

European and North American Models of Distance Education

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There are many distinctive models of distance education. North American models have generally done more to incorporate state-of-the-art technologies than European; European models, here represented principally by the British Open University, have generally done more to establish political legitimacy, exploit economies of scale, and provide course productions for large numbers, subject to rigorous academic quality controls. Both models have been shaken by the arrival of the Internet, whose future trajectory for distance education is still very uncertain.

Introduction

My specific interest in this paper is to explore variations of practice within the distance mode of higher education, and relate these to issues of relative 'success'. My observations rest less on systematic research than on my own practice as a distance educator for the past twenty-five years. I have worked in three distinct contexts: first, for the British Open University; then for a conventional English campus university, Leicester, which has recently developed post-graduate distance education; currently for California State Polytechnic University, Pomona, a campus university that is also developing distance education initiatives. I have been struck by differences between 'European' and the 'North American' approaches to distance education. In the European model we find large, 'public service', dedicated institutions, engaged principally in print-directed learning (supplemented by audio, video and now the Internet) at a distance for very large numbers of students. Some of the Open University's foundation courses attract in excess of 10,000 students each year; second year courses frequently have in excess of 1,000 students. In the USA, distance education customarily developed expensive technologies, notably live television, for small numbers of students. Both systems have been shaken by the Internet, and the rapid, but uneven spread of 'on-line' learning.

Learning, Technology and Literacy Practice

My starting point is the extent to which issues of technology in education turn out to be ideological contests about how to design teaching and learning, what constitutes teaching and learning, and even about what constitutes knowledge. The social anthropology tradition of socio-linguistics explores ways in which people in different cultural contexts interact with, talk about and take meaning from texts. Formal education largely concerns the acquisition of rule-governed practices of reading, creating and talking about a range of textual genres. Vygotsky (1978) claimed that all learning has two main outcomes: the content or skill which is learnt, and a learning-how-to-learn that is governed by the methodology of teaching. This is a useful vantage point for dissecting culturally specific aspects of educational processes that influence both *what* is learned and our ideas about *how* to learn. Changes in technology challenge established ideas about the 'how'. They tend to expose cultural relativities of educational activity by extending the range of ways available for doing things.

These considerations frame my discussion about distance education, a multi-faceted term which embraces many different concepts and philosophies. These include: open learning, extension education, correspondence teaching, self-supported study, resource-based learning, life-long learning, university-of-the-air, on-line education, asynchronous education, anytime-anywhere learning. What these have in common are: relaxation of the

constraints of time and space, use of non-oral and non-print media, openness to non-institutionalized and adult learners, flexibility of starting points and of lines of progression, greater student choice and autonomy. In themselves, none of these are totally foreign to the 'campus' mode of university education as opposed to the 'distance' mode. The two modes do not form an absolute dichotomy; elements of each are to be found in the other. Neither mode is homogeneous.

Yet campus and distant modes have become separate learning discourses. The campus mode views the distant mode as a threat, or as a resource of ideas and experiments from which it can pick and choose without compromising basic institutional features of conventional higher education.

The contest between campus and distant modes is fought out in relation to ideas about 'standards'. Is distance learning a threat to standards, the academic way of life or, for that matter, university freedom? In my view the answers are: no, no and no. Variation of standards is as great within each of the two modes as between them. The academic way of life has been under pressure from commercialization and declining state support for many decades, while creeping casualization of academic work since the late 1970s owes little to distance learning. Distance learning may facilitate such trends, although this impression is easier to sustain in ignorance of the resources actually required to produce and maintain successful distance education. Academic freedom has been long undermined by dependence on government and private capital for sponsorship of teaching and research and on competition for student fees. Distance education sometimes involves communications industries (*e.g.* Microsoft, MediaOne, Simon and Schuster, Pearson) with little other interest in education, but such influence has had more impact on in-company training than on university education.

The British Open University

My first choice of distance learning model is critical, because it helped establish the legitimacy of distance education throughout Europe and Asia, within a hostile ideological climate. The British Open University admitted its first students in 1971. By 1996 it had a total of 257,000 students, of whom 120,000 were at undergraduate and 137,000 were at postgraduate levels. The Open University was established in a conservative society (albeit ruled by a Labour government), divided by social class demarcations that were continuously reconstructed by unequal educational opportunities. The academy was dominated by reverence for the elitist traditions of Oxford and Cambridge. Anything that smacked of 'correspondence teaching' was viewed as suspect, provided by small, private huckster institutions exploiting the educational pretensions of unworthy lower class 'no-hopers'. In the space of twenty-five years the Open University has overcome this ideological deficit to the extent that it now ranks the fourth largest higher education institution in receipt of U.K. government money (and the first for teaching), and with many tens of thousands of graduates in all walks of life including the professions and politics. It is aggressively expanding internationally. How can we account for such success?

The Open University was the correct and calculated response to prevailing problems of the time. It enabled a government committed to expansion of higher education to achieve this goal at lower cost. Investment in higher education was still thought to offer a rate of return to the national economy as a whole. The idea of an Open University was an appropriate answer to the predicted intensification of demand for education throughout life. This was embryonic acknowledgement of trends in employment and training. Distance learning would not take people out of their jobs nor remove them from their families. Further, it harnessed media to educational goals, helping to assuage wide-felt anxiety about the commercialization of mass media entertainment which government itself had allowed.

Appropriateness of response to prevailing concerns is not in itself a sufficient explanation. There were many plausible ways in which such a response could have been formulated, some of which, I believe, would have failed. We also have to look at some of the specifics of the O.U. model of distance education in order to understand its success. These were: -

- strong, continuing government sponsorship. Conservatives first resented this brainchild of a Labour Prime Minister, but grew to respect it. But government has exerted persistent pressure towards self-sustainability for all universities, and this has probably stimulated competitiveness and responsiveness.

- 'Rolls Royce' model of provision: large course teams working to two or three year lead periods with educational technologists, on-site artists, editors, publishing consultants, state-of-the-art and on-campus BBC studios. Supported by government subsidy and achieving economies by delivery to large numbers of students, Open University education is relatively inexpensive for consumers, even without the benefit of student grants. UK fees in 1997 were \$540 for a 'full-credit' course (6 credits needed for a pass degree). Yet teaching quality is high: the Open University is ranked tenth within the UK league tables of teaching excellence. (Daniel, 1999b).

- contracts for the delivery of education from government agencies, in fields such as health, social welfare and education (including, from 1995, the first U.K. government-recognized teacher training qualification by distance learning) enhance legitimacy.

- a dedicated distance learning institution with faculties in arts, social sciences, education, science, mathematics and technology (later expanding to business, social services, languages and law), in its own 'green fields' site in central England, with 13 regional centers throughout the United Kingdom. Each region maintains networks of study centers for local tutorials: 311 U.K. study centers, and a further 330 study centers through the European Union. Arrangements for locally-organized, face-to-face teaching respect the convenience of working students. Tutorial participation is mostly voluntary after year one. Some planners had wanted the new university to be managed by a consortium of existing extra-mural or adult education departments. But this would likely have condemned distance education courses to a multi-institutional bureaucracy of the least prestigious faculties of British higher education.

- association with the prestigious and nation-wide British Broadcasting Corporation, sub-contracted to produce associated radio and television programs for both a student audience and a much wider 'listening-in' audience. The value of this free publicity (through the programs themselves, program announcements, program listings in newspapers and guides), was incalculable, reinforced by production quality of general broadcast standard, including documentaries from world-wide locations.

- all this in a model of learning which was mainly driven by print components that were easily deliverable through an efficient nation-wide postal service.

- printed texts were originated by the University itself. These often amounted to daring new conceptualizations of entire disciplines of study, and drew on the expertise of both resident faculty and experts world-wide. Associated course readers and set-books fostered strong ties with the publishing industry and academic bookstores; course publications were widely used by faculty and students throughout higher education.

- printed texts allowed faculty to sustain conventional ideas about teaching quality and academic integrity. Faculty would have been much more challenged had courses been television-led. Print suited the institution's self-imposed constraint of universal access. This principle cautioned against precipitate enthusiasm for newer technologies. VCR was incorpo-

rated once there was evidence that most people had easy access to players. A similar attitude prevailed towards computers; most courses now have on-line tutoring, but on-line and multi-media work as a core vehicle for the delivery of learning is still confined mainly to courses about computers or distance education.

- easy visibility of high-standard course materials generally provided public reassurance as to 'standards', or at least exposed controversial materials to wider scrutiny.

- the army of part-time tutors employed to hold regular tutorial sessions were mainly full-time lecturers of other institutions of higher education. Their co-option provided further quality reassurance, and established a basis of collaboration rather than competition with other institutions. For over two decades the University refrained from competing with conventional higher education for their main market - the under 21s.

- a high percentage of the first student cohorts were teachers ambitious to up-grade their teaching certificates to degree level, in a profession that was converting to graduate-level entry. Teachers proved a demanding clientele. Content with their Open University experience, they became a source of word-of-mouth endorsement. (Teachers today constitute only a small proportion of total students).

- open entry to the undergraduate courses on a first-come first-served basis, regardless of initial qualifications. This principle challenged many presumptions about learning readiness and progression that had hitherto supported educational exclusiveness. Few distance learning institutions have followed suit. The significance of this achievement - the combination of open entry and academic credibility - is generally under-appreciated.

- a wide portfolio of courses, arranged at four levels of difficulty, introduced a version of 'modular' education, allowing considerable student choice. Students had to take foundation courses in two disciplinary areas (later reduced to one, and now no longer an absolute requirement). This enhanced flexibility and responsiveness to student needs and interests. The OU's credit structure, drawing in part from the Scottish model, was not the same as the American. Individual courses were longer; and to achieve an honors degree a student needed eight credits. Outright adoption of an American model would likely have provoked skepticism and hostility.

- a structure of 13 regions, each with a regional director and its own academic-related staff who recruited tutors and students, confirmed the University's commitment to all peoples of the U.K. Part-time tutors mark student assignments which are monitored by central academic staff; the regions provide multiple sites for the taking of examinations which are set and marked by the national center at Milton Keynes. The university spends \$2m a year training its associate faculty.

- faculty are required to be active researchers, and the University has achieved commendable results in national research productivity rankings. This emphasizes its commitment to scholarship and undermines attempts to dismiss the university as somehow inferior to conventional campuses.

- in the last two decades the university has increasingly encompassed postgraduate distance education, including a taught educational doctorate, attracting substantial numbers of students, including its own graduates.

- a non-rigid uniformity of operations, standards and practices - governing the length of courses, lay-out and design, pre-course evaluation and quality control - has contributed to the university's 'brand image' and reduced the temptation to constantly re-invent the wheel.

- cautious international expansion involved collaboration with other large-scale quality players, such as the Institute of Management in Singapore and the Open Learning Institute in Hong Kong. Providing consultancy support to major distance learning ventures around the world, the Open University also won the accolade of its own government. The University's 25,000 non-U.K. students include 17,000 from the former Soviet block. (Daniel, 1998a). The British Open University has established the Open University of the United States, incorporated in Delaware. This builds on links established with the state university systems of Florida and California. In California, the Open University has worked with CSU teams to re-develop a teacher training program for emergency permit teachers. This program is primarily driven by print and video technologies with some on-line work. The Open University has also partnered with the Western Governors University.

- the university exudes a public service ethos, yet increasingly acts entrepreneurially, beginning with the introduction of an entrepreneurial distance learning MBA in the 1980s.

- a mixed-media model of teaching with specially-prepared print materials, broadcasts, video and audio cassette and, increasingly, CD Roms and on-line tutoring, with provision for locally-organized face-to-face tuition at regular intervals. For foundation and some other courses there are additional week-long summer schools.

I regard the Open University model as a public service model of educational provision because, although the scale of government grant has reduced from about 80% to around 60% or less, dependence on government grant through the Higher Education Funding Council is still considerable. The University must balance its books, but can engage in many courses which are hardly viable economically but which maintain breadth of student choice.

Leicester University (U.K.)

Before moving on to consider the United States, I will make brief reference to a second British institution, one that exemplifies a different strategic orientation to distance education. This is Leicester University, a chartered British university located in the heart of England, approximately 100 miles north of London. Until the late 1980s, this was a conventional university, catering to a total student population of around 14,000. Following a very successful initiative in the establishment of an MBA by distance education in 1989, which recruited several hundred students in South East Asia and elsewhere, senior administration encouraged other departments to develop a range of MAs for national and international markets. The range now includes general and human resource MBAs, an MA and MBA in sports management, an MBA in educational management, and MAs in international law, mass communications, museum studies, psychology, public order. The University itself funded these courses. In both the Open University and the University of Leicester, students are recruited on the basis that they can follow their entire degree by distance learning. Leicester builds on the credibility the Open University has achieved for distance education in general but demonstrates stronger commitment to entrepreneurship. The main characteristics of the Leicester model are: -

- 'entrepreneurial' inflection throughout all distance education activity. At Leicester the distance-learning courses are all regarded as self-sustaining. They are intended to make surplus revenue, and most of them do. Programs grew directly out of departments, and they enjoyed early autonomy in determination of formats, content, supportive teaching, marketing and advertising. Ten years later, the central university administration exerted pressure towards commonality of formatting and publicity, in an effort to establish a stronger 'brand image'. Standardization saves course teams the exertion of determining parameters to govern such things as the design of course books, design and siting of university logos, the use of

copyright materials, ethical issues relating to use of books written by course faculty, structures of assessment.

- to work around traditional faculty resistance, the university made a significant number of (short-term) appointments of new faculty, specifically recruited for distance education work, with specialist clerical and other office staff for each degree or families of degree. These faculty worked under pressure to set up new and innovative distance learning courses, and were exposed to market risk while subject to the same or less attractive terms and conditions of employment as conventional faculty. In some departments, degrees were designed by existing faculty released for that purpose.

- by restricting distance education to post-graduate MA courses, the University focused on students who were already, by virtue of their having achieved a first degree, accomplished learners, likely therefore to possess sufficient capability for independent study, and in need of less support than undergraduates.

- while some of these courses do make use of on-line communication, the prevailing model involves specially prepared printed materials (printed and bound through university printers or through external sub-contract), set books, with some relatively cheap video and audio. Most courses also arrange face-to-face tuition. The MA in Mass Communications arranged for occasional weekend conferences or day-schools in Britain, Greece, Hong Kong, Singapore, Taiwan, Thailand.

- the focus is mainly on niche markets and professional groups: this is a 'cream' rather than a public service model. Conventional institutions generate new income to help off-set the near-permanent threats of reductions in grant income, but do not force commercialization on all faculty.

- mainly international or mixed domestic/international audiences, in collaboration principally with commercial agents. Commercial agents do require careful monitoring to avoid abuses, but at their best are also much more flexible and responsive than is generally the case when dealing with other universities.

U.S. Models

How does the British experience compare with the United States? U.S. experience has had a sharper technological edge. In the first place, U.S. distance learning since World War Two was driven by the application of radio and television technology to traditional extension activity. Television was a convenient if expensive way to deliver on-campus courses to students in off-campus, sometimes remote satellite centers. This technology, left more or less intact the experience and practice of the classroom lecturer and students. The number of sites for simultaneous delivery was restricted by the technology and by the pragmatics of question-and-answer interaction. This added up to high cost for relatively small numbers of additional students. It was not in itself generally an economic proposition but was one that could attract aid from government, foundation or private sponsors.

The current proliferation of on-line and multi-media courses in the U.S. has yet to be adequately charted. By 1999, the data-base of TeleEducation listed 9000 courses that could be taken completely on-line. In Texas, 98 out of 116 institutions of Higher Education were using distance education, in line with the majority of U.S. universities. 180 accredited graduate schools and more than 150 undergraduate colleges and universities supported distance learning degree programs (Klem, 1998). More than half of all colleges and universities now

offer at least some part of their undergraduate programs online. According to the 1998 annual survey by the Campus Computing Project, more than one-third of all higher education institutions now use or have formal plans to use the Internet in distance education. Many of these on-line courses have been designed for on-campus students, and an unknown proportion of on-line courses available for off-campus students are not-for-credit. On-line players include prestigious institutions such as Stanford, which began an internet based masters in electrical engineering in 1998, and Harvard Business School which is currently developing on-line business courses. There is substantial activity in web-based training for corporations. The International Data Corporation (IDC) says the U.S. market for web-based training was \$197 million in revenues in 1997, and is expected to grow to over \$6 billion by the year 2002.

In addition to on-line courses there are still many courses which are delivered by television, through satellite and cable, and which involve varying degrees of interactivity (e.g. one-way video and two-way audio), or which involve a mixture of print and video. 'Correspondence' courses which depend principally on print along the lines of the British Open University, appear not to be very common in the U.S.A.

On-line provision has attracted the involvement of a significant service industry. This includes organizations like Blackboard.com, Convene International, Generation 21, Parliament Software, Real Education, and the University of Delaware's SERF. Such organizations can provide packages that include access to course architecture, administration and tracking software, on-line faculty training courses, technical support. 1999 costs could vary from a simple purchase of server and technical support, where the institution does all the inputting of course materials, for an annual \$5000; to a start-up fee of \$1500 followed by \$395 per head for faculty training and \$100 per head for each registered student, where the subcontractor provides continuing technical support to staff and students; to approx. \$5000 per course for actual conversion of existing courses to online delivery; to \$45,000 start-up plus \$5000 annual fee for an interactive live television Internet courses.

Distance education courses are increasingly common but provision is patchy institutionally. With its rich profusion of traditions of state and private higher education, policy and provision in U.S. distance education appears fragmented by contrast with a much smaller country like Britain. The offer of complete degree programs that can be studied entirely on-line or by other modes of distance education, is increasing, but still relatively rare. Few institutions are entirely dedicated to distance education. Some of these act principally as clearing houses or conduits for the offer of distance programs from member colleges or universities. These include the Western Governors University (WGU), and California Virtual University (CVU). Launched in 1998, and listing 2,000 courses in 1999, control of CVU shifted back to participating universities, who had balked at a proposed marketing bill of \$3 million over three years. During the first year of operation, CVU attracted 25,000 enrollments in the courses listed, and about 120,000 people visited the web site monthly (Mendels, 1999).

An older 'clearing-house' example is provided by the National Technological University, an accredited, degree-granting university which offers a range of for-credit and non-credit courses delivered via what it calls 'leading-edge telecommunications technologies' from a working alliance of universities and training organizations. Programs are delivered directly to the work-site. NTU's courses are accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools, which has accredited ventures such as Jones International University and Phoenix University (see below). NTU contracts with institutions to develop curricula and courses. Member organizations sponsor NTU courses via satellite at one or more sites for their employees or client employees. In 1997, the NTU had a total of 1,800 students, and 163 students graduated from NTU in 1997; over

1100 students graduated between 1984 and 1997. NTU is increasingly moving into web-based programs.

A satellite television operation that is also moving into web-based delivery is the PBS (Public Service Broadcasting) Adult Learning Services (ALS) 'Going the Distance' project. This assists colleges in developing distance degree programs. Its goal is to ensure that by the year 2000, students in each state will have the opportunity to earn their college diplomas entirely at a distance. ALS was established in 1981 to coordinate with 190 public television stations and some 2,000 colleges to deliver telecourses for college credit. It has grown from a portfolio of seven telecourses, to over eighty courses with an annual enrollment reaching over 470,000. Colleges pay a license to use the materials for local delivery within their own credit and non-credit programs.

Internet-only institutions include private operators such as Jones International University (accredited), and non-accredited institutions such as Concord University School of Law in Los Angeles, and OnlineLearning.net, owned partly by Houghton Mifflin Cl., which has the exclusive rights to market noncredit versions of courses given at University of California at Los Angeles.

Within conventional institutions the origination of distance learning courses can depend heavily on the initiative of individual faculties or even individuals, and this can undermine the durability of programs when faced with the departure or failing enthusiasm of key faculty. Faculty familiarity with distance learning is a long way from universal, and institutional training for on-line course delivery is somewhat haphazard (although on-line courses to develop skills in teaching on-line are available).

The opposite side of the coin to fragmentation is diversity and innovation in the application of multi-media practices, both on-campus and off-campus. Without strategic institutional vision and an informed awareness of the resources necessary for high-standard and student-responsive distance learning, innovators face an uphill struggle. Finance for the development of distance learning initiatives is more likely than in the U.K. to be acquired by competitive bid to foundation and other grant sources. The University of California on-line extension system, centered in Berkeley, for example, was established with the aid of a grant from the Alfred P. Sloan Foundation, which is a significant promoter of 'anytime anywhere' education. The University of California's on-line extension program began in January 1996. More than two years later it had recruited 1,400 students, two-thirds of them from California, to any of 59 courses (Almeda, 1998).

Dependence on grants can inhibit coherent institution-wide or program-wide distance education offerings, and relieves institutions of some of the responsibility and risk of committing their own up-front investment. State governments are reluctant to fund initiatives that benefit students in other states. Cross-state and international operation is still relatively infrequent. On-line courses are too often developed for small, local markets. Shortage of large-scale resource and planning tends to restrict distance education to conventional models of university education based on notions of 'classroom' and 'seat-time', and the presumption that education is fundamentally an interaction between 'guru' instructor and students. The 'guru' still tends to assume that the students are young. Too few faculty have the appropriate pedagogic and social skills for teaching adults as old as themselves.

In contrast, the European model is one in which learning is driven by a high-cost multi-media mix, the product of significant development time, in which awareness of adult needs is central. In the United States, distance learning courses usually result from the marriage of a single faculty instructor and technology support staff. The large course-team dynamics which

play such an important role in Open University course development, for example, are largely absent. The Berkeley system boasts course teams that include a curriculum developer, course author - note the singular - an instructional designer, a course editor and a technical staff person (Almeda, 1998). There are insufficient resources or motivation, in the United States model, to buy in the time and involvement of academics from other institutions and other countries. There is relatively little origination of new material; a lot is derivative, and development time for exploiting the full potentiality of the medium is restricted. A further issue here is the role and multiplicity of the accreditation agencies in the U.S.A., although these show some signs of becoming more responsive to distance learning initiatives. In March, 1999, the North Central Association of Colleges and Schools, the main accreditor for higher education in its region, accredited the Jones International University to offer bachelor's and master's degrees in business communications. This is the first Internet-only school accredited to grant college degrees, established in 1995. It counts a total of 950 registrations for its various courses; in March 1999; 10 were enrolled in the bachelor's degree program, and 64 in the master's degrees (Blumenstyk, 1999). North Central's accreditation of Jones International was formally protested by the American Association of University Professors (AAUP), on the grounds that instructors teach courses prepared by others, so have little say over how the material is presented, that nearly all instructors are part-time, and there is little emphasis on research.

Distance education is not necessarily a cheap option. Many students pay more than for campus courses, even though economics of scale, if achieved, should dictate quite the opposite. Furthermore, distance learning students sometimes do not receive the same entitlements to support services that exist for campus students, notably library facilities.

There is a paucity of economic cost-benefit analysis. Parameters include availability of external grant, size of the target audience, expectations of the target audience with respect to standards, quality and responsiveness, FTE value of students recruited, in-put of academic and technician time, availability and quality of on-campus technical support services. Most ventures are relatively new and may still be growing. The Alfred P. Sloan Foundation has donated \$26m to its program, Learning Outside the Classroom, through 116 grants across a five year period. The Sloan program has helped spawn some large programs, including the University of Illinois Online group of 100 courses which is expected to enroll ten to fifteen thousand students in a four year period. The Sloan program has also financed the Journal of Asynchronous Learning Networks (JALN), a significant source of research and data. Analysis by Bourne (1998) Issue 2 of Volume 2, on the evidence of Vanderbilt University suggests that for an on-campus on-line course, total time requirements for course development over a three year period are a little higher than for a traditional course. This may underline the importance of achieving economies of scale through higher student numbers and off-campus delivery.

A significant challenge to conventional campus courses has come from a different and 'low-technology' source, the privately-owned University of Phoenix, a unit of Apollo Group Inc. This model is of conventional classroom teaching, flexibly taught in many different learning centers by part-time faculty (of whom many are suitably qualified non-academic professionals) to fit the timetables and domestic constraints of working adults. The success of the University of Phoenix (50,000 students by Fall, 1998), which from 1989 has also engaged in on-line course development (accounting for over 10% of its students), may be a measure of the failure of mainstream American higher education to adapt seriously to the needs of the adult learner. The Phoenix model caters to working adults, mostly between 35 and 39, who want to earn their degrees quickly. They take courses one at a time and they are accelerated, lasting five weeks for undergraduates and six weeks for graduate students (Leatherman, 1998). Will the onset of 'Tidal Wave 2' (children of the 'baby-boomers') affect how far the challenge either of Phoenix or of on-line education will be heeded by traditional campuses in the foreseeable future? They will have less need to go looking for students, but they may be required to think more creatively about how they teach the students they do get.

Conclusion

Further research is urgently required for a comprehensive evaluation of the development and current status of all forms of distance learning in the United States. Comparative understanding of different models can only be advantageous for judgements about the scale and appropriate modes of distance education. I have not discussed the respective academic merits of different forms of education delivery: most research suggests little or no difference in outcomes, other things being equal (see Russell, 1998). What is more important, I believe, is to establish how high-quality education and training which exploits the learning advantages of modern communications, can best and most economically be developed and delivered to suit the different circumstances of students at different points in their life-cycles.

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