pounds 4\,175}{42} = \pounds 99$$

The same argument applies *a fortiori* for the hypertext version to which even more interactive features have been added. Due to control features, which do not allow the student to skim the text, it is more likely that interactive features in fact increase study time. (In fact, considering the number of hyperlinks included, the study time would increase by 10 hours if students attend to each hyperlink for one minute only.)

Since the hypertext version is based on the printed text, the cost of the hypertext version should include at least the author-related costs.

$$\text{Cost/SLH(hypertext)} = \frac{\pounds 7\,500}{42} = \pounds 179$$

The cost per student learning hours CMC cannot be estimated. Though we know the costs, we do not know the study time created.

The cost per student learning hour videoconferencing should be distinguished from the average cost per student of videoconferencing. The cost creating five hours of videoconference has been £2 380 hence:

$$\text{Cost/SLH(videoconference)} = \frac{\pounds 2\,380}{5} = \pounds 476$$