



Distance Learning – Trends in the US

by Michael G. Moore

**ARTICLES ON
FLEXIBLE LEARNING &
DISTANCE EDUCATION**

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Introduction – The new technology

It is clear that in the US, as throughout the world, we are experiencing seismic shifts in how distance education -- indeed education itself -- is perceived and how it is designed, delivered and administered. These changes in education, as in other walks of life, result largely from the invention of new information, communication and computer based technologies (ICCT's), particularly those that provide information and communication on-line through the Internet and the World Wide Web.

On-line, web-based, delivery of information and interactions, seen by many as the key technological innovation of the last decade of the 20th century, has attracted the attention of mainstream educators to the idea of distance education in a way that no earlier technology managed to do. Furthermore it seems that such interest is likely to increase as the cost of bandwidth continues to fall, as the reach of the principal "pipes" for broad bandwidth – such as digital satellite transponders and fiber optic cable – increases, and "last mile" solutions such as digital subscriber lines and coaxial cable become more prevalent.

Even now, high-speed networks are rapidly emerging. One example in US is Internet2, a consortium of 146 universities and 44 corporate members, organized to develop uses for high-speed networks and to build better network technologies. This new super-fast data pipeline will link the institutions at speeds 45,000 times faster than the best telephone modems now used.

Response from higher education

In the US, as elsewhere, a growing number of colleges and universities now offer some form of on-line distance education. The National Center for Education Statistics reports that over half of the 5,010 higher educational institutions in the United States offered electronically delivered distance education courses during the 1997-98 academic year, a 50% increase over

the 1994-4 academic year. Another one fifth of such institutions were planning to add distance education classes within the next three years (NCES, 1999).

According to NCES there were an estimated 1,661,100 enrollments in all electronically delivered distance education courses and 1,363,670 enrollments in college-level, credit-granting distance education courses, with most of these at the undergraduate level. About half of the institutions that reported offering distance education courses in 1997-98 reported 300 or fewer enrollments in those courses.

About half of the institutions that offered distance education courses in 1997-98 offered 15 or fewer different distance education courses, with 23 percent offering 1 to 5 courses.

A report issued by The International Data Corporation (IDC) for in January 1999 titled "Online Distance Learning in Higher Education, 1998-2002" estimated that 2.2 million college students will be enrolled in US distance education by 2002. IDC's research estimates that by 2002, 85 percent of two-year colleges and 84 percent of four year colleges will offer distance learning courses by 2002.

Who is learning at a distance?

Traditionally in American higher distance education there have been slightly more female students than male and considerably more older people than younger – a typical finding being that almost half of the distance students in one institution were between 31 and 46 years old. Most students are employed outside the home (83.7% in one study (Robinson, 1992) and are domestically settled. In a 1996 study, (Gibson and Graff) 90% of the respondents were employed (75.8% full time) and about 75% were married.

What are they learning?

According to the National Center for Educational Statistics (1999) study, of the 1,230 college-level degree programs offered through distance education, the two main fields in which courses were offered were the general field of English, humanities, and the social and behavioral sciences (70 percent of institutions) and the field of business and management (55 percent of institutions). The general pattern was for institutions to offer for-credit distance education courses more at the undergraduate than at the graduate/first-professional level. The exceptions were in the fields of education, engineering, and library and information sciences, where more college-level, credit-granting distance education courses were offered at the graduate/first-professional level than at the undergraduate level.

Technologies used

Asynchronous Internet instruction, two-way interactive video, and one-way prerecorded video are the preferred technologies. (NCES 1999). Two-way interactive video was used by public 4-year institutions (80 percent) and by public 2-year institutions (53 percent). One-way pre-recorded video was more likely to be used by public 2-year institutions (62 percent) than by either public or private 4-year institutions, and by public 4-year institutions (44 percent) more often than by private 4-year institutions (26 percent). The Internet technologies, however, were generally about equally likely to be used by the various types of institutions, ranging from 16 percent to 22 percent for synchronous Internet instruction, and from 57 percent to 61 percent for asynchronous Internet Instruction. Institutions that offered distance education in 1997–98 or that planned to offer distance education in the next 3 years reported that they planned to start using or increase their use of Internet-based technologies and two-way interactive video in the next 3 years more than any other types of technologies.

Different types of distance education delivery system

Distance education delivery systems vary enormously. Not only in the technologies they use, the numbers of students they serve, the curriculum they offer, but also in their organizational structures, governance, how they employ human resources, how they support learners, how they provide instruction, how they evaluate learning and how their learning is recognized in the world. In order to make good decisions, policy makers need to understand the strengths and weaknesses of the different types of system. US practice is almost certainly not a good model in this regard.

In US programs are almost entirely delivered in “mixed mode” systems. Two other systems, “single mode” and “cooperative mode” should be considered by policy makers. The American fixation on mixed mode is the result of many factors, but not the result of carefully considered public policy. The main features of the different types are as follows:

“Mixed mode institutions: 1. Individual study”

This is the most common form of distance education in American higher education. It has many similarities to traditional text-based correspondence study, with important additional features, such as learner-learner interaction and occasional synchronous interactions. Individual students take courses delivered on the Internet that are not very similar to what is taught by the same teachers in their conventional classrooms. Most of the design of

instruction and the interaction with the learner is provided by the same instructor, who communicates by Internet typically with about 30 students. This approach does not require significant changes in resource allocations, particularly the role of the teacher, and is widely popular for those reasons. A typical program is that of Penn State's World Campus which offers undergraduate degrees, professional master's degrees, certificate programs, and continuing professional education opportunities. Communication is via the World Wide Web, computer conferencing, video, and other media with a range of learner support services including library access, registration and records, and advising. See: www.worldcampus.psu.edu

"Mixed mode institutions: 2. group study."

Distance learning programs are often used in conventional classrooms under the control of a classroom teacher to fill curricular areas for which there may not be locally available instructors. In the US this approach has been popular in children's schools for teaching foreign languages and certain mathematics courses, with much of the instruction delivered by satellite television. Tele-courses, i.e. courses based on broadcast television (which may be presented to students on tape) has significant following.

At degree level, in 1995-96 more than 400,000 students nationwide enrolled in courses distributed by over sixty public television stations and 175 colleges and universities.

See <http://www.pbs.org/adultlearning/lals/gtd/project/index.html>

A program for children organized by the Los Angeles County Office of Education, serves 140,000 learners in 20 states through satellite and broadcast television. See www.teams.lacoe.edu

Since this approach simply enriches conventional teaching and does not require any important alteration of organizational or resource arrangements, it is non-threatening to established educational interests and generally popular among educators and policy makers who want to be seen to be embracing new technology.

Single mode DL systems

Single mode institutions, notably the open universities in many countries, have made little headway in US higher education. In such institutions there is no activity other than the design and delivery of courses for distant learners. A significant feature of the single-mode system is the way its human resources are organized. It is no longer a matter of an individual professor teaching his course. The course is taught by the institution. It is the work of teams of specialists, – media specialists, knowledge specialists, instructional

design specialists, and learning specialists. Nor in the single mode institution is there the same dependence on a single delivery technology as there tends to be in US single mode institutions – video-conferencing in the 90's, the Internet today. Teams are more able to take advantage of the knowledge of instructional designers, which invariably leads to much higher quality course design.

Because of the high investment costs, programs delivered by single mode institutions tend to be distributed over a large population; this may require negotiation and agreements among several or many existing providers; large budgets are needed; long periods of design time are needed.

Uniform, high quality is guaranteed, and with large numbers of users, average costs are lower than in conventional education, or in the mixed mode type of education mentioned above.

Cooperative model

This is the most recent model of distance education, and again has not made much headway yet in US. The idea is that is that a nation or region does NOT set up a new single mode distance education institution nor depend entirely on mixed mode types of distance education in which national resources are fragmented among the many providers. Instead there is developed a virtual system, – one that draws on the best resources wherever they are located, i.e. the content experts, instructional designers, the full range of communications technologies and all the resources needed to provide a learner support system, – and configures whatever mixture is needed for a particular program or project on a flexible, open, “mix and match” basis.

Such systems need a small permanent management team of administrators and specialists in design, technology and learner support, to commission, on a contractual basis, the mixture of personnel and other resources needed for each particular project. The permanent, experienced, management team is one key part of the system; the other is a significant funding resource.

The only way the management team can obtain the quality resources needed, on a pro-tem basis, guarantee quality, monitor, train, and in every way maximize the human and other resources available is by the power of funding. What this approach brings about is a very flexible, versatile, responsive system, producing high quality without commitment to on-going institutional costs, and without the tendency to conservatism that blocs continued innovation within established educational agencies. Above all, it stimulates partnerships and employs the comparative advantage of each institution in a country or region. Consequently there is less likelihood of the kind of

fragmentation and inefficient duplication that is a feature of distance education in America.

University consortia

Where the term “virtual university” is used in US it usually means a consor- tial effort by some (usually state-funded) higher education institutions wit- hin a state to use a common technology delivery system, while maintaining independence in curriculum, instruction and management.

According to a 1999 survey by the State Higher Education Executive Officers (SHEEO) (see: <http://www.sheeo.org>) thirty-three states have created such statewide consortia or have elected to participate in a regional or national consortium (e.g., Western Governors University or Southern Regional Electronic Campus). In order to improve access to library services for distan- ce education students, almost all of the responding states offer inter-library loans, access to statewide networks, and electronic library databases.

An alliance of about 50 universities, the National Technological University (NTU) provides graduate and continuing education to engineers, technical professionals, and managers worldwide. Satellite telecommunication and compressed digital video (CDV) technology link NTUs member universities to more than 1,000 work locations internationally. From their job sites, engine- ers, scientists, and managers can tune in to more than 500 technical and managerial courses taught by leading engineering schools and organiza- tions. For more information about NTU see: www.ntu.edu.

Non-traditional providers

For-profit providers

Non-traditional providers, including private profit-oriented organizations are becoming increasingly important, especially in serving adult learners in the labour force.

The least-regulated market, where the private sector has the greatest com- parative advantage in providing “just-in-time” learning, is non-degree trai- ning and education, and it is here that for-profit, “corporate universities” and other independent providers are rapidly expanding their offerings. This is putting competitive pressure on traditional formal education institutions, some of which are responding by establishing their own for-profit affiliates.

Public: The University of Nebraska at Lincoln has created a for-profit com- pany called Class.com to provide distance education to high school students, either individual students, high schools, or entire school districts. For the past three years, the university has been creating online courses based on

the curriculum of its own Independent Study High School, an accredited, correspondence-based high school that has operated since 1929.

Private: In March 1999, the North Central Association of Colleges and Schools accredited Jones International University (Jones), the first institution to be accredited by a regional accrediting body that offers its courses and services entirely over the Internet. The university, a subsidiary of Jones International, Ltd., headquartered in Englewood, Colorado, began offering courses in 1995 and now offers two degree programs (a bachelor's and master's) in business communications, in addition to several certificate programs. The programs target adult students who have already attended college but have not completed a degree. Of the 56 faculty members employed by the university, two are full-time, and the part-time faculty members generally hold academic posts at other universities. The largest private university in the US is the University of Phoenix, a commercial subsidiary of the Apollo Group. It is currently, delivering business and other degree programs to 56,000 students.

The Western Governors University (WGU) is a private, non-profit, virtual institution, offering degree programs by distance learning. It is the first exclusively virtual university of the US, formed by the governors of 17 states and some business partners including Microsoft, Sun Systems, IBM, and AT&T. For a fee, it essentially "brokers" existing courses and training programs offered by colleges and universities in the western states of the US.

Partnerships: There is a trend toward public-private partnerships, i.e. between publicly funded institutions and for-profit organizations. Programs may be carried out by higher education institutions in concert with corporations that provide content (e.g. Novell), corporations that provide virtual delivery systems (e.g. Caliber Learning Network), and corporations that provide both (e.g. IBM) (Marchese, 1998).

For example, eCollege is a company founded in 1996 as Real Education in Denver, that partners with University of Colorado and other five universities to deliver course content online. ECollege has also worked with Microsoft to deliver online Microsoft 2000 productivity courses for faculty members. In December 1999, eCollege signed agreements covering 25 new colleges, universities and other educational institutions to develop online education. The "100 Degrees Online Grant Program" is eCollege's effort to increase the availability of complete online degree and certificates.

Corporate Universities

Many corporations have established their own corporate universities to meet the increased need for “just-in-time” and “just-enough” education. By the most recent count of their informal association, the Corporate University Xchange, there are over 1000 such entities, all but a handful (e.g. the Tennessee Valley Authority University) being private. Some of these corporate universities, like Motorola University, have built physical facilities globally to meet employee-training needs while others, such as Dell University, only exist virtually and have no campuses at all. The new profit-making private sector providers are unencumbered by many of the restrictions placed on management in both public and private non-profit educational institutions. Most for-profit providers are free of the fixed costs of dormitories, classrooms, grounds, sports facilities, and many other costs other than those of direct academic, technical, and administrative support and the minimum physical infrastructure necessary to house the providers of these services.

Typical of the public sector provision is the U.S. National Park Service (NPS) which provides programs to 20,000 employees located at more than 370 locations [www.nps.gov/training/index.htm]

Education Companies

New companies are being established for the purpose of selling educational services online.

There are some other companies, such as, Hartcourt, Hungryminds, Smartplanet, eHigherEducation and large multi-national for-profits such as Global Knowledge, and Suntek Information Systems in Korea.

Harcourt General -- parent company of Harcourt Brace, the textbook publisher -- is creating a for-profit university to offer courses entirely through distance education. Called Harcourt Learning Direct, the school plans to offer degree programs in the fields of business, health care systems and administration, information technology, and general studies. This new venture will be based in Cambridge, Massachusetts, (the same location as Harcourt’s corporate headquarters) and will begin offering classes by the fall of 2000.

The companies of eCollege and eHigherEducation have just announced a partnership to provide management and capital to colleges and universities to support their online programs. SmartForce, another “e-learning” company (with 1999 sales of \$198 million), provides on-line mentors to its on-line courses, a library of laboratory simulations, threaded discussion forums on particular vendor products or generic developments in the IT industry, and the chance to interact with guest speakers on a pay-per-view basis.

Certification and testing business

There are three testing companies that play the major role. They are: Prometric (recently acquired from Sylvan Learning Systems by Thomson Corp. of Canada for \$775 million cash), CatGlobal (a division of Houghton-Mifflin), and Virtual University Enterprises (VUE, a division of National Computer Systems). Prometric operates about 2500 testing centers in 140 countries. VUE has nearly 1500 locations, including 20 in Mexico, 28 in Russia, 23 in Brazil, 19 in South Africa, and 50 in China—among other places. CatGlobal offers wholly on-line computer-based testing from servers in 16 countries.

Some training companies have developed their own certification. Learning Tree International, for example, certifies Cisco Routers and Oracle7 Database Administrators on completion of course work (minimum of 22 days and \$4500 for Cisco; 19-24 days and \$4500 for Oracle) and passing allied examinations (Learning Tree, 1999). These certifications are recommended for 10 college credits by ACE's Credit Service, but they don't mean that you are certified by Cisco or Oracle.

Federal policies

A number of Federal policies are aimed at stimulating uses of technology in education, (though there is not much understanding of the differences between adding technology and the organizational changes needed for better distance education).

A particularly difficult issue concerns federal aid to distance learners. The Distance Education Demonstration Program, selected several institutions and systems of institutions to test how federal law and regulations might be altered to allow for the expansion of aid to distance learners while still ensuring program integrity.

The 1999 reauthorization of the Higher Education Act created the Web-Based Education Commission, which was charged with conducting "a thorough study to assess the educational software available in retail markets for secondary and post secondary students who choose to use such software."

Learning Anytime Anywhere Partnerships (LAAP), authorized at \$10 million, provides grants to post secondary education and career-oriented lifelong learning through technology. LAAP's inaugural, two-stage competition generated tremendous interest: 653 preliminary proposals were received, from which 122 were invited to the final round. Of these, 29 received awards for projects spanning three to five years.

Faculty responses

American university teachers, school teachers and corporate trainers, (referred to here as "faculty") have taken to distance education via the Web in ways they never did with older technologies. However their general expectation is to maintain teaching roles and curriculum ownership that is not too different from the traditional. The expectation of most of their institutions is also to keep things more or less as they are, by developing on-line versions of their existing courses to reach the learners who prefer the distance mode of delivery.

Where significant changes are perceived there is a cooler response. For example the accreditation of Jones International University was followed by a protest from The American Association of University Professors (AAUP), to the North Central Association of Colleges and Schools. The protest was based upon what AAUP saw as a lack of quality, particularly given the high number of adjuncts the university is using. In addition, AAUP cited the short duration of the university's courses, the lack of learning resources -- such as libraries and research laboratories -- and the small proportion of students who seek degrees from the institution. In response the North Central Association stated that Jones International University met the requirements in other ways.

Among faculty and administrators there is general support for the idea that if online courses are taught their evaluation should be part of the faculty reward system. Many studies of faculty lead to the call for training in on-line teaching methods, and for support of various kinds, such as the use of mentors for junior faculty.

What is offered in the way of training for distance teaching varies from large-scale faculty development projects to self-taught individual learning. The type of course delivery techniques also varies significantly.

As identified by the College of Dupage in 1998 (Slocum & Hallongre, 1998) top issues in regard to the impact of the new technologies and distance education on faculty were: Intellectual Property Rights, Faculty Workload, and defining the responsibilities and compensation for the maintenance of courses offered at a distance. To further review the impact of these top issues the College of Dupage set up a special Emerging Technologies Committee to review a number of concerns related to distance education.

Some of these were:

- Program Approval
- Academic Freedom
- Intellectual Property Rights
- Assignment of Faculty

- Duties of Teaching Faculty
- Summer Assignments
- Marketing of Instructional Materials
- Large Group Classes Policy
- Instructional Design Agreements

SOME IMPORTANT ISSUES

1. Changing mission; the digital divide:

Since the invention of distance education in the 19th century its core mission has been to open access to those who were denied opportunity in the conventional systems. This is changing. Today's developments in distance education are driven primarily by enthusiasm for technology combined with a growing view of education as a consumer commodity.

As a result distance learning may no longer be narrowing the gap between those with knowledge and those who have less, but may in fact be contributing to widening it.

To access the new forms of distance education requires, first, access to the new technology, and this is not equally available, a phenomenon known as the "digital divide".

In the US, where at the end of 1998 over 40 percent of households owned computers and one-quarter of all households had Internet access, high income households were twenty times more likely to have access to the Internet than low income families.

A 1999 report from The College Board – "The Virtual University and Educational Opportunity-Issues of Equity and Access for the Next Generation" argued that information "have-nots" are at a distinct disadvantage when it comes to taking courses online. A major barrier for the traditionally under-represented in higher education – African Americans, Hispanics, and people with less education – is the lack of computer or online service both in the home and in elementary and secondary schools. For instance, three-quarters of households with incomes over \$75,000 have a computer, compared with one-third of households between \$25,000 and \$35,000, and one-sixth with incomes below \$15,000.

Regardless of income level, Americans living in rural areas are lagging behind those in urban areas in Internet access. Indeed, at the lowest income levels, those in urban areas are more than twice as likely to have Internet access than those earning the same income in rural areas

So far in US no policy has been developed for dealing with this problem.

2. What are the effects of market skimming by the private sector?

If the private sector makes the most effective use of new technologies and is able to organize the division of labor needed to increase quality while reducing costs, better than the public institutions, the profitable “low hanging fruit” will be gobbled up by the private profit-making sector. This will leave the public and private non-profit institutions to grapple with the higher-cost learners, meaning the least advantaged who need close emotional and other support as well as content areas that may be socially and personally of great value but do not give immediate returns to investment in the form of increased wages. This may raise the average costs of teaching the rest of the population, and could it lead to further deterioration of the culture with only the rich able to afford a residential college experience?

3. Is on-line distance education really cost-effective?

Since there are as yet no really large-scale providers there is little or no proof that the potential returns to scale in this approach can be realized in higher education. Research shows that the up-front costs of preparing an online course, even if done by the professor in the “mixed mode” institution are higher than for traditional courses. The cost of interaction with students via email and chat groups may also be higher. Only when the market is large and/or the interaction can be in part automated or conducted by lower cost professionals than world-class “star” professors and professional instructional designers, is cost-saving possible. The potential decrease in unit costs – with good quality – depends on reaching large markets over which to defray the higher fixed costs of course preparation and delivery, together with the substitution of high-priced labor by either lower unit cost technology or cheaper substitutes for traditional academic teaching personnel. These larger markets have not yet materialised. In fact, many universities seem to be following a policy akin to those e-commerce companies that are investing without profit or even very large numbers of “customers” in the expectation that demand will eventually catch up with supply. The question of cost effectiveness has been somewhat better addressed in the corporate sector. For example, Quantum Corporation found a significant decrease in the cost of training and an increase in the effectiveness of their program. Moreover, using satellite and Internet technology, the company found it could train one person on a need basis at a convenient time. A consortium, GATE (Government Alliance for Training and Education), reports that training time and costs have been reduced significantly by distance learning at the U.S. Department of Energy and Federal Aviation Administration. The U.S. Coast Guard has used multimedia for several trai-

ning initiatives, resulting in significant annual savings due to less need for instructors (Training, February 1997). Storage Technology (corporation) technicians who were once required to travel to a central location for four to 10 days of training now receive training through a localized multimedia system, saving \$1.5 million over a three-year period (Journal of Interactive Instruction Development, Winter 1996).

4. How can intellectual property rights be protected?

A lot is being said about intellectual property rights and institutions are busily working out agreements with their faculty. These are issues of copyright ownership, translated into the digital age where the cost of reproduction and transmission are virtually zero. At least two kinds of issues have arisen. The first has to do with the ownership of "courses". Are they the property of the professor or of the institution where he/she works? The second has to do with materials available on-line in digital libraries or their equivalents. In the case of course ownership, the question is more one of labour relations – the relationship of the professor to the university – which may be quite different when the professor is no longer a jack-of-all-trades, but one member of a team, the subject matter expert (and possibly the lecturer for live and/or recorded audio and/or video).

5. What does on-line education do to cultural diversity?

A major area of criticism is that the development of web-based learning systems will make cultural diversity one of the first victims of globalization in distance learning and perhaps cultural decay a second. This is because of the huge potential for reaping returns to scale, and the head start that English-speaking countries (especially the United States) have in ownership of the technology in this field. The precedents – e.g. the spread of Disney by television and films – worry many educators. Against these forces for homogenization and lowering standards are arrayed several opposing forces: the tenacity of cultural affiliation of many groups and countries, the just-over-the-horizon potential for high-quality automatic translation (which will weaken the advantages of English-speaking countries), and the trend for developing individualized instruction through the use of intelligent agents, artificial intelligence programs, and the like. These factors together make it possible to tailor instruction to each individual's language and learning style, the latter in part culturally determined.

6. Is there a Gresham's law of web-based learning – i.e. the bad drives out the good?

Another criticism is that if distance learning becomes even further a product to be bought and sold in the market, cheap but inferior educational versions will drive out good but more expensive ones. Against this one can argue that as in other markets, institutions to assess quality are likely to arise, – though this has not happened so far – and that there will always be buyers ready to pay more for a superior product. However in US the example of television, where there is an abundance of cheap and inferior programs and very few quality programs, is again a sobering one.

7. What about drop-out rates?

These are said to be higher for distance education than for face-to-face education. This may be difficult to evaluate because of the difficulty of defining a dropout in conventional education, where dropping a course and substituting another is not reported as a “drop-out”. However, research and experience show that there are ways to lower drop-out rates, and these include developing active participation and interaction among participants in the learning process. This can be done in a variety of ways – development of study groups (facilitated or not), joint exercises by groups of students, direct interaction at a distance between teachers and learners (which can be expensive, but there are always the possibilities of substituting automated or semi-automated interaction for live interaction, using the electronic equivalent of teaching assistants to carry out the majority of the teacher-learner interactions, etc.), and the like.

8. Problem of social isolation.

If learners are alone at their computers (at work, at home, in libraries, or in learning centers) interacting with a computer, there are a number of social skills which can be acquired in face-to-face learning environments that may be more difficult or impossible to achieve. On the other hand, research shows that students of a reflective cognitive style as compared with the impulsive, i.e. normally reserved students, are more likely to participate actively when they can think about what they want to say for some time before interacting asynchronously; (this is harder in a live class, which is more delimited in time), and when they do not need to worry about “how they look”. Facilitators can and are being hired and trained to encourage, stimulate and support on-line interaction between students. The issue is less serious for training people already in the labor force, assuming they are in organized work settings where face-to-face interaction is commonplace.

9. Conceptual confusion and the need for professional training:

With the fast-growing interest in using ICCT's in education, and the adoption of the terminology of distance education by those who use such technologies, the field is characterised by wide and growing conceptual confusion. This is damaging from both a practical policy makers' point of view as well as academically. As the basis for public policy, such confusion among those who gather, report and discuss distance education, sometimes means that what they study and report is the same phenomenon, but often it is not. For example, such a simple matter as a report of growth in programs may be untrustworthy if the definition of what is included in a study in a base year differs from that in the subsequent year. The NCES exclusion of print based distance education in the studies mentioned above is a good illustration of this problem.

From an academic point of view the problem is that so many research questions are misdirected – and thus time and money is wasted - because researchers, particularly students who are directed by teachers who do not know the established distance education literature, set out to pose and answer questions *ab initio*, i.e. in a theoretical vacuum. It is clearly foolish to journey without a map when good maps in fact exist.

Any government proposing to develop a distance education policy should be aware of this problem and perhaps ensure there is some form of professional training in this field.

With these working-papers **tbc-Consult** and **DEL** hope to help to develop a better understanding of the profound changes that are taking place in learning today. The old and traditional ways of learning have become irrelevant in methods and also in purposes. We therefore have to create new ways of learning for a changing world. We hope that these papers will help with experience and inspiration.

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