

CHAPTER 4

APPROACHES TO FUNDING

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SUMMARY

Technology has changed the cost structure and funding requirements of higher education (whether public, private-for-profit, or private-not-for-profit), making it necessary to carefully distinguish and prioritise *committed* costs, *flexible* costs, and *business-sustaining* costs. Traditional approaches to higher education are highly labour-intensive; distance education is capital-intensive but possibly permitting low flexible costs; and e-learning offers varying patterns of financial results. The planning of programmes for lifelong learning and distance education must take into account short- and long-range variables such as principal objectives or mission (e.g. profit motive; bridging the gap between those with and those without access to new technologies), technological and media alternatives, financial sustainability, and who will have to pay which part or parts of the costs (student, institution, government). Trade-offs (that which must be sacrificed in order to obtain a desired benefit), drawbacks, and some emblematic case studies from Latin America and other parts of the world are set forward as examples of the idea that “no one size fits all”.

CHANGES IN COST PATTERNS AND FUNDING NEEDS

The use of technology in higher education has radically changed both the costs and funding requirements of the higher education sector. Traditionally, higher education is a labour-intensive business in which student numbers largely drive operating costs. Discussions in the 1960s (the period when higher education provision first began to expand) tended to focus on the possibilities of improving the cost-efficiency of higher education by: (a) reducing the overall amount of face-to-face teaching; (b) reducing the amount of small-group teaching in favour of larger lectures (including the use of closed-circuit television to reach students in “overflow” lecture theatres); (c) requiring students to study on their own, using reading lists as guides to the resources they might consult.

The most important use of technology in education was in distance education. By the 1970s a range of media (audio, video, computing) were being added to the print-based

correspondence teaching systems that had been developed in the 1840s if not earlier. A number of technologies were used to distribute media (for text, printed materials in various formats, teletext, etc.; for audio, radio, audio-cassettes, CDs, etc.; for video, television, videocassettes, DVDs, etc.). The learning materials made available through mass-media technologies could meet the needs of very large numbers of students. They could also be reused over a number of years to meet the needs of successive cohorts of students. This meant that the initial effort of developing materials had a long-term payoff.

This was important because experience showed that it took far more academic time to develop materials than it did to prepare a lecture or seminar. One suggestion was that while it took from two to ten hours to prepare a one-hour lecture or seminar, it would take 50 hours or more to prepare a text that would engage a student for a single hour, and over 100 hours to prepare one hour of video. However, the decline of teacher productivity in the development phase (measured in terms of the number of hours of teacher effort required to produce a one-hour learning experience for the student) was more than made up for by the fact that in the delivery phase many thousands of students might study the same materials.

The use of learning materials was accompanied by a reduction in the amount of face-to-face contact (because information about what needed to be learnt was now provided through materials and not through lectures). Occasional face-to-face tutorials (where provided) were often undertaken by casual staff paid at an hourly rate, and were used to lead students through the materials and clarify their thinking; the marking of assignments and examinations was usually contracted out to less-costly casual staff who were only paid if students submitted scripts; and more general advice and guidance services was organised around centralised specialist functions and help desks, which tended both to concentrate expertise and to be more efficient.

Initially, the development of computer-based teaching and learning systems seemed to increase development costs because it took such a lot of academic and specialist time to develop materials to engage the student in really meaningful activities, or to provide adequate testing and intelligent-tutoring programmes. However, some courses provided little in the way of materials, thus keeping costs down. Arizona Learning Systems (1998: 13-14) found a wide variation in the costs of developing a three credit hours Internet course (the equivalent, in academic credits, of a face-to-face course which met three times a week for an hour each time) of from US \$6,000 to \$1,000,000, depending on the approach used (see Table 4.1). Much of this is the cost of academic and technical labour.

Table 4.1: *Cost of developing a three-unit Internet course (US\$)*

(ARIZONA LEARNING SYSTEMS, 1998)

Course outlines and assignments	6,000
Text	12,000
Text with reference material	18,000
Text with reference material and images	37,500
Audio and video	120,000
Simulations	250,000
Virtual Reality	1,000,000

The sheer cost of developing materials for distance courses meant that in general those distance teaching universities that developed extensive learning materials to support their courses had to constrain the size of their curriculum by limiting the number of specialist degrees offered, and the number of optional courses offered to students. Use of existing resources (textbooks, etc.) got round this problem, leading to the development of what were sometimes called “wrap-around courses” (courses where a strictly limited set of guidance notes helped students tackle materials presented in textbooks, etc.). The development of computer mediated communications helped here, by enabling students to interact with their teacher and with other students. Put together these developments enabled course designers to answer two of the main criticisms of highly structured distance teaching courses: the reliance on an over-packaged course that reduced students to “passive” consumers (a criticism that was never entirely justified since it ignores the constructivist process that goes on as students try to make sense of the materials before them), and the lack of democratic argument and discussion within distance courses where students were isolated from their teacher and from each other. As a result, a typical course model emerged that involves a combination of a virtual library of materials, a Webliography that directs students to other reputable online sources, a computer conferencing environment structured around topics and moderated by a lecturer, and electronically submitted and returned assignments that teachers marked (c.f. Parnell, 2002; Litto, 2004).

If networked computers seemed to address one set of problems, two others quickly emerged. The first was whether a teacher could look after more or fewer students online than in a face-to-face environment; the second was whether teaching online was more or less labour-intensive than teaching face-to-face. Both issues were fiercely debated. Bates (2000: 126-7) suggested that in comparison with face-to-face teaching, computer mediated communication (CMC) does lower the costs of tuition because a good deal of the students’ time is spent studying the material, and so the teacher needs to spend less time per student overall in class. Other analysts argue that students will also spend a great deal more time learning from their peers, and that this too will reduce the demands they make of their tutors. Certainly DiBiase (2000: 15-16), teaching for Penn State University’s World Campus, found that he and his Teaching Assistant were spending less time supporting students on an online course (1.6 hours per student against 2.6 hours on a regular course). The general consensus, however, is that the teacher’s workload rises given the enormous volume of messaging arising from increased interaction with students, with each message requiring more time to compose than is the case in verbal interactions. Some estimates suggest that tutors could well spend twice as much time tutoring online as they do face-to-face (c.f. Rumble, 2001). This raises the question of how many students an online instructor can handle. In classroom courses in the USA, it looks as if people think they can handle from 25 to 30 students, working perhaps 10 to 12 hours a week. Boettcher (1999) suggests that experience indicates that a member of faculty can handle more students on a Web course – in the range 25 to 65, but that this will require more time – so that although there are courses with 50 – 60 students on them, there are many courses where student numbers are deliberately kept down, somewhere in the range of from 12 to 20 students. Whether there is an efficiency gain or loss is very dependent on student numbers. One way of coping with the cost implications of this increase in workload is to employ more staff but reduce the cost of hiring through “labour-for-labour” substitution – that is, the substitution of cheap labour including adjunct staff and postgraduate students for expensive faculty labour. These options are much discussed in the US literature.

There is also some evidence that the lower levels of cost are more likely to be found on a synchronous online course (in which access to the online tutor is in effect timetabled), with asynchronous courses costing more. Certainly Whalen and Wright (1999: 32) found

significant differences between synchronous and asynchronous course development costs. The former required much less development time because they involved less media. Also, synchronous contact reduces the open-ended nature of asynchronous tutoring, thus reducing costs.

Further analyses can be found in the literature, reflecting, on the one hand, a European perspective (Hülsmann, 2000 and Ortner and Nikolmann, 1999), and on the other, a North American one (Finkelstein et al, 2000 and Matkin, 1997).

NATURE OF COSTS IN HIGHER EDUCATION

(a) Operating costs

Costs arise from the acquisition and use of organisational resources. In distance education, the majority of expenses are determined by the decisions (a) to offer a curriculum of a particular size, and (b) to provide the infrastructure to manage and support learners. Such *committed costs* cover most personnel costs, the costs of computing and telecommunications systems, and depreciation on buildings and equipment. Hence, committed costs are any costs that provide the necessary infrastructure to enable one to provide goods or services at a certain capacity (e.g. staff costs of an office of student admissions and records or staff costs within an audiovisual studio). They are distinguished from indirect (common) costs, which are those that cannot easily be “untangled” and thereby assigned to a particular service or product (e.g. the cost of cartridges in a desktop publishing office). Committed costs are unaffected by how much the organisation *uses* the committed resources. Rather they are related to a *planned* level of activity. The fact that capacity is fixed (and is being paid for) in advance of determination of the actual need means that if demand levels fail to meet expectation, unused capacity results. This unused capacity has a cost that has to be covered by income.

Committed costs can be distinguished from *flexible costs* that are paid for only in the amounts used. Examples of flexible costs would be the costs of payments to materials’ authors hired on contracts for service, the costs of delivering materials to students, and payments to tutors for assignments marked. This is all day-to-day work. Generally, flexible resources do not have a capacity defined for them because their supply (and capacity) can be adjusted up or down to meet actual demands.

Flexible costs, by their very nature, can be traced to particular products or services. In contrast, committed costs related to the provision of capacity often cannot easily be attributed to particular products and services. Such costs are referred to as *indirect (common) costs*. Other indirect costs are entirely independent of the decisions to provide capacity: rather, they sustain the organisation in being. Such costs (the costs of top administrative staff, for example) can be thought of as *business-sustaining expenses*. Generally, activity based costing approaches will assign capacity-related indirect costs to products, services and customers, but will not attempt to assign business-sustaining expenses further down the organisation.

(b) Capital costs

All the above are recurrent operating costs (that is, other things being equal, what is spent this year will also be spent next year). There will also be capital costs associated with the provision of buildings and equipment. These arise only when one needs to purchase a capital item. These need to be depreciated over appropriate periods: in the case of

computing equipment, generally over five years (although this is arguably too long a period); in the case of furniture, over 10 years; and in the case of permanent buildings, over 50 years. Some theorists argue that all goods and services that have a useful life of more than one year should be treated as capital costs and hence depreciated. This would include staff training, where the benefits of training may be held to last for more than a year, and investment in systems and processes as well as equipment. For example, managing many tens of thousands of students necessitates investment in computer systems to handle student administrative processes (admissions, course allocation, fee collection, tutor-student allocation, materials dispatch, assignment handling, examinations etc.). Integrated student administrative systems can be very expensive to develop, hence most institutions that develop such systems tend to use them for a number of years.

CHANGE IN THE COST STRUCTURE OF HIGHER EDUCATION

Traditional higher education is a labour-intensive business in which the costs of teaching are driven by the average size of classes and the number of contact hours. Most costs are committed by decisions to teach a given volume of students on a given spread of courses. In addition, central business-sustaining activities need to be funded.

In technology-based teaching, the teaching-learning materials developed for a course represent a capital cost that needs to be depreciated over the life of the course. Course lives will vary, depending on such factors as continuing demand and the rate of change in the knowledge base of a subject. Three to ten years might be a reasonable expectation, although a few courses will need continuous updating. The current interest in reusable learning objects and granularity (c.f. Littlejohn, 2003) shifts the emphasis down from whole course reuse to the identification of the smallest educationally-viable unit of resource that is capable of helping a learner achieve a particular learning objective. The hope is that these can be identified and catalogued in ways that will enable them to be searched for and reused in future courses without necessitating further development costs.

The importance of this is that the move towards resource-based learning substitutes capital for operating costs and thus changes the cost structure of education (c.f. Downes, 2001).

BOUNDARIES

In any resource-based learning system using advanced technologies, the total *system* costs will cover both the costs directly borne by the educational institution and the costs of study that are incurred directly by the student.

Most university students expect to buy textbooks as well as pay for the incidentals of study (stationery, travel to lectures etc.). Many higher education institutions now demand that students have their own computers. These items are paid for from the student's own pocket. However, students are likely to have access to some institutionally provided computing facilities just as in appropriate subjects they are provided with access to laboratories. Also, access to less-basic materials, for example journals and books other than the basic core books for their course, is provided through the institution's library. These items are regarded as part of the core service, whether subsidised or paid for by fees.

In distance flexible- and blended-education courses, what is provided as part of the “basic package” given to all enrolled students, and what is an additional cost, varies significantly. Some systems provide course materials as part of the basic service provided to all enrolled students; others expect students to buy their course texts as a separate item.

Distance students study to a much greater extent at home. Most systems regard the costs of the “home study environment” as the student’s responsibility. Thus the cost of the technologies students use in their homes (e.g. radio, television, CD-players, personal computers) to access courses usually falls on them, not least because few institutions could afford to equip their students with computers. Where computing is concerned, the additional costs can be considerable, involving stationery, ink cartridges, Internet-service-provider charges, the annual costs of firewall and virus protection etc.

This is generally easier where ownership of the relevant technology is widespread, or where there is a social system that encourages those with access to share with neighbours who lack access. (In Bangladeshi villages, for example, it is quite common for those owning television receivers to allow neighbours to watch programmes with them. This fact was an important factor in encouraging the Bangladesh Open University to plan to make use of video.) Where market penetration of a technology is low an institution *may* provide individual students with the relevant equipment either on a loan or hire basis. The institution may also try to negotiate a deal so that students get the equipment at a preferential rate from manufacturers and retailers. Alternatively, some provision may be made at local study centres so that students can go and use equipment at the centre to listen to audio, watch video, use computers, and gain access to the Internet. The problem with the latter solution is that there may not be enough equipment to meet students’ real needs (some institutions ration the time a student can access the Internet to get round this problem, but this may mean that nobody gets sufficient time). Also, access to a study centre may be difficult or inconvenient. As a result, some institutions restrict their use of technology to those technologies that have penetrated the market sector they are hoping to attract.

Although many students pay fees, relatively few students in the public sector pay the full economic cost of their courses and hence there is a question around the balance between what students are provided with as a part of the subsidised “package” and what “extras” they have to pay for themselves. Recognising the costs that fall on students is important, especially where as with much distance education there is an access mission involved. Access can, of course, be interpreted in a number of ways: the emphasis may be on providing opportunities for remote students who are unable to attend a campus; for those whose lifestyles and work do not allow them to study at fixed times; for those who are home- and institution-bound (e.g. the sick and disabled, or in institutions such as prisons). Access can also be interpreted in academic terms, opening up opportunities for those whose qualifications would not normally qualify them to attend higher education. Finally, the lower cost per student of distance education and the fact that students can study from home may open up study opportunities to those who cannot afford to attend a full-time course. Even so, there is plenty of evidence (e.g. Rumble, 1997: 194) that a significant proportion of students can find the costs of fees a problem, leading them to decide never to apply in the first place, decline offers of places, or withdraw from study.

One other boundary issue needs to be considered. Generally, institutional budgets cover the areas of service provided by the organisation. The risk to the main provider can be reduced (as may costs) by outsourcing provision of some services to external suppliers. Distance and e-learning lends itself to the breakup of the basic service package into its constituent parts. The PricewaterhouseCoopers' Report on the proposed (and now failed) UK e-University not only suggested that the services required to support a course might be provided through a series of subsidiary operating companies, such as: (1) SmartForce and Tutor.com, which might provide tutorial support for those not content with online interactive tutorial support; (2) Questia and XanEdu, which would provide online library facilities; and (3) examining bodies, which would award qualifications, but that all these services would be bought separately by those students who wanted to opt into them (PricewaterhouseCoopers, 2000). Outsourcing, however, raises problems of coordination of service, and suggests that the poor, who arguably will have most need of support services, may lose out because they will be tempted not to pay for "extras".

The issues raised here are really about where the boundary is drawn between costs that are seen to be of institutional concern, and are hence taken into account in considering where the money to pay for them is coming from, and those that are regarded as outside the boundary, and are hence usually ignored when it comes to considering institutional funding. Though having, in general, reduced per student costs for the institution, the technologisation of education has on the whole led to increased costs for learners. These additional costs are usually only considered where access issues impinge on success in recruitment from the target group.

FUNDING TECHNOLOGY-BASED HIGHER EDUCATION

For many years the funding of non-traditional higher education has been recognised as a "nightmare for everyone involved" (Swinerton and Hogan, 1981: 1). Speaking of the early development of Athabasca University, Snowden and Daniel (1980: 76) pointed to "the considerable difficulty we have in describing the institution's operations and its economics to officials in government and funding agencies". These difficulties remain.

Early private-sector correspondence colleges

Historically, distance education – in its earliest guise of correspondence education – was generally funded from private sources. Small scale distance education initiatives could be set up reasonably easily: costs could be constrained by limiting the curriculum and the quality and quantity of materials furnished, by providing little support for students, and by paying tutors poorly. Cash flow was managed by getting students to pay fees up front on a non-returnable basis. Some initiatives were philanthropic and hence not-for-profit. However, many private correspondence colleges and schools were set up to make a profit. Although there were some excellent providers, private correspondence schools and colleges generally had a poor reputation. Drop-out rates were often high. Since students who dropped out early did not incur costs (because tutors were only paid where assignments were submitted), many of these systems relied on drop-out money to maximise profits. With significant sums spent on recruitment, the suspicion was that many colleges were more interested in recruiting fee-paying students rather than potentially-successful learners.

STATE-FUNDED DUAL-MODE SYSTEMS AT UNIVERSITY LEVEL

The costs of setting up a correspondence university offering a broad curriculum made private initiatives much more difficult at the higher education level. Most of the distance higher education initiatives started in the late 19th century began when existing universities broadened their mission to meet the needs of remote students. Generally, the cost of developing materials was low because lecturers restricted themselves to preparing some notes on the material they covered in their lectures for the traditional students. (Later, lectures were videotaped at very little additional cost so that the part-time off-campus students could watch the original lecture at a later date.) Few dual-mode universities bothered to allocate indirect common costs between their on- and off-campus provision (MacKenzie, Postgate and Scupham, 1975: 80) with the result that the overhead costs of small initiatives tended to be ignored and hence subsidised.

Funding arrangements varied considerably. Whether courses were subsidised by the state, or paid for by student fees, often depended on whether the courses were seen as extending educational opportunities to high school graduates who could not get into a traditional university, or being provided to adults who were wage earners at the same time as they studied. If no distinction was made between on- and off-campus students attending dual-mode institutions, then funding of both types of students was usually done on exactly the same basis. However, in some systems state funding of higher education tended to be restricted to high-school graduates, so that while traditional students were helped with their fees, adults had to meet the full cost of fees from their own pocket. Also, courses in certain professional and vocational subjects (for example, law, accountancy, management – but not teacher education and training) were seen as being particularly appropriate for people who were in work and who could afford to pay high fees. Where this was the case, fees were either charged at a full-cost-recovery rate, or priced at a market rate (i.e. full-cost-recovery plus profit).

Generally, the trend towards cost-sharing has led to higher fees and lower subsidies for all students, with the result that distinctions between on- and off-campus student fees have been eroded.

PURPOSE-BUILT DISTANCE TEACHING UNIVERSITIES

Governments initially saw the foundation of purpose-built, large-scale distance teaching universities as a relatively cheap way of funding the expansion of higher education. Distance teaching universities have generally been funded to a greater or lesser extent by government, with some of their costs being met by student fees. (The idea that they would be able to support themselves to a significant degree by marketing their educational materials has proven illusory.)

The more sophisticated the administrative computer systems, the greater the use of high cost technologies, and the more extensive the curriculum and the use of learning materials, the higher the initial start-up costs. The practical issue of meeting a significant proportion of the costs of a distance teaching university from fees has proven challenging. The first challenge is to fund the very considerable expenditure on buildings, system, and course design and development, before a single student could be enrolled. As a rough rule of thumb, a period of at least two years needs to elapse between the decision to start an institution and the date when it will begin teaching its first students. During this period, very considerable costs are incurred, with no income coming in from student fees.

Even when students start to enroll, there may be problems. The cost structure of distance teaching universities is such that the high-fixed, low-variable costs of the system mean that the average cost per student is very high if there are relatively few students in the system. A system with relatively few students would need to charge very high fees to cover its average costs. Ideally then, systems need to enroll large numbers of students from the very start to bring average costs down, and hence stand any chance that a reasonable proportion of the cost per student will be covered by fee income.

Starting on a smaller (pilot project) scale – although on the face of it attractive – does not really solve the problem of costly up-front expenses because the administrative systems required for a small project would generally be unsuited to a mass project, and so only put off the cost of expansion while delaying the time when the system begins to gain the benefits of economies of scale.

These problems may explain why distance-teaching universities have been publicly-funded rather than private.

The other problem relates to the actual way in which funding is determined. Conventional funding approaches do not work well where high-cost media distance education is concerned. Traditional higher education tends to be funded on a student per capita basis (although more sophisticated approaches involving the number of course hours, the average size of classes, and the number of teaching hours per lecturer are also possible). Such systems may also be weighted to take account of the different teaching needs of subjects and student levels (with science subjects and postgraduate students usually weighted more heavily than arts subjects and undergraduates). Because such a high proportion of the cost is directly linked to the face-to-face teaching of students, the build-up of cost is closely matched to increases in student numbers, and the lead-in time between recruitment of new staff, and the launching of new courses with their populations of fee-paying students is much shorter.

Student per capita funding approaches do not, however, deal with the problem of funding the extensive start-up costs of large-scale, broad-curriculum, high-technology-use distance systems; hence in its early years, a per capita funding approach will seriously *underfund* systems of this kind. On the other hand, such an approach will also seriously *overfund* well-established large-scale systems by ignoring the potential economies of scale that they can achieve.

E-LEARNING AND VIRTUAL UNIVERSITIES

The difficulties outlined above are not necessarily encountered in e-learning projects. E-learning systems that eschew the development of expensive materials (for example, sophisticated learning environments involving text, audio and video, simulations etc.) and keep to low-cost solutions (the posting of course outlines on the Web, coupled with Webliographies and bibliographies), will not have the same development problems. Equally, e-learning systems that use timetabled synchronous support environments will avoid to some extent the increased teaching costs found in asynchronous e-learning support environments. Such courses can therefore be regarded as largely very similar, in their funding requirements, to traditional courses.

Table 4.2 summarises the elements that need to be funded in distance and e-learning systems.

Table 4.2: Fundable elements in distance and e-learning

COST ELEMENT	MODEL		
	DUAL-MODE MODEL	MASS DISTANCE EDUCATION MODEL	E-LEARNING
Committed materials' development costs (i.e. costs of developing print, audio, video, computer-based learning materials)	Kept down by videotaping live lectures Extensive replication of existing curriculum allows wide range of courses to be offered	Medium- to high-cost materials development Generally restricted curriculum to keep materials costs down	Potentially low- to high-cost materials development: in practice generally kept low Low-cost approach allows for extensive curriculum
Committed student support costs (i.e. student administrative systems supporting admission, choice of course, tutor allocation, assessment, examinations etc.)	Generally kept very low Student numbers generally relatively small	Usually extensive development of administrative and support systems Generally only justifiable if student numbers are very high	Generally low cost Generally very few students on each course
Student-related flexible costs (especially tuition but also advisory services of various kinds, and assignment/examination marking)	Generally matched against materials development costs so that overall total costs do not rise	Kept low by restricting amount of face-to-face contact. One of the main reasons why economies of scale may be possible.	Generally higher than traditional education.
Committed and flexible reception costs (notably learning or study centres; also costs of home study environment)	Study centre or work-place provision for face-to-face tutoring Some usually low-cost home-based costs	Study centre or work-place provision for face-to-face tutoring Some usually low-cost home-based costs, but computing may increase cost element considerably	Study centre or work-place of networked computers, but these costs generally transferred to student to support home-based learning
Capital costs (buildings, equipment)	May be some saving on teaching accommodation	Savings on teaching accommodation (costs usually transferred to operating budget as facilities are hired); however, additional costs for production and distribution facilities	Savings on teaching accommodation

The advent of e-learning precipitated a great deal of hyperactivity with widespread discussion of the possibilities of setting up a for-profit e-learning sector. This was particularly true in the United States, where there was a longer tradition of mixing for-profit, non-profit private, and public education and training provision (Ryan, 2004: 147). In the United States, vocational education and training for-profit is dominated by national large-scale providers (DeVry, Corinthian, Strayer, ITT Educational Services). However, the actual proportion of the total market met through for-profit providers is (in the absence of reliable figures) debatable. Ryan (2004: 152) suggests that the impact of for-profit providers has been greatly exaggerated. Indeed, she argues (2004: 158) that “the individual student market is overwhelmingly in favour of public providers” because “tuition rates are cheaper than in for-profit providers, because reputable for-profit providers are now more selective with rigorous entry criteria, and they direct poorly-prepared students to public providers”. Some commentators have seen for-profit e-learning as a retrogressive step back towards the worst excesses of the unregulated early private correspondence sector.

SOME INNOVATIVE EXAMPLES FROM LATIN AMERICA

The peoples of Latin America live simultaneously in the three waves of economic development, agricultural, industrial and informational, and hence justifiably require varying approaches to distance study for higher education and lifelong learning (defined here as any learning that is embarked on subsequent to the individual ceasing to attend that period of full-time education embarked upon as a child). In some countries, it is sometimes a community of pedagogically conservative educators that holds back attempts at innovation (Litto, 2002), while in others it is simply the lack of the human and financial resources needed to set off ambitiously in this direction. Perhaps one of the most high-reaching projects underway is TIDIA-Tecnologia da Informação no Desenvolvimento da Internet Avançada (Information Technology for the Development of the Advanced Internet), a three-year multi-institutional effort, to cost three million US dollars, and sponsored by FAPESP, the State Government of São Paulo’s Research-Support Agency. Sixteen research laboratories in public and private universities in the State are at work on the collaborative development of a “suite” of interoperable applications for distance learning on the Web, which will be open-source in nature, and will be made available without charge to all interested parties. It will include the software programs necessary for online courses (including special cases such as those for music and mathematics), for non-courses but nevertheless educational environments (such as “digital caves” and other forms of virtual reality), for the construction of digital libraries, museums and repositories of learning objects (all of which must have interfaces with the course platforms), and for the preparation of dictionaries, encyclopedias, concordances, time lines and other reference tools that are part of the infrastructure for distance learning. Begun in mid-2004, it is expected to be tested and completed in 2007, and represents an example of a far-sighted public institution, recognising the hardship for individual educational entities to acquire commercial packages or to create in-house clones of such packages, is investing in a solution that will benefit society, in its public and private faces, as a whole [www.tidia.fapesp.br].

The CLACSO Virtual Campus is a most interesting example of a regional, multi-nation effort to use Web-based distance learning organised by social scientists themselves, without any major injection of financial resources, and entirely self-sustaining through student fees. CLACSO (Consejo Latinoamericano de Ciencias Sociales — Latin American Council of the Social Sciences) is a non-governmental organisation uniting 5000 specialists in 160 research and post-graduate study programmes in the social

sciences in 21 countries of the region, including the Caribbean. Headquartered in Argentina, the Virtual Campus offers advanced online certificate courses, featuring multinational faculty, in subjects like *Indigenous Peoples: Globalization and the Plurinational State*, *Slavery in America*, *Another Urban Development: Inclusive Cities*, *Social Justice and Democratic Management*, and *The Public Space and the Privatization of Education in the Americas* [<http://campus.clasco.edu.ar>].

Yet another example of how educators themselves are not waiting for governmental or institutional initiatives, but are independently constructing “cottage industries” of continuing education through distance learning, is that of Professor Maria Helena de Amorim Wesley, who retired in 2000 from the Federal University of Alagoas in Brazil’s northeast region in order to pursue her dream of initiating informal continuing education through the Internet. She sold her automobile, acquired two computers, and organised a small group of volunteers to help her create a site which offers a hodgepodge of *curiosa* related to Brazilian culture and history in the form of literary texts, scholarly documents and iconography that may eventually be useful to young and adult learners who discover her minor treasures through searches on the Web and links offered by entities like the Organization of American States and the Bibliothèque National in France [www.brasilbrasileiro.pro.br]. A more extensive hodgepodge of multimedia learning materials, but presently receiving 15,000 visitors daily because of the uniqueness of the materials freely offered, is the Virtual Library of the Student of the Portuguese Language, a seven-year-old project of the University of São Paulo, which started with an initial grant from the AT&T Foundation, but now sustains itself modestly through occasional small, local grants. It has achieved an enviable record of obtaining and making available through its site large collections of hard-to-obtain audiovisual material produced by governmental agencies, foundations, learned societies and corporations, and is now broadening its scope to include materials originating in all of the eight countries in which Portuguese is the official language [www.bibvirt.futuro.usp.br].

Continued capacity-building of science teachers is a high priority in Latin America as elsewhere, and the Universidad Nacional de Córdoba, Argentina, is proud of achieving an important goal through a project that required careful financial planning. Whereas commercial vendors in the region were asking US \$300 per teacher for participation in a year-long Internet-based, English-language continuing education course, the University received a grant from the provincial Agencia Córdoba Ciencia S.E. that permitted it, under the “umbrella” of a research grant, to carry out a sophisticated programme for teachers of the natural sciences. The content involved subjects such as *Evolution and Urban Solid Waste*, *Chagas’s Disease*, and *AIDS*. Ten university staff members donated their time to the content preparation, and hence it was possible to have a cost of only US \$30 per teacher for participation in the year-long course (Valeiras, 2005) [www.efn.uncor.edu/outros/educeva/home.htm]. The Universidad Nacional Autónoma de México maintains several programs that promote research in distance learning as a form of discovering which models may be most appropriate to local conditions.

During the last three years, the Centro de Enseñaza de Lenguas Extranjeras (Centre for Foreign Language Teaching) of the University has held five Web-based courses for teachers of languages, using a minimal staff of an engineer, an instructional designer, and ten specialists in applied linguistics, with highly satisfactory results [<http://comenius.cele.unam.mx/alad>].

A final example of innovation in the financing of continuing education using distance learning approaches is INTERLEGIS, a broad Federal Government of Brazil programme at the national level, aimed at supporting the modernisation of the legislative branches of

government at the city, state and federal levels, reaching not only professional staff but elected officials as well. Sponsored by the country's Federal Senate, with support from a loan from the Inter-American Development Bank, the programme reaches learners throughout the 26 states and the capital district, as well as in 2700 city-government offices where Internet and videoconferencing facilities are in place. The courses, without any charge for learners or local governments, regularly deal with such subjects as *Public Budgeting*, *The Law of Fiscal Responsibility*, and *The Role of the City Councilman*. As a by-product of the educational programme, there has arisen a "virtual community of the legislative branch," which, it is expected, will facilitate the exchange of ideas and experiences among those involved, and will, in the long run, create a more transparent and dynamic governing process in the country.

It can be seen, from the Latin American experience, that innovations in funding can range from straight governmental investment in non-traditional approaches to programmes disguised as research grants, and from "cottage-industries" maintained by individual educators or groups of educators, to self-supporting activities maintained entirely by student fees.

POLICY CONSIDERATIONS

Various strategies for the funding of distance higher education exist, including public provision, private not-for-profit provision, and private for-profit provision. (A further source of funding comes from aid agencies – although this raises questions around the long-term commitment of donors to sustain funding.) Public provision does not rule out cost-sharing in which students are asked to pay fees. These fees may cover a significant or a relatively small proportion of the total cost of the system. From the point of view of the student, the possibilities are:

- Free provision (all costs subsidised by the state)
- Heavily subsidised provision, but with students making some contribution towards total costs
- Heavy bias towards cost sharing in which students meet a significant proportion of the costs through fees, but in which there is some subsidy from state sources
- Full cost recovery through student fees
- Market price provision (full cost recovery plus profit)

Students may not have to meet the costs of fees themselves. Many people feel that it is reasonable for employers to fund vocational education and training courses, and to provide the in-house facilities required to enable employees to learn. Having said that, this is not always the case, particularly where small- and medium-sized enterprises are concerned, which is why government often steps into the vacuum (Rumble and Moran, 2004: 206).

Whatever the option, the level of subsidies and fees will (except in the case of purely market-driven prices) have some bearing on costs. The total cost of these distance- and e-learning systems depends upon a range of factors including the number of students, the size of the curriculum, the choice of technology, the extent of use of pre-existing materials, the level of reuse of materials once developed, the level of service offered students, the organisation of work, employment practices, etc. These factors also impact on average student costs and hence on the per capita level of subsidy and the level of fees.

How a system is funded depends in part upon the objects of the system and in particular the level of discretionary income available to the target group (i.e. the amount of money they can afford to spend on education) and the extent to which there is an access dimension to the project. Projects aimed at ameliorating previous socio-economic and educational disadvantage will on the whole depend upon significant subsidy.

Even here, however, there may, as in all cases, be room for subsequent cost recovery through loan repayment mechanisms.

Policy options in this area, therefore, need to consider:

- The aims of the system
- The nature of the target group and their ability to pay (whether immediately or on a deferred repayment basis) and to have access to the technology most appropriate to the nature of the course (rented, borrowed or purchased equipment; reliable access to a neighbour's or community-based equipment)
- Costs in relation to the ability of sources to fund a project
- The results of studies showing that that tutors could well spend twice as much time tutoring students online as they do face-to-face

In respect of the cost structure of the system, it is recommended as a general policy:

- Shift costs from committed to flexible cost categories, as a way of dealing with a tight budget; for example, emphasise the contracting of part-time (as opposed to full-time) workers in the production of material, student support and grading.
- Minimise indirect common costs by close monitoring of the real use of such expenses.
- Minimise committed costs by avoiding any exaggeration in the initial planning of staff, space and technology.
- Cover flexible costs by student fees, always initiating as frugally as possible, and then extending services as income permits.

In respect of fees, it is recommended as a general policy:

- Accept that start-up costs are unlikely to be recouped quickly, and have as a policy the recovery of investment over an extended time.
- Ensure that students pay something towards the cost of their courses, however little (students tend to be better motivated if they have made some financial contribution towards their studies).
- Ask students to fund the costs of their "home study environment", including the technology they need to access courses. (However, this may not always be reasonable, in which case some provision may need to be made to enable students to access courses.)
- Be cautious in implanting an increasingly incremented fee-structure for "extra-services" based on the student's ability to pay, for it may cause those students of modest means to have a diminished learning experience.

RELEVANT INTERNET SITES

For an example of how financing fits into a nation's (South Africa's) over-all plan for higher education at a distance:

www.che.ac.za/documents/d000070/index.php

For an overview, prepared by the Asian Development Bank, of how the financing of distance learning in Asian countries currently stands:

www.adb.org/Education/financing-edu.pdf

For an overview of the issues involved in deciding who should pay what part of the costs of distance learning in California community colleges:

www.cccco.edu/divisions/esed/aa_ir/disted/attachments/08-2sdep.pdf

For a view of the plan for self-financing of Hong Kong's Opening Learning Institute:

<http://www1.worldbank.org/disted/Management/Operations/bud-03.html>

For an understanding of the financing of distance learning within the context of financing of higher education in general, see the World Bank report:

www.esib.org/commodification/documents/financing_educatioN_WB.pdf

For the discussion and results of a meeting of university chancellors concerned with the financing and management of distance learning programmes:

www.uwex.edu/chancellor/documents/sloan_report.pdf

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