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# Guest Editorial

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As former practitioners and advocates for classroom instruction seek to compare the relative advantages and disadvantages of face-to-face and online teaching by reporting on their primarily one-off experiences with developing and delivering online courses within a more traditional university culture, forays by more traditional universities into online education have begun to dominate the distance education and online literature.

No less challenging or instructive, however, is the fundamental transformation that seasoned practitioners and administrators of distance education find themselves facing as they endeavor to systematically enhance old models of distance education by taking advantage of the e-learning environment. Some would argue, as in fact I frequently do, that this challenge is of a similar magnitude to the one faced by new entrants into the non-classroom learning environment, for classroom-teaching converts to online learning are often much more in control of their teaching and learning environment than are their counterparts in single or dual mode distance teaching systems. In the first instance, the institution has traditionally invested primarily in classroom teachers who are relatively free to determine how to deliver their courses (whether in a face-to-face or distributed setting) at any given time. In contrast, while teachers in an organization where distance delivery is considered as a mainstream activity find themselves supported by institutional infrastructures and learning/teaching support functions, they are also constrained by these very same features which, in the past, complemented the individual academic's expertise and served to create a comprehensive high quality learning environment for distance learners.

The constraining infrastructure that supports quality traditional print-based distance education is not restricted to capital investments such as printing presses, television and radio production, course material warehouses, and various administrative and computing systems that facilitate mail and/or telephone interaction between (prospective) learners and their institution. Equally significant and daunting in the move to the online enhancement of distance education are the various previous institutional investments in human resources (academics, course designers, pedagogical support, non-academic support) and labor relations structures.

This special issue of the *International Review of Research in Open and Distance Learning* had its genesis at the October 1999 meeting of the Standing Committee of Presidents (SCOP) of the International Council for Open and Distance Education (ICDE) where senior academic leaders engaged in various professional development activities around a common theme: the identification and relevance of management and administrative issues faced by single and

dual mode distance education institutions as they sought to move to an online learning environment. One of the declared outcomes of these meetings was the need for all institutions to learn from each other and, with this goal in mind, Athabasca University committed to commissioning and publishing a collection of instructive case studies, a set of *best practices*, that would recount the challenges faced, and lessons learned, by single and dual mode traditional distance institutions that had already converted some of their programs to the online environment. The birth in 2000 of the *International Review of Research in Open and Distance Learning* provided the opportunity to go one step further and to ensure that the commissioned case studies benefited from the blind review process.

Based on their representative nature and complementariness, seven submissions have been selected to exemplify the issues faced by significant providers of distance education as they have moved complete programs and support systems to online delivery. For ease of reading, for drawing comparisons, and with a view to facilitating the online forum that will accompany the appearance of this issue and the dissemination of the papers it contains, authors were directed to follow a common systems format[1] that sought to elucidate the interplay between each organization's internal culture, structures and processes, and the external social and environmental factors and demands within which the institution operated. This context in turn gives rise to a chronicle of critical events and an analysis of their intended, and unintended, consequences, thereby casting light on the program conversion's affect both on strategic planning and institutional management, and on the key course development and delivery systems.

Readers will learn from the experiences of institutions located in different geographic regions, where Internet access from home is probably the highest in the world, such as at the NKI Internet College (NKI) in Norway, to areas served by Indira Ghandi National Open University (IGNOU), where online delivery is accessed primarily through local learning centers. Case studies, moreover, involve dedicated single mode institutions such as Athabasca University (AU) and IGNOU, examples of Australia's dual mode institutions such as Deakin University (DU) and the University of South Australia (UniSA), and two unique institutions in the United States, Empire State College (ESC) which functions as a dual mode adult education provider within the State University of New York, and Regents College (RC, and soon to be Excelsior College), an accredited distance education institution that even if it does not deliver courses at the undergraduate level, provides all student support, examination and administrative services commonly delivered by distance teaching universities.

While there are some notable (and explainable) exceptions, and in spite of significant differences in their mandates, institutional cultures, and the external environment in which they function, six of the seven studies nevertheless tell a rather consistent story about how these institutions approached the transformation of certain programs to the online environment, the challenges they

faced, the lessons learned, the relative educational benefits to learners of going online, and the range of issues that remain problematic in spite of the collective experience that has been gained to date. IGNOU, however, forms a case apart, both because of its dependence on local learning centers for accessing online course elements and because of the quasi absence of online interactivity either amongst students or between students and their instructors.

Whereas DU and UniSA assign particular emphasis to the need for a commitment from the top and strong academic leadership, all the case study authors gave considerable importance to the placing of online conversion commitments and strategies within a much broader institutional planning framework. For DU and UniSA, the online move represented one aspect of a rethought pedagogical model that was to influence both on-site and distance delivered learning processes. At AU, the commitment to e-learning as an alternative for those students who preferred this option was firmly entrenched in the 1996 Strategic University Plan, whereas at NKI online courses had benefited from an institutional commitment as far back as 1985 and have gone through three distinct generations since that time. IGNOU, though different in many regards from the other institutions, also designed its Virtual Campus Initiative in the context of a larger educational strategy that sought to respond, in collaboration with the Edexcel Foundation, to the National Task Force on IT and Software Development.

Though unashamedly very much influenced by the increasingly competitive distance education market, all institutions involved in this study rationalized their entry into e-learning on the grounds that they were seeking to improve accessibility and learning outcomes, even if in the case of IGNOU the reliance on Tele-Learning Centres where students were able to access the required technology meant that the online programs increased the gap between the more (urban) and less (rural) advantaged student populations and thus led to significant expressions of discontent by the latter. Because of their social missions and/or the fear of losing more traditional distance learner markets, however, the vast majority of the institutions chose to continue to provide dual or parallel delivery models, and will do so for some time yet.

Reliance on internal resource reallocation as opposed to external funding surfaces as an important issue when seeking to implant e-learning in the traditional distance education culture and thereby facilitate its sustainability. AU, UniSA, NKI and RC are reported as having been more successful in this regard than the others, even if DU seems well on its way to achieving this goal.

There appears to be at least two other essential ingredients to successfully transferring distance learning online. On the one hand, a commitment to paying great attention to, and integrating within mainstream systems, the online delivery of non-academic support services to students, and of general administration functions to staff; on the other hand, recognition of the importance of systematically developing institutional policies covering the complete range of academic and

non-academic services being provided to students and staff. From the case studies, it would appear that AU is the most advanced in this regard, though the importance of service in the RC context cannot be underrated. What differentiates AU, however, is its commitment to student and staff service standards, much as would one find in the private sector where customer satisfaction is so very important.

Except in the case of AU, another common condition of success is the institutional adoption of a single course development and delivery platform. NKI, UniSA, DU and ESC are firm believers in the need for a common platform with corresponding templates, both because this provides a model for faculty to adopt with relative ease, thereby facilitating the institutional commitment to training and support, and also because learners themselves are then only obliged to navigate a single platform. At UniSA, for example, the benefits attributed to the uniform platform are deemed more important than the restrictions that this places on the more innovative and computer-literate faculty, albeit that the institution recognizes the need to provide technologically advanced academics with more flexible platforms. In contrast, AU attributes much of its successful online conversion work to the institutional commitment to support different course development and delivery platforms: on the one hand, this has allowed the institution to maximize the creative energies of faculty who favored very different approaches; on the other hand, it has helped address an institutional objective of the online transition, namely, ensuring that students are skilled in the very tools that they will have to adopt in the ever changing, training-intensive, life-long learning workplace. Particularly in the case of students who opted to undertake a complete program with AU, there is no evidence to suggest that diverse approaches are presenting impediments to learners. As technology becomes more transparent and convergent, institutional decisions about single versus multiple platform issues are likely to diminish in importance.

What impact has the e-learning movement had on the traditional course development team? Unlike the other institutional case studies, UniSA reports that conversions have been fairly straightforward, though this is explained by the fact that this university has continued its traditional distance education approach of favoring a much more individual academic staff member-centered model of course development than have the others. Elsewhere (DU, AU, NKI, ESC), however, authors report not only that former course development roles (subject matter expert, instructional designer, editor, graphic designer, academic computing) are being deconstructed and reinvented, but that there is a blurring of boundaries between course development and course delivery systems (DU, AU). This results from the fact that the real pedagogical difference between predominantly print-based distance education and its current online manifestations resides not so much in the learning materials that students are provided with (though they are often enhanced with course relevant URLs), as with the increased opportunity for learning activities that can flow from online asynchronous and synchronous interaction both amongst students and between

the students and their tutor.

The blending of course team members' roles, and the overlap between course development and course delivery, give rise to new levels of complexity that impact the institution's ability to formalize effective academic quality control measures. AU and DU, for example, attach significant importance to this phenomenon and AU is concerned, primarily for quality assurance reasons, with the gradual (yet perhaps inevitable) slide from centralized to decentralized models of course development and delivery. While recognizing that theirs is a reactive rather than a preventative model of quality assurance, UniSA, on the other hand, has opted to enshrine its academic staff-centric model and to continue to hold each individual faculty member and their academic division responsible for the academic quality of the learning experience.

When it comes to quality, however, students are increasingly concerned with their total experience and seem to assign as much importance to non-academic support services as to academic support (AU). Since online approaches were often promoted by institutions as a means of increasing flexibility, learners are holding their institutions accountable for this. All institutions in the study also reported that the e-learning environment gives rise to increased service expectations by students, to the point where AU has found that student satisfaction is less linked to online learning opportunities than to overall flexibility and student service levels, both online and otherwise. Nowhere is this more evident than at RC where the core business is not the delivery of courses but rather the provision of non-course delivery specific academic support services. The critical importance of these services at RC, moreover, gave rise to significant outsourcing of key support functions (e.g., DistanceLearn, its electronic database of distance education courses, the Regents College Virtual Library, and Alumni Services website).

When it comes to the administrative challenges that all the institutions in question have had to face, there can be little doubt that the financing of online conversion and of continuing delivery looms large, and this for two reasons. First, and for the most part outside the control of the institutions, because generalized reductions in the public funding of institutions and diminishing access to private and charitable donations have forced educational organizations to become more self-reliant. This comes at a time when most of these institutions feel obliged to offer their courses and services both online and through more traditional distance education platforms. The second, and much more important reason, because online approaches are proving to be more, rather than less, expensive to operate. With the understandable exception of IGNOU, none of the institutions report the ability to lower delivery costs and to generate any savings that will help offset the higher development costs that they, for the most part, incur. Insofar as support services are concerned, RC for example reports having had to assign substantial financial increases in order to support the online functions that it has not outsourced.

General increases in the cost of online development and delivery are all the more noteworthy when one recognizes not only that the institutions are often also passing on to the learner communication and printing costs that the institution itself would have incurred in the past, but also that these institutions make use of lower end technology in order to reach students in their own homes, technology that supports much less expensive-to-develop courseware than the multimedia applications dependent on high bandwidth.

High learner expectations for increased access to academic staff (tutors, mentors, etc.) appears to rest at the heart of the delivery costing issue and of its reduced scalability when compared to print and telephone supported distance education (NKI, UniSA, AU, ESC), though some authors wonder about the pedagogical merits of some of the interaction (AU) and ways of balancing the learner's desire for flexibility and the need for collaborative learning in a social group (NKI). IGNOU's cost effectiveness, based on a model that does not support monitored online interactivity involving academics, supports this concern with the economic scalability of the proactive online tutorial model. Part of the answer no doubt lies in the development of online learning activities (either student-to-student, or with automatic feedback) that require little intervention by academics (ESC).

While emphasizing the need for continuous research into the pedagogy of e-learning, the case studies collectively shed light on the impact that the move towards online learning is having on the student's learning experience, both at a distance and in the classroom. Given that there may not yet be any financial incentive to warrant converting distance education programs to an online format, demonstrable indications of enhanced pedagogy and improved learning outcomes take on an added importance.

AU reports that while the important factors for online learning are much the same as for any teaching and learning system, the proper exploitation of information and communications online technology can result in improvements, not only over asynchronous print-based distance education models, but also over synchronous face-to-face and video-conferenced modes: in a comparative study involving its online MBA program and that of another well recognized university, students at AU reported engaging in more substantial interaction of an academic explanatory and cognitive nature than did their counterparts in the classroom and in the video-conferenced modes. Other institutions also identify: results of evaluations that are encouraging (DU); marginal improvements with online students more likely to complete their courses on time (ESC); the ability to provide better learning opportunities with the same, though not necessarily fewer, financial resources (UniSA); the design of academic content that is significantly better (IGNOU); and that the move to e-learning has resulted in a rethinking of the learning process itself, with positive implications not only for online distance learning, but also for its traditional face-to-face counterpart (DU).

Finally, it is clear from the ensuing case studies that one cannot understate the role that research and experimentation have yet to play in assuring the successful educational and financial implementation of online programs, particularly in not-for-profit public and private institutions and in disciplines where user-pay models are unrealistic. Nor is there any doubt that e-learning is here to stay, and that the challenges faced to date by distance learning organizations will pale in comparison to those that they will have to rise to in the very near future as sophisticated learners place ever increasing demands for higher end multimedia learning tools and a total quality learning experience. The case material presented in this issue of the *International Review of Research in Open and Distance Learning* not only reflects on recent past practices but, more importantly, sheds light on the key factors that institutions will have to address in the yet incomplete search for a scalable, pedagogically-driven e-learning model that anticipates different learning styles by increasingly demanding learners.

## Endnotes

1. Developed by IRRODL Editor, Dr. Peter Cookson, whose assistance in this special issue was instrumental as was that of IRRODL's Managing Editor, Ms. Jan Thiessen.

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# The NKI Internet College: A Review Of 15 Years Delivery Of 10,000 Online Courses

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**Abstract**

This article presents NKI's experiences with online education from the time the idea was conceived in 1985 to the point when the total number of course enrolments exceeded 10,000 in June 2000. The 15 year period covers three generations. The first generation (1985-1994) was characterised by system development and experimentation with emerging technology. The second generation (1994-96) was a period of transition from the EKKO computer conferencing system, which NKI developed for online education, to Internet systems with text-based user interfaces. The third generation, 1996 to the present, began with the introduction of graphic user interfaces and the World Wide Web (WWW) and is characterised by a vigorous expansion and the introduction of large-scale online education.

## Introduction

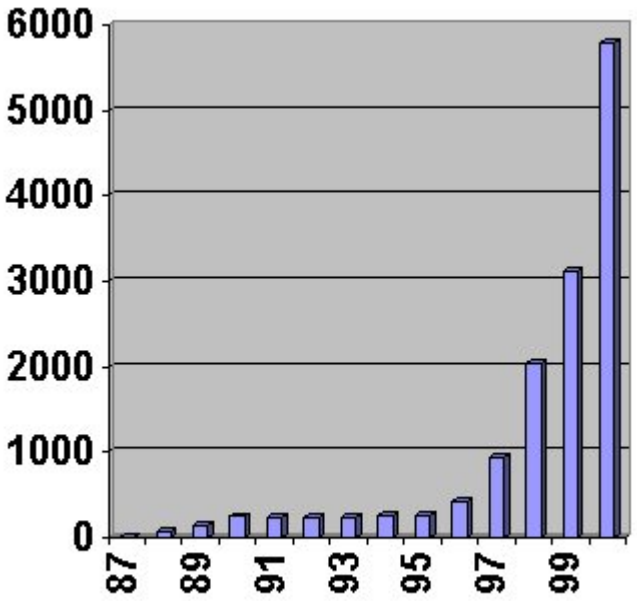
NKI is one of the largest nongovernmental educational institutions in Scandinavia. The NKI Group is organised as a non-profit foundation comprising NKI Distance Education, The Polytechnic College (DPH), The Business Training Centre (NA) and NKI Publishing House. It has approximately 350 full-time and 700 part-time employees. The group's head office is situated in Oslo, and there are district offices in 15 other towns. Altogether the NKI Group has each year a total of around 6,000 full-time and 25,000 part-time students.

NKI Distance Education offers both traditional distance education programs and online programs via the Internet College. Altogether, this constitutes approximately 100 programmes and more than 400 courses at secondary and undergraduate levels, as well as specialised courses for competence development in business and industry. NKI Distance Education employs some 65 full-time and 400 part-time employees. Each year it has around 15,000 active students (about 20% of them are now online students) out of a population of 4 million Norwegians. It is recognised by the Ministry of Education and receives government grants covering about 15% of operating costs. During the last 15 years

NKI Distance Education has developed from a correspondence school to an institution applying the Internet for delivery of a large number of courses. Still, in the year 2000, traditional distance education courses constitute about 75% of the revenue and online courses constitute the remaining 25%.

NKI was probably the first European online college, and it has offered distance education online since 1987. Few, if any, online colleges in the world have been longer in continuous operation. NKI has experienced three generations of online education since it started. The first generation system, 1985-1994, was based upon the EKKO computer conferencing system developed at NKI. The second generation, 1994-1996, was Internet-based and the third generation, 1996 to the present, is characterised by Web commitment. The expansion in online enrolments from 1987 to 2000 is shown in Figure 1. In June 2000, the accumulated number of course enrolment exceeded 10,000. In the autumn of 2000, the NKI Internet College had about 75 tutors and 2,500 active students in 15 countries. At the end of year 2000, the NKI Internet College offers more than 30 complete programs and 200 different Norwegian courses online.

**Figure 1: Number of course enrolments in online courses from 1987 – 2000**



## NKI Structure, Culture and Processes

Although NKI Distance Education is one unit in a larger educational institution, it has a large degree of independence and may be viewed as a single mode distance teaching institution. The core competence of the institution is *development and delivery of cost-effective distance teaching programmes*. The institution has six departments: Academic Staff (including Research and Development), Learning Material Development, Student Counselling and Teaching Administration, Sales Department, Marketing Department, Administrative and Clerical Staff.

**Table 1**

***The NKI Distance Education Departments***

| Departments | Number of Employees | Budget 2000 |
|---|---|---|
| Academic Staff/Research and Development | 13 | 9% |
| Learning Material Development | 11.5 | 14% |
| Student Counselling and Teaching Administration | 11 | 33% |
| Sales Department | 11 | 10% |
| Marketing Department | 3.5 | 20% |
| Administrative and Clerical Staff | 14 | 14% |

New courses and programmes are developed by project teams, normally chaired by a representative from the Academic Staff, and including personnel from other departments and external specialists as course authors and consultants. There is a permanent external staff of some 350 part-time tutors coming from other educational institutions, research organisations, and business and industry. Before they start teaching, NKI requires them to complete a "course for tutors" that since 2000 has been offered only online.

### Courses and programmes

NKI Distance Education offers courses and programmes at secondary and tertiary level. Most programmes are equivalent to 1 semester, 1 year, or 2 years of full-time studies. They cover a wide range of subject areas. Some are specially developed courses preparing for careers in business and industry with no parallel in the public school system. Other programmes and courses prepare for state examinations. Courses at tertiary level are either specifically accredited by the University Council or offered in co-operation with The Polytechnic College, a public college or university.

## Media, methods and learning material

NKI was mainly a correspondence institution till the beginning of the 80s, when videotapes, audiotapes, fax, radio and TV programmes, computer software and laboratory kits, and in some cases, audiographics, satellite and local cable television were introduced – in many cases only as part of experimental and research projects (Rekkedal, 1993). The basic strategy underlying all experiments has been student flexibility, including the possibility of starting at any time and studying with individual progression. This has meant that media suitable for flexible and individual studies have been preferred before media requiring students to meet at fixed times and places. Quite early, the NKI research group understood that computer mediated communication would become an important technology in the future (Paulsen, 1987; Paulsen & Rekkedal, 1988). This is the reason for NKI's continuous research, evaluation and development of online courses and programmes since 1987.

## Non-profit foundation with idealistic aims

The NKI Group is legally a non-profit foundation. Financial surplus is kept within the organisation for future developments. Thus, NKI Distance Education is also a non-profit organisation aiming to support Norway's educational policy as a reputable complement to the public education system. The overall business idea is "to cover needs for competence development by offering courses and programmes for adult learning specifically adapted to the participants' previous knowledge and skills, place of residence and socio-economic conditions." (NKI, 1999, p. 3). As a nongovernmental institution, NKI is largely dependent on student fees for its operation, but it also receives some state support. The amount of state money received is based on overall study activity during the preceding four years measured by students' completion of courses. State financial support covers only 15% of the operational costs. As a fee-charging institution, NKI has been devoted to beliefs and values of the service industry, considering students as customers who have all rights to demand high quality services. State accreditation has also required the institution to develop and update a formal system for quality assurance (Ljosà & Rekkedal, 1993; NADE, 1996).

## Teaching, research and evaluation

NKI is primarily an effective and efficient distance teaching institution. Although research is not among its main activities, unlike most other nongovernmental distance teaching institutions in Norway, it has established a research department that has maintained a continuous research agenda for 30 years (Rekkedal, 1998). The main aims of the research activities are quality as-

surance, institutional development, competence building, public relations, and contact with national and international academic institutions. The research projects, in particular, on online education have received considerable national and international funding.

### Staff, experience and enthusiasm

The NKI staff is quite stable. Many employees, and specifically those possessing core competencies in the field of distance education, have worked with NKI for many years. They have learned most of their skills in a "correspondence school" tradition. Generally, the staff is enthusiastic. They know that the organisation's ability to act effectively is necessary for survival in a competitive market and that success is directly dependent on the knowledge, skills and actions of each individual in the organisation. One manifestation of this culture is probably much less resistance towards change than in most public institutions.

### Cost-effectiveness

The organisation is dependent on being continuously cost-effective. This means that during the conversion process from traditional distance teaching delivery to effective online delivery there is an absolute need to earn income from existing courses delivered traditionally and at the same time developing new courses and programmes for online delivery. To keep pace with the developing market is a main priority.

### Student administrative systems

The backbone of an efficient large scale distance teaching institution is the computer system for administering students. The student administrative system in NKI has for many years been developed to satisfy the needs of a large scale institution, including an OCR system for bar code registration of assignments, monitoring student progression, distributing new learning materials, and paying tutors. However, the computer system was not suited for serving the online students, as there were no connections between the Internet systems and the administrative systems.

## Societal Context and Environmental Factors

Norway is a highly developed welfare state based on an egalitarian society with a high standard of living. The population of 4.5 million live scattered in a rel-

atively large country. Still, most people live in towns and urban areas and the transport systems are well developed. Technology for computers and telecommunications is generally well developed. According to statistics from Norsk Gallup opinion research in June 2000 [www.gallup.no], Norway has the world's highest rate of access to the Internet from home (about 50%). Statistics show that a majority of distance students come from urban areas where a majority could study similar courses face-to-face. Distance study is preferred for practical and economical reasons (Madsen & Sannes, 1998). Norway has 4 universities and about 30, predominantly public, colleges. In contrast to most other countries, public schools, colleges, and universities do not charge tuition fees.

## Politics

It has been part of the social democratic political ideal that equal access to education is a human right, and that public education at all levels is free of charge. Although private schools are free to operate, they have generally never been encouraged politically or economically. The general public holds the view that education should be free. However, most political parties have been relatively supportive of private distance education. According to the authors' knowledge, the Norwegian 1948 Act was for about 25 years the only law in the world that specifically regulated distance education. Since 1975 the government has also supported distance education financially either through direct subsidy of student fees or support to the institutions to reduce fees.

## Economy

Norway is one of the richest countries in the world measured by average income, gross national output or surplus from foreign trade. Most people have the financial means to pay for private education, but little motivation to do so, as education is considered to be a free service. Distance education is financially supported by the state. This scheme of state funding has resulted in lower tuition fees for the students. However, since 1975 state support to distance education students has continuously decreased from nearly 100% to approximately 15% in 2000. In addition, distance students may apply for state grants and loans on similar conditions as ordinary students in public and private schools and colleges. Recently, public institutions have been given greater freedom to charge fees for further and continuing education, resulting in more "fair" competition and subsequent over time change in attitudes concerning tuition fees.

### Competition

Today, there are approximately 15 independent distance teaching institutions accredited by the Ministry of Education. The two largest, NKI and NKS, offer nearly 80% of the yearly course enrolments reported by the 15 accredited institutions. However, according to statistics from the Ministry of Education, the number of course enrolments at independent institutions have decreased from a peak of 200,000 in 1976 (Karow, 1977) to less than 100,000 in 1998 (Statistics Norway, 1998; 1999). This decrease in enrolments probably reflects the decline in financial support from the state. As the existing institutions naturally make great efforts to maintain or increase their yearly number of enrolments, the decreasing demand has increased the level of competition. The institutions have broadened their range of subjects offered. Thus, to a larger extent than before the institutions are competing to attract students within the same subject areas.

During the past 50 years the government has taken a number of initiatives to establish public distance education. But these have not succeeded and until recently there has been little competition from public institutions. However, following some governmental reports and white papers during the late 1980s, the government established the Norwegian Agency for Flexible Learning in Higher Education (SOFF) in 1990. SOFF's main objectives have been to stimulate developments and experiments on distance education at the tertiary level, coordinate activities, give some financial support, evaluate activities and recommend future developments. The governmental stimulation through SOFF has led to most universities and colleges becoming interested in distance education, trying out distance education and establishing separate positions and/or departments for distance education. Thus, the level of competition also from public institutions has increased significantly during the last years. Similar initiatives have been taken at secondary level, where public schools have been stimulated and been given more freedom to offer courses on a commercial basis.

## Institutional Environmental Demands

NKI has four income earning units. The units have internal co-operation but, to optimise effectiveness and cost-efficiency, are supposed to act independently. They are generally dependent on the central management for IT support, personnel management as well as budgeting and accounting services. Although top management initiates strategic planning, the director of Distance Education has the full responsibility for conducting the strategic planning process. Until 1997 online teaching was included in the strategic planning process as one among many technologies. In 1997, the increasing online activity and the institutional attention to online education reached a level that sparked a separate strategic planning process which resulted in a distinct online education strategy (NKI, 1997).

NKI Distance Education is supposed, both by legislation, governmental requirements and by NKI management, to maintain a quality assurance system with which to control and assess its quality. Student evaluation in different forms is often carried out to gain information about the quality of learning materials, teaching processes and administrative systems.

NKI Distance Education is required to generate a surplus every year for financing central and administrative functions. Investments for future development, such as transforming the organisation from a traditional distance teaching institution to online delivery, have to be financed through the ordinary operational budgets.

NKI Distance Education co-operates closely with the NKI Polytechnic College. Courses and programmes from the Polytechnic College are offered as distance studies through NKI Distance Education. As the Polytechnic College specialises in information technology programmes, its academics and students have been important resources in the development of online teaching. The initiative of the first experiments and the development of the first EKKO computer conferencing system came from the Polytechnic College.

NKI Distance Education is also collaborating with public universities and with some external colleges, secondary schools, and study organisations. One example is undergraduate studies in "Psychology" where NKI organises and operates the online education, but students enrol at the University of Oslo and take the university exams. A similar example is "IT for Teachers" where students take the exams at the Bodø College. NKI also co-operates with study organisations where local organisers arrange face-to-face classes for NKI distance students.

## Chronicle of Critical Events

### The First Generation: 1987-1994

The idea of online teaching, under the name "The NKI Electronic College", was conceived in 1985 and further developed by research on existing computer conferencing systems such as PortaCom, EIES, and CoSy, and on electronic colleges such as Connected Education and the Western Behavioral Sciences Institute (Paulsen, 1989). The basis of our ideas for establishing the "Electronic College" was largely taken from Hilz (1986). In an early paper we pointed out the following requirements for our virtual school:

1. It should emulate all the main tasks of a school: teaching, administrative and social.
2. It should be generally available in terms of geography, technology, economy

and student competence.

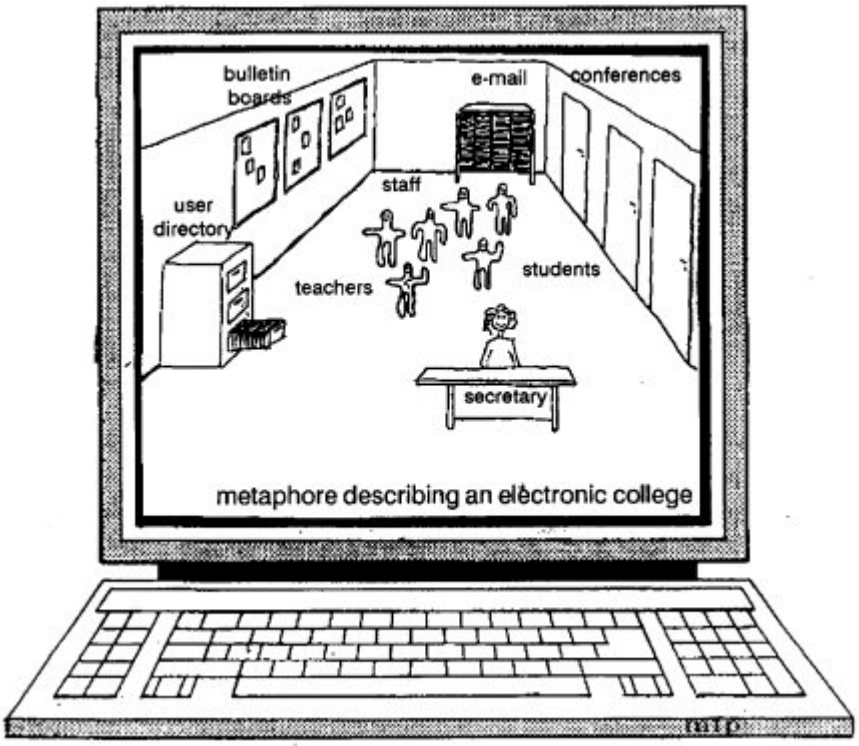
3. It should be independent of time, i.e., continuously available and accept asynchronous communication.

4. It should emulate the different needs of human communication, one-to-one, one-to-many, and many-to-many (Paulsen, 1989).

During the first two years, the project was propelled by a handful of enthusiasts who devoted much of their spare time to the project. The idea was to use computers to facilitate flexible interpersonal communication in distance education. Students, faculty, and staff could communicate independently of time and space through the college's central computer. They could exchange written messages both individually and in groups.

**Figure 2**

**The first generation system metaphor**




The Electronic College needed administrative and logistical support from NKI Distance Education, and academic and technical support from the Polytechnic College. At first, few believed in the project, making it hard to get the necessary

support and to integrate the project into the NKI organisation. Gradually, the Electronic College thrived with satisfied students, receiving internal, national, and international recognition.

The first version of EKKO, the computer conferencing software hosting the electronic college, was designed and implemented during 1986. The system was used for the first time, as an optional supplement to on-campus teaching, in the autumn semester of 1986. The first attempt to deliver a distance education course via EKKO was made during the autumn semester of 1987. Two additional courses were introduced the following semester. Since the spring of 1990, the college has offered all ten courses within in the Information Processing Programme every semester. These ten courses constitute the equivalent of a 1 year full-time programme.

During its most intensive period EKKO served more that 3,000 users, including on-campus students, prospective students, active distance students, former students, tutors and administrative staff. The system included an e-mail system, closed and open conferences for administrative, teaching and social purposes, and bulletin boards. During the first generation period the Electronic College delivered more than 1,000 courses with an average completion rate of above 80%.

## The Second Generation: Converting to the Internet in 1994

NKI considered the first generation of the electronic college to be quite a success as a distance education system. However, we continuously followed other developments in teaching/learning methods and software on the market and examined different products, such as CoSy, PortaCom, FirstClass, and the Internet with the aim of developing an improved "second generation" system. When we had to introduce new solutions because of retirement of the old host computer, we decided to use Internet, e-mail, and the Listserv conferencing system. Since few students had Internet access, NKI also offered modem services to students.

The Internet platform represented in several ways a setback. The interface was still text-based and far from user-friendly. Norwegian characters and e-mail attachments were not supported. On the other hand we got access to many more potential students and online resources.

All the courses and programmes developed after the introduction of the second-generation system were un-paced and without limits on times for enrolment. This solution was chosen as a result of general experiences and student evaluation surveys. "It is a major challenge to develop methods and organisations in distance education based on computer conferencing systems which take care of the students' need for autonomy and flexibility" (Rekkedal, 1990, p. 92).

## The Third Generation: Moving to the Web in 1996

The third generation was introduced with graphic user interfaces and the first Web-based courses in 1996. The Web service could be regarded as a two-level system. The top level, the NKI Internet College homepage [http://www.nettskolen.com] depicted in Figure 3, provides general information about the college such as course descriptions, prices, contract form, contact information, support information, and an article library on online and distance education. The graphical and user-friendly Web interface introduced opportunities such as hyperlinking and multimedia presentations. However, there were also new challenges such as access control and copyright issues.

**Figure 3**

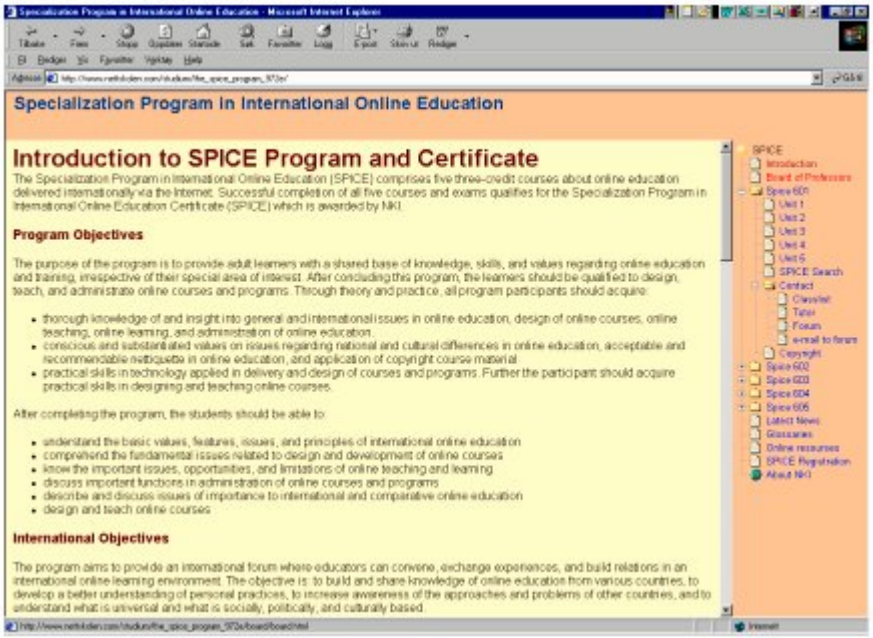
**NKI Internet College homepage**


The second level, the program homepages, is password protected and can only

be accessed by NKI employees and fee paying students. Figure 4 depicts an example of a program homepage. The course homepages are designed with a set of templates to secure some course conformity. A typical course homepage provides links to each of the study guide units, to the tutor's e-mail address, to the class discussion forum, to external Internet services and resources, to a course evaluation form, and possibly to multiple choice assignments. The study units are also often designed so that the students can benefit from printing out the material.

**Figure 4**

**Example of a program homepage**




There is no doubt that the decision taken in 1996 to base the Internet College on standard Internet servers and client software used by the ordinary Internet user was a sound one. Today the Internet College offers approximately 200 different courses in over 30 complete study programmes secondary and tertiary level. Online course enrolments have nearly doubled every year since 1996 and are budgeted to pass 5,000 in 2000. Still, however, only around 20% of the NKI distance students choose online courses. Most of the students live in Norway, but students are now logging into the college from 15 to 20 different countries. The Internet College puts great emphasis on facilitating learning according to the students' needs, which could be described in the following way. A student may enrol at any time in any of the programmes and courses or personal choice of courses and follow his or her own progression schedule. The College is open

24 hours a day, 365 days a year. The students may choose to study individually or take part in academic discussions or leisure and social communication with fellow students, teachers and alumni. In some courses group activities are obligatory. Concerning the conferences, we have chosen a combination of "push" (contributions sent as e-mail to all members of a conference) and "pull" (contributions archived and accessible to all members) technology.

## Intended and Unintended Consequences and Implications

The process of converting the organisation to online course and programme delivery has had a number of consequences. Whether these have been intended or unintended is largely a question of time, as unintended consequences at one time may be intended or actually, if negative, by counteractions be reduced or removed at a later stage.

### Costs of online delivery

While NKI believes that online delivery of distance learning programmes, when handled competently, using pedagogically sound practices, should imply a more satisfactory study experience and better learning than correspondence-based individual distance learning, until now NKI has charged the same fees for both modalities. At the same time, online students appear to have higher expectations of service quality, and quantity and quality of communication with their tutors. While earlier distance learning systems had high front-end costs, which could be compensated by lower delivery costs in large scale systems, it seems that high quality online learning might have both high front-end costs and high delivery costs. Thus, it is a challenge to find ways of reducing either development costs or tutor costs. We have not yet found a solution to this problem. During the first generations of online delivery we had the working hypothesis that less emphasis could be put on the pre-production phase of courses. In our experience, this is not a correct assumption if we want the students to be satisfied.

### Parallel versions

To stay in business, we have had to offer courses in two parallel versions. This has made course development more labour intensive and expensive. Further, as many of the courses are also offered in a "combined education" model, we may also have distance students in local face-to-face classes who have access to the Internet and students who have not. This situation has been difficult

to organise both administratively and pedagogically. Thus, online delivery to combined education students has been a problem, and it has been difficult to satisfy the needs of both student groups.

## Tutor recruitment, tutor workload and tutor satisfaction

Online delivery means recruiting new tutors. Some of the "old" tutors for text-based delivery have not been interested in online tutoring. On the other hand, delivery online has attracted new groups to distance tutoring. Some online tutors find this way of teaching especially exciting and rewarding. To prepare new tutors, NKI has for many years offered an obligatory training course. Beginning in 2000 this course is offered only online. Thus, tutor training is a necessary element in the process of converting to online delivery. NKI has at any time some 50 prospective tutors in the tutor training course. Because tutor workload is generally perceived to be heavy in online education (see e.g., Paulsen, 1998), it has been difficult in some subjects to recruit competent tutors and to develop pedagogic solutions and administrative software to rationalise and ease the workload for online tutors.

## Research, external funding, marketing effects and academic contacts

As NKI has been an entrepreneurial institution in online delivery of distance learning programmes, it has been a necessity to engage in field research. By attracting external funding from national and international bodies, the research activities made it easier to recruit competent personnel, led to co-operative engagements with national academic and research institutions, and made us an attractive partner in a number of national and EU projects (e.g., specifically concerning survey, analysis and evaluation of online learning visits). See [http://www.nettskolen.com/alle/in_english/cisaer/index.html]. It has also given publicity through published articles, research reports, conference papers and media coverage.

## Institutional Implications

This case study describes the long process of converting a distance teaching institution with a long tradition from delivery of correspondence education with some multimedia components into an institution adapted to online delivery based on the rapid development of the Internet, WWW and other computer and telecommunication technologies. There is no doubt that there has been a transformation of the institution's systems, practices, and competence and skills of employees, thus affecting the entire organisation. In undergoing these changes, support of

the top management has been essential. Adaptation to new technologies has had to occur while the organisation and personnel under change have had to maintain their old and new modes of delivery.

## Conclusions: 12 Reasons for the NKI Success and some challenges for the future

It is not possible to isolate a few important causes for the relative success of the NKI Internet College. It is probably more correct to claim that NKI has made many sensible choices and few major mistakes. However, the twelve causes listed below have all contributed to the success:

1. NKI is an institution with high competence in both distance education and information technology. Both competencies have been pivotal for the development of online education.
2. Some NKI enthusiasts have always believed in online education and over many years made invaluable contributions to the Internet College.
3. NKI has been careful to only adopt standard and widely used technology. This practice enables students to apply the software and hardware they have at their disposal with little need to buy additional equipment.
4. Students' flexibility of time has always been a focal point for NKI. It has been committed to asynchronous communication and deliberately avoided synchronous communication technologies. Communication should take place when it suits the student, not the tutor.
5. After some years experience with paced courses starting twice a year, NKI made a strategic choice to focus on individual start-up and progression. The choice was based on student surveys, much internal discussion, and pilot courses that showed increasing enrollment. Hence, NKI students may start a course whenever they want and follow their individual pace of progression.
6. Development and operation of NKI courses is paid by tuition fees, so NKI has to provide cost-effective courses. The focus is on much learning for the money.
7. The department of research and development has continuously conducted research and evaluation of online education, and has accumulated knowledge and competence in online education. In addition, the department has conducted or participated in a number of R&D projects financed externally by Norwegian and European governmental sources.

8. NKI is flexible with little rigidity compared to public colleges. It has a number of times shown that it is capable of rapid adjustment. The employees have shown an ability to detect new trends and adapt to the changing market.

9. NKI covers a wide range of subjects and levels. It is not dependent on having in-house competence in all subject areas; it has a long tradition of collaboration with other educational institutions and engaging faculty from other institutions to participate in the development and teaching of courses.

10. NKI has over many years developed high credibility with the government and public administration. It has been committed to achieve approval for public credits, certificates, and student loans.

11. NKI has chosen not to separate the Internet College from the department of distance education. It has deliberately chosen to gradually enhance the online education competence for all employees in the distance education department.

12. NKI has continuously focused on evolutionary development of the Internet College and the administrative systems that support it. Consequently, NKI has had more effective administrative systems than the competitors and at the same time people with high competence on these systems.

The fact that we consider we have had reasonable success in transforming the organisation from a traditional distance teaching institution to an institution adapted to deliver Internet-based distance education, does not mean that we do not face a number of further challenges. Many issues still remain unresolved or are only partially resolved. Probably the most important challenge is to develop methods and teaching strategies to fully exploit the possibilities of the Internet, related to varying learning needs and styles of different students. We have much to learn about how to design instructional programmes. Student learning activities based on this new medium must be designed to achieve optimal outcomes for different kinds of learners in different subjects with different aims and objectives. Satisfying both the individual student's need for flexibility and needs for collaborative learning in a social group is also a great challenge. We also have to search for better solutions concerning tutors' functions and efficient management of their time as tutor costs can easily become higher than allowed by the fees charged. Students expect learning material on the Internet to include multimedia elements. There is a need to find ways of developing multimedia material that is both learning-efficient and cost-effective. We need to refine the administrative system for online education and achieve complete integration with the general student administrative system of NKI.

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# Online Delivery Of Programmes: A Case Study Of IGNOU

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**Abstract**

Online education is the most exciting segment in the Indian IT space. A host of e-education sites continue to enter the market with focused offerings, linking up students and teachers, almost on a daily basis. This is happening because the new medium seeks to supplement – not replace – traditional teaching-learning methodologies. Keeping in view the global and in country/domestic market changes, India has to play a vital role in terms of software exports, skilled manpower support, and online education. With India currently in the midst of a "dotcom" wave, Indira Ghandi National Open University (IGNOU) has taken the initiative in launching online in January 2000 two of its educational computer programmes. In July 2000 it launched twenty capsule courses (each comprising three courses) in different specialization areas of management [http://www.ignou.com/index.htm]. Each of these capsules addresses one specific functional or specialization area, one basic course pertaining to that specialization and a project course. The Bachelor of Information Technology and Advanced Diploma in Information Technology programmes are offered through a Virtual Campus Initiative (VCI). Management Programme capsule courses are offered through Project MEIDS (Management Education through Interactive Delivery Systems).

## Organisation of the Case Study

This paper describes various issues and concerns experienced in the launching of online delivery at Indira Ghandi National Open University (IGNOU). First, distinguishing features of IGNOU are explained, in terms of significance, establishment, instructional system, academic programmes and modes of programme delivery. Various parameters that led to the initiation of online delivery of programmes in addition to the traditional print-based (offline) distance education programmes are given next, followed by the sequence of events in the emergence of the current format of delivery. This online programme delivery initiative has special consequences for IGNOU, learners and the delivery mechanism; these are explained next. This case study concludes with a discussion of the implications of such initiatives for IGNOU, and for the distance education system in the country as a whole (as IGNOU is the resource centre and apex body of distance education in India for nine other State Open Universities).

## Introduction

The establishment of IGNOU on September 25, 1985 by an Act of Parliament heralded the arrival of an important innovation in India. It provided a gateway to all those desirous of improving their qualifications and sharpening their academic skills, through the open and distance education system. In a relatively short period of 15 years since its inception, IGNOU has positioned itself among the top educational institutions in the country and in 1993 received the Centre of Excellence in Distance Education Award conferred by the Commonwealth of Learning.

IGNOU has now close to 600,000 students with varied profiles on its rolls, spread throughout the length and breadth of the country, and serves these students via a network of 44 regional and 630 study centres all over India. Taking a cue from IGNOU, some states have also established their own open universities. Currently there are nine state open universities and one National Open School along with full-fledged state open schools in Haryana, Andhra Pradesh, Kerala and Madhya Pradesh as well as separate departments within the State Board of Secondary Education in West Bengal and Rajasthan.

## Institutional Culture and Structure

IGNOU is the first institution in India to offer programmes designed to meet the identified needs and interests of a wide variety of learners throughout India. No formal qualifications are required to study most courses. Almost anyone can be admitted into a programme, irrespective of previous education. In the event they are needed, preparatory courses are offered. Since students are drawn from the widest spectrum of backgrounds, age groups, geographical distribution and other socio-economic traits, learners can start and take as long as they wish to complete courses. Most programmes are structured on a modular pattern with provision for multiple entry and exit points as well as mobility across and within programmes. To ensure low costs, the Government of India subsidizes most of IGNOU's study programmes.

To decrease learner isolation and to provide academic, administrative and informative support to learners, Student Support Services operates two types of support centres – regional centres and study centres. The latter play an important role, delivering self-learning course material and supplementary learning aids (audio, video, teleconference, interactive radio counselling, etc.) and providing opportunities for learners to enhance their learning through contact programmes.

To provide support services to learners in areas not having institution-based support facilities, individuals who have post-graduate degrees and who are per-

manent residents in given areas may serve as *distance learning facilitators*. They include retired teachers/officers, professionals, housewives, or even motivated unemployed individuals. Similarly, with the objective of extending the outreach of education on a single window basis (making all facilities available at one place), IGNOU in collaboration with the Indian Army, Indian Air Force and Indian Navy, has launched an educational project to cater to defense personnel in different parts of the country. For this purpose, Recognised Regional Centres have been established at the five Army Commands, seven Air Force Commands, and four Navy Commands.

Communication technologies play a pivotal role in IGNOU's instructional system. Multimedia packages prepared for learners incorporate a range of technologies: print, audiotapes (average two to four per course), videotapes (average one to two per course), interactive radio counselling, one-way video/two-way audio teleconferencing, television lessons, CD-ROMs, and Web-based content delivery, and so forth. On average, these form nearly 20% of a course. The Electronic Media Production Centre of the university, set up with a grant from Japan Government, prepares audio and video cassettes. Radio programmes are broadcast in the form of Interactive Radio Counselling (IRC) through All India Radio (AIR), a national government agency that serves 97% of the people in India through a network of 198 broadcasting centres [http://air.kode.net/about.html]. Besides IRC, video teleconferencing is available to learners at the study centres through the Indian Space Research Organisation's (ISRO) Training and Development Communication Channel.

To take advantage of the common resource pool and to avoid duplication of effort, some state open universities use course materials produced by IGNOU (Sharma, 1999). Academic telecounselling of nearly all IGNOU programmes is shared by some state open universities (Sharma).

The Ministry of Human Resources Development provides maintenance and development funding to IGNOU. Development funding is provided in two parts – for IGNOU's infrastructure developments and programmes, and for development of State Open Universities. IGNOU has also received support from such international agencies as Overseas Development Agency of UK, the Commonwealth of Learning, and the Japanese International Cooperation Agency.

With respect to its maintenance funding, IGNOU is unique in that: (a) Compared to any traditional university in the country, income earned in the form of student fees, sale of admission prospectus and other publications, and so forth is substantial; and (b) as a proportion to the total annual revenue expenditure (operating costs), maintenance grants from Government subsidies are progressively declining. Since its inception, there has been a steady increase in the number, range, variety, and diversity of the programmes launched by IGNOU. The university has grown from 2 programmes and 4,528 students in 1987 to more than 60 programmes, 600 courses and 200,000 students in 2000. With this expansion in programmes and enrolment, the income-generating capacity of the

university has increased considerably.

## Launching Online Delivery: Issues, Efforts and Events

IGNOU offers popular and successful print-based programmes, namely Master of Business Administration, Master of Computer Applications, Bachelor of Computer Applications, and Certificate in Computing, enrolling more than 100,000 students. Different extra-institutional factors and institutional environmental demands (e.g., spread of Internet to many cities of India, new technological developments, etc.) have led IGNOU to experiment with transforming the university into a global virtual university whereby it may make learning opportunities available through the click of a mouse to anyone, anywhere, anytime. In 1998, the university authorities decided to provide services to learners in the new technological format at their own desk. This approach was thought of as a way to remove at least three types of tyrannies – spatial, temporal, and fixed curriculum. It was realized that through the Internet, course content would be equally available to learners, irrespective of their geographical locations. Similarly learners would not be forced to learn at fixed hours of the day.

To realize the dream of removing the spatial, temporal and fixed curriculum tyrannies, the university collaborated with the Edexcel Foundation (a UK registered charity), to provide education and training. Two Web-centric programmes were launched, namely the Bachelor of Information Technology (BIT) and Advanced Diploma in Information Technology (ADIT) under a new project called Virtual Campus Initiative (VCI), whereas the School of Management Studies offered MBA degree programmes, post graduate diploma and capsule courses with online support through a project called Management Education through Interactive Delivery Systems (MEIDS). Both these projects are explained in the next section. Other grounds that led to the initiative of launching online delivery are geography, economics and competition, all described below.

### Geography

India is a vast country with many languages, cultures and so forth. There are difficult terrains ranging from the desert in Rajasthan, to the snow-capped mountains in the Himalayas, and the Southern Plateau. To serve its learners in all these regions, the Faculty of Computing Sciences and Management Studies recommended the online mode of delivery as a viable medium. At the same time, computer networking was being established both nationally (at the district level by the Government of India), and in the university (in 1997) at all the regional centres by linking them through e-mail and the Internet. The Vice-Chancellor

appointed a committee (headed by a Director) to look after the progress in this regard. The IGNOU headquarters were thus connected with its regional centres via the Internet. Once this basic infrastructure was created, in 1998 university management decided to deliver the programmes and services through the Internet. Examination results also began to be relayed by e-mail to the regional centres, thus further reducing the time factor. Thus the university was considered adequately equipped to adopt the new mode of online delivery.

## Economics

The mode of material distribution in IGNOU has been constantly changing. Establishment of regional warehouses and sending material by post involved huge costs. Both students and study centres complained of late receipt or non-receipt of material in some cases. The School of Computer Sciences and Management Studies saw offering courses via the Internet as a way to lower various costs involved in production and distribution of course materials. Study materials could be made available simultaneously for students to download from the WWW, thus reducing the time and cost of shipping materials to all places.

## Competition

New educational providers have recently entered the Indian educational scene. Examples include (a) training organizations in the private sector (e.g., information technology), (b) professional areas such as management, (c) development of on-the-job education and training establishments, and (d) various foreign institutions. To keep pace with the technology and changing educational scenario, the Faculty of Computing Sciences and Management Studies decided to provide student support services through the Internet.

## Diploma in Management

In this era of knowledge explosion, management education is an area that is prone to rapid obsolescence as far as the ways and techniques of managing are concerned. The management programmes (Diploma in Management) were launched in 1987 with an initial enrolment of 2,800 students; the mode of delivery was print-based. The first cohort of 800 students finished in 1989. In 1999 the numbers enrolled had increased to 18,000. Another programme, the MBA in Banking and Finance, was started in 1999.

In that same year it became apparent that as long as continuing education programmes in management were limited solely to print-based delivery, the School of Management would not be able to meet the demand, particularly from clien-

tele who lived in areas where convenient access to study or learning centres is nonexistent. As a result, Management Education through Interactive Delivery Systems (MEIDS) was launched in 1999. Specific capsule courses for continuing management education, that is self-instruction courses providing synchronous and asynchronous interaction with experts via the Internet, were designed and launched in various functional areas (e.g., Human Resources Development, Human Resources Planning, Management Control Systems, Management of Information Systems, Marketing, Operations Management) in connection with the award of Diplomas, Post-Graduate Diploma and MBA Degree. This endeavour was designed to parallel the existing and mainly print-based and fully off-line MBA programme. Rather than replace print-based management programmes, the MEIDS project was designed as an additional effort to make management programmes accessible to those who could gain professional education at their own place aided with technology. The main objective behind MEIDS was to cut across the distance (via the Internet) and to simplify administrative processes (e.g., admissions) by automation whereby a student logs on to the site, pays the requisite fee and gets registered immediately. While admission to offline management programmes is through an entrance examination, admission to the programmes under MEIDS is relatively relaxed and for capsule courses only, no entrance test is required.

The Faculty of Management Studies proposed the programme be delivered through specifically identified Partners in Advanced Learning System (PALS) institutes, which have the approval of All India Council of Technical Education (an autonomous organization in India that sets norms for management, professional, technical and vocational courses). Possessing complementary resources, these management institutes were regarded as ideal starting points for networking and were designated PALS on the basis of applications solicited through advertisements or face-to-face discussion. They provided facilities for admissions, organizing counselling sessions through teleconference, examinations, and acted as local resource centres for the School of Management. Because these continuing education programmes in the form of short-term capsules were to be offered nationwide, the school proposed to its partners (a) complete computer Internet connectivity, (b) a suitable mechanism for electronic library access and data transfer (this electronic library was to be built up of full text articles, experiences and developments in industrial management and updated regularly), (c) counselling support through teleconferencing, and (d) self-instructional materials.

Following advertisement of admissions in newspapers in 1999, the first cohort of 128 students began capsule courses in January 2000; the second cohort of 141 students began in July 2000. The programme uses a multimedia approach consisting of self-instructional printed course material and relevant audio/video. Students collect their material from the PALS. As a means of student support, some relevant course material, assignments and question papers from previous years are available on IGNOU's Internet site and may be downloaded by students

using an ID and password. Currently in offline delivery mode (non-MEIDS) there are two tutor-marked assignments and one computer-marked assignment for management programmes, out of which the best two are counted for the final grade. But under the MEIDS project, two computer-generated assignments are administered online and evaluated by the computer. A protected site is used for student registration, assignment generation, assignment submission, digital reference materials, and evaluation. Assignments are made available on the WWW and downloadable course materials are available in HTML and MS-Word formats. Students go to PALS to complete the assignments, consisting of multiple-choice questions. Results become available as soon as the student submits the completed assignment and grades are automatically transmitted to headquarters. Online entrance testing for admission to this programme is under consideration by the authorities.

Presently there are 17 PALS distributed nationally, equipped with Internet connectivity, teleconferencing systems, and faculty support. The distribution of students to these PALS is uneven; most of the students are from Delhi. The low number of students reflects marketing and the fact that project is still in initial stages. Despite the underwhelming enrolment in the MEIDS project to date, the mutually beneficial learning partnerships are expected to enable the university to manage the task of reaching a large and diverse population and thus to fulfil the continuing education needs of Indian managers.

## Computer Programmes

From 1990 (when the first programme, the Diploma in Computers in Office Management, was launched) until 1997, the School of Computer and Information Sciences delivered its programs in print format. When the Internet become available across many cities of India, however, the School of Computer Science realized the potential of the Internet and decided to make computer programmes available online for the Certificate in Computing, Bachelor's in Computer Applications, and Master's in Computer Applications. The course content, already in print form, was converted to HTML and uploaded to the Web site. Because at the time IGNOU study centres were not equipped with computer or Internet facilities, more than 100 institutes were designated Empanelled Internet Access Points (EIAPs) throughout the country. Although these EIAP institutes do not offer courses that are recognized, accredited or affiliated to IGNOU, they provide convenient Internet access and faculty support to learners. In places where the Internet is not available, students are provided printed material and CD-ROMs. This phase of online programme development evolved into an integrated mode in 1999 when students were provided study materials in electronic form and additional support was available at regular study centres.

## Virtual Campus Initiative: Efforts to go online

In 1999 the School of Computer and Information Sciences launched two prestigious programmes through the Virtual Campus Initiative (VCI) – the Bachelor of Information Technology (BIT) and Advanced Diploma in Information Technology (ADIT) – in collaboration with Edexcel and the Government of India Ministry of Information Technology, respectively. The deployment of VCI may be viewed as a response to recommendations of the National Taskforce on IT and Software Development [http://it-taskforce.nic.in/vsit-taskforce/bbr3/] to achieve excellence in distance education through the creation of virtual institutions in different parts of the country. In May 1998 the Prime Minister of India appointed a National Taskforce on Information Technology and Software Development to formulate a long term national IT policy for the country. See [http://www.nasscom.org/] and follow the link "IT Policies in India." This taskforce was set up with the objective to suggest measures for India to become an IT software superpower. In association with IT Human Resources Development companies, the taskforce recommended attainment of 100% IT literacy at senior secondary level (10+2) in 5 years and at secondary level in 10 years. The Taskforce also called upon all institutes offering engineering education, including polytechnics and industrial training institutes, to ascertain within 3 years the ability of all engineering students to serve in the IT enabled services sector as well as in IT industry directly.

The infrastructure provided by VCI (at the development end, learner end, and the network) was envisaged as a scalable model for higher end online IT training that meets international standards. Although access to the Internet is not yet easy or widespread, given the recommendations of the IT taskforce, the Internet appears to be poised for rapid expansion and integration within future workplaces. It is therefore expected that students with sufficient skills related to the Internet occupy advantageous positions in the job market. Education through the Internet will also provide learners current and vast information. The School of Computing Sciences has also discovered that international certification such as for Microsoft, IBM, Oracle, and so forth may also be accomplished through online examinations via the Internet.

## Initiation of new delivery format

These programmes (BIT, ADIT or MEIDS project) did not exist previously in non-online format rather, since inception, have followed an Internet-centric approach, with learning resources and counselling delivered through the Internet. The Virtual Campus Initiative incorporated the following learning resources and experiences, and thus efforts were undertaken to produce (a) live satellite-based teleconferencing lectures, (b) recorded video lectures, (c) practical laboratories, (d) computer-based training tutorials, (e) learning resources accessible through

Internet browsing, and (f) online interactive chat with peer group, faculty, and external experts.

To provide online services to the learners of BIT and ADIT, Tele-Learning Centres (TLC) were established in 1999 at institutes, organizations, and centres with computer facilities where students could perform practicals, submit assignments, write term-end examinations in supervised conditions, and participate in video-conferencing. The university decided that, to provide appropriate facilities to the learners, each TLC should have at least 50 Pentium computers as well as printers, scanners, digital cameras, colour televisions, data projectors, and microphones. In addition, TLCs were equipped to provide student access to library facilities with reference books, recorded video lectures, computer-based training and CD-ROM courseware, and access to the Internet.

In IGNOU there has been a great increase in student enrolment in computer programmes. Enrolments have grown from 484 students in 1990 to more than 100,000 students enrolled in 2000. In 1990, practicals were conducted at either Work Centres or Programme Study Centres and tens of thousands of rupees were being paid to such centres as compensation for computer hire charges. These work centres, owned by private persons, and programme study centres, situated either in colleges or private institutes, provided relevant hardware and software facilities for Certificate in Computing (CIC), Bachelor of Computer Applications (BCA) or Master in Computer Applications (MCA) students. This money was going out of the IGNOU system, which otherwise would have been spent for maintenance or updating of the university's own IT resources. Another disadvantage of such an arrangement was that because these non-IGNOU centres operate their own other programmes and accommodate their own students, scheduling theory and/or practical sessions to fit the convenience of IGNOU students was not a high priority. Consequently, to gain better control over scheduling, and utilization of machines, Regional Computer Laboratories (RCL) were established in 1999 at six regional centres in the first phase, with eight more established in August 2000. Student enrolments at these 14 RCLs are now high. They differ from TLCs and other study centres in the sense that RCLs are directly administered by regional centres, whereas TLCs are owned by private persons who may either work for IGNOU or share their facilities with IGNOU in addition to their own students. The RCLs are each provided with 30 computer systems, network connections to the Internet through leased lines and LAN, and software pertinent to the course curricula.

At each RCL a full-time consultant was appointed to look after BIT and ADIT and other computer programmes. Because the teaching mode at TLCs was student-centred, rather than teacher-centred, students contacted their counsellors through e-mail or chat mode.

Learning resources also included printed materials, daily activities for students and linkages to various other Web resources. The Faculty of Computer Sciences realized that supporting online education through the Internet requires more

effort than the traditional approach. In a study (IGNOU, 2000) it was found that students in the first cohort who had easy access to Tele-Learning Centres found it exciting to learn online as compared to the students who did not have access to Tele-Learning Centres and who reported difficulties in pursuing the programme. The main reason for this difference was that the programme had not been designed to provide support to students in the traditional (print or offline) mode of distance learning.

Extra efforts are required to develop content for the Web, uploading to servers, and keeping track of and responding to student queries and feedback. The design of academic content of courses for Internet delivery is significantly improved from the traditional distance education approach. Although learning objectives are mentioned at the beginning of each unit in offline IGNOU courses, in the BIT and ADIT online programmes, more emphasis is placed on the importance of outcomes. Assignments are designed so as to demonstrate that expected outcomes have actually been realized. Another feature calls for learners to be informed about skills to be learned, and for online delivery, they are provided quizzes, assignments, and projects to enable them to demonstrate attainment of these learning outcomes. This model of *outcome-based education* in IGNOU has been borrowed and adapted from the UK education system.

## Consequences of Launching Online Programme Delivery

The efforts of launching Internet-centric programmes have had both intended and unintended consequences in relation to IGNOU's institution-wide systems, course development management systems, and course delivery management systems. The aim of the Virtual Campus Initiative was to achieve democratisation of educational opportunities through nation-wide access to high quality learning resources and experiences. But this innovation has also had the unintended consequence of increasing the gap between learners residing in big and small cities, as the services of online education and the Internet are not yet available in small cities.

Because student contact with teachers is absent from the current model of Virtual Campus Initiative, students can neither see the instructor nor engage in interaction with the instructor. Pre-recorded video lectures of teachers are made available to the students at Tele-Learning Centres. However, students may interact and pose questions through e-mail or telephone to the faculty/academics at the university headquarters. As most of the learners are beginners without any computer background, they are given an online orientation via the Internet. Computer-based tutorials are made available at TLCs for basic computing programmes.

An intended consequence of this initiative has been to move IGNOU toward a paperless style of work environment. Increased use of Internet for accessing information and working remotely, online registration, database-driven content delivery, online tutorials, online reference library, online assignment submission and evaluation are additional intended consequences of the move to online programming.

The liberation of academics in the sense that they can offer the programme from anywhere with access to the Internet, without the shelter of an institutional umbrella is another unintended consequence. The need to develop suitable mechanisms for faculty compensation and protection of intellectual property rights are additional crucial issues for the university administration.

## Course material

Course materials in the traditional mode consist of printed self-instructional booklets whereas in online electronic courses, materials consist of CD-ROMs, or are provided on the Internet for downloading from IGNOU's site [www.ignou.org] in MS-Word and HTML formats. There are other differences. In a traditional IGNOU course, units form a part of a block, and a block equates to a certain number of credits. One block corresponds to one booklet and the term *unit* is used synonymously with the course. In traditional computer courses, terms such as *course code* (assigned to a particular course), *blocks* (collections of units), and *units* (individual chapters) are used. But in the case of online courses, the nomenclature is slightly different, e.g., the formal approach used with Higher National Diploma instructional design calls for course codes to be broken down into learning outcomes that in turn, are subdivided into sections or sessions. For evaluation of each learning outcome, there are specific assessment criteria based on the common skills used.

## Support services

While in traditional mode students are attached to a study centre of their choice, in the Internet mode students do not necessarily go to study centres. Instead, they may have computer/Internet access either from their home or office or through an IGNOU Empanelled Internet Access Point. Tele-Learning Centres and Regional Computer Laboratories provide access to additional student support.

## Counselling

While traditional mode students attend face-to-face counselling at study centres, online students have access to counselling via the Internet. (For IGNOU, *counselling*, as opposed to highly course content-oriented *tutoring* provided by a subject specialist, refers to student-centred and problem-solving interactions provided by a person who is able to relate to the personal and individual needs of the learner.) Logging on to the IGNOU site, students may receive counselling either synchronously (chat mode) or asynchronously (e-mail).

## Assignments

Students are assessed through continuous evaluation and term-end examinations. Assignments form the continuous evaluation part of assessment and carry 25% of the overall evaluation scheme. For each course there is one tutor marked assignment (evaluated by a counsellor) worth 10% and one project assignment worth 15%. All assignments are compulsory and differ from traditional mode assignments. Here students can submit their assignments electronically as attachments through e-mail to either the faculty or school e-mail addresses. The online modality makes it possible for students to download corrected assignments from IGNOU's Web site at the end of a course. The term-end evaluation is worth 75% of the overall evaluation.

## Practicals

Traditional mode students must participate in practicals conducted at study centres wherein the relevant hardware/software are made available to the student by the university. Internet mode students must make their own arrangements for practicals.

## Lead time

For traditional programmes, the lead time (time required for programme prelaunching, including developing course material, identifying learning centres, identifying and orientating counsellors, etc.) necessary for the start of the two programme sessions per year is more than 6 months. In Internet-based programmes, programmes are offered four times a year (trimester based) and lead time is only 3 to 4 weeks.

### Management Systems

With the deployment of new technology and delivery of learning resources and interactions, IGNOU has discovered that management structures must reflect an agenda which is target oriented, emphasises decentralisation, and readily adopts new technologies for competitive advantage. Under the new system, the control must be simple and complex – simple in the sense that the programme delivery and assessment may be manipulated from only one location, and complex in the sense that now operations may be internationalised.

## Implications of Online Programme Delivery

Online delivery of programmes through the Internet is fast emerging internationally as a mode through which knowledge can be disseminated around the clock to large numbers of learners, located at geographically distant places. Under the IGNOU-Edexcel collaboration, IGNOU offers courses that match the delivery and quality norms of the Business and Technology Education Council, thus ensuring international standards of quality. Curricula are devised and regularly upgraded to keep pace with the changes in technology, market conditions, and employers' demands. Because online support is available continually, learners are not dependent on access to on-site faculty. Learners have the choice of approaching any Tele-Learning Centre of their choice.

Online delivery has implications for IGNOU administration as well. Although http and mail servers already provide Internet and intranet services to administration and faculty at headquarters, the IGNOU Web site has up until now been maintained on a rented server. After we have our own Web server, administration of Internet services will be under direct control of IGNOU. As materials can be uploaded to the server as soon as they are ready, Web delivery reduces delays in making study materials available to students. Since all course material is put on the Web for downloading by students, printing and associated costs of storing and distributing printed materials will be reduced. For up to date Web-based resources to be accessible for learners at all times, it is anticipated that effective Web administration will become a major concern.

There are also notable implications for academics. Only the most qualified will be acceptable. Not only must they be adequately prepared to develop courses in the online environment, but they must also be ready to provide timely solutions to learners' queries through chat or e-mail. Regular upgrading and evaluation of course material are other vital tasks for academics. In fact, in the open university system, it is presumed that much of the time of the faculty is spent either developing new courses or revising old courses. The usual interval for revision of non-online courses is set at 5 years, but for computer courses where the technology (and the corresponding course content) changes quickly, suitable

mechanisms for more timely evaluation, review and revision of the academic programmes need to be put in place. When developing learning resources, academics must keep abreast of emerging international standards for online course content. Adherence to international quality norms and processes are strictly observed under the new mode of online delivery. To ensure students have the prerequisite skills, and that subsequent performance meets quality standards, appropriate mechanisms for monitoring the activities of the Tele-Learning Centres will have to be developed through the use of information technology.

## Prognosis for the Future

Ayyagary and Ramalingam (2000) reported that:

> If e-ducation is the future, only firms with a mixture of content, customisation, and geographical reach will be able to grab it....Surfers have to give up classroom interaction, which could take some getting used to. But online e-ducation is here to stay. (p. 60)

Having assessed the opportunities and challenges related to the possibility of offering courses over the Internet, IGNOU has decided to pursue global outreach. The university is now planning to offer online courses not only in computer programmes but also in other subjects. With its strong network of regional and study centres equipped with the latest technology, modern resources, and unmatched experience in distance learning, IGNOU finds itself in a key position to emerge as a global player in development and delivery of online education. Initially, in 1999, there were some difficulties related to launching of online programmes, particularly in the creation of Web-based content, video lectures for teleconferencing and provision of laboratories at Tele-Learning Centres, but such problems were temporary and solved by dispatching courseware CD-ROMs to students. Currently in IGNOU, approximately 10% of students are involved with online education as compared to other formats.

In creating a niche for itself in the huge market of offering online courseware, provision of online courses may be both an opportunity and a challenge for IGNOU as an institution. Internationally, various universities of USA, UK, and Europe already provide accredited and non-accredited courses online. It will be a challenge for IGNOU's Virtual Campus Initiative to stay ahead in the competitive market of providing short-term courses.

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# Athabasca University: Conversion From Traditional Distance Education To Online Courses, Programs And Services

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**Abstract**

In its 30 years of operation, Athabasca University has witnessed the full impact of the growth of online distance education. Its conversion from mixed media course production and telephone/mail tutoring to a variety of electronic information and communication technologies has been heterogeneous across disciplines and programs. Undergraduate programs in business, computing, and some social science programs have largely led the conversion, and all graduate programs have, since their inception, employed various features of online delivery. The parallel conversion of student services has been equally important to the effectiveness of these processes. The implications of this approach for the quality of offerings, support systems, costing, and the primary mandate of the University (which is to remove barriers, not create them) are discussed.

## Introduction

Athabasca University is Canada's Open University and was established in 1970 by the province of Alberta. In 1999/2000 it offered courses and programs to approximately 20,000 students across Canada. As for many distance education institutions and departments, its registrations are growing much more rapidly than for campus institutions, with about 23% growth in 1999/00 to a total of about 33,000 course registrations. Full information on Athabasca University can be obtained from its comprehensive Web site [http://www.athabascau.ca].

Since half of its course registrations come from students who are "visiting" from other institutions, Athabasca University (AU) already serves a substantial national need for students to mix and match their campus programs with distance courses so they can prepare, upgrade, fit studies around work and family, and so forth. Other categories of students include those who are completing a program with the University, those who are seeking specific skills and knowledge but not a credential, those who are using the University as a cost-effective way to test their readiness for university study, and those who are taking courses for general

interest. Of the students, 85% are part-time, 75% are 25 years or older, 67% are women, and about 5% live among 67 other countries.

Over 80% of course registrations are delivered by individualised home study, and the remaining are delivered to students in paced cohorts online "e-classes" or on-site at AU learning centres or at partner institutions.

Among the features that attract so many students are AU's flexible delivery systems and the concomitant savings of opportunity and relocation costs. All of the over 525 undergraduate courses are offered by continuous enrollment, self-paced, individualised delivery, and all with some sort of online component. Graduate programs are delivered online to cohorts of students. Many student support services are also available online.

It is useful to define what is meant by the term "online" delivery in the context of AU. For the purists, online delivery occurs when (aside from assigned textbooks and some basic orientation and outlines), all instruction occurs online, such as is found in the AU Master of Business Administration (MBA) program [http://www.athabascau.ca/mba/]. In the Master of Distance Education (MDE) program [http://www.cde.athabascau.ca], however, online delivery is restricted to computer conferencing and e-mail, with more traditional distance education print packages also provided. In many undergraduate courses, teaching Web pages are available, with optional activities, online quizzes and so forth. As an example, see the Centre for Psychology offerings at [http://server.bmod.athabascau.ca/html/centre/general.htm]. For all courses, optional use of e-mail and attachments, voice mail, and Web access to services has been a major enhancement to "traditional" distance education, which relied on a print course package, fixed telephone office hours for tutors, occasional fax use, and the postal service. Thus, there is a spectrum of online enhancements at AU, many of them being optional for undergraduates, except where a computer is implicitly required, such as in Computing and Information Systems, the School of Business e-classes, and so forth.

For minimal online applications, (a largely print package with mail, e-mail, telephone and voice mail communications) AU equipped and trained all staff and tutors, established a computing helpdesk, and set clear standards for response to students. For example, see "Expect the Best" service standards at [http://www.athabascau.ca/misc/expect/index.htm]. This level of institutional response has improved teaching and learning processes by improving the speed and quality of much of the interaction between students and the university, and gives students more control over their learning.

For more integrated systems, where content, and/or group and individual activities are delivered online, AU supports innovation through a variety of platforms and approaches to provide a wide variety of online enhancements to course and service delivery. Two main issues have arisen in connection with this type of conversion. The first issue has been to preserve (at the undergraduate level)

options for students who are not able to access online technologies, while exploring and anticipating ways that new technologies can enhance learning. The second issue has been to allocate resources appropriately within the university in order to support innovation and implementation of online systems, and to decide which aspects need to be centralised, and which need to be decentralised to each program or department.

In order to balance these needs, AU has endeavored to maintain a fairly open and fluid approach to the internal organisation, to allow a diversity of approaches, and to maintain a focus on the experience and needs of learners. The University has identified clear internal management performance indicators, largely focussed on the timeliness and quality of service to students, as well as policies and processes for the review of courses, programs, tutoring and services.

## Unique Structure, Culture and Processes at AU

### Structure

AU's mandate is unique within Canada. It is the only stand-alone distance education university, and it is mandated to reach students across Alberta and beyond. The lack of defined region is a strong advantage for AU: the provincial government, which provides the single largest source of funding, recognises the benefits (both to AU and to the province) of building the student base across Canada and beyond. The mandate also specifies a research role for AU in distance and open learning, and to provide flexibility via its transfer credit policies and practices and via collaborations.

In its mission statement, AU focuses on removing barriers for those unable to access university education, and on excellence in teaching and research. It has unicameral governance, although, to all intents and purposes, all academic matters are delegated to an Academic Council in which academic staff have a majority membership.

Approximately one third of AU's funding is provided by the Province of Alberta, with the rest from tuition and other sources. For the latest Annual Report, see [http://www.athabascau.ca/report/99]. AU has a four member executive group (President and VPs Academic, Student Services and Finance) which deals with all management issues. Academic staff are organised into 11 academic centres, and, to a large extent, the academics themselves drive this organisation, which is intended to allow a good deal of innovation and freedom. The approximately 100 full-time faculty supervise about 400 part-time tutors and instructors.

The Student Services group has an important and parallel role in decision mak-

ing, and provides an important balance to academic discussion with its focus on the administrative needs and experiences of students, and on the impact that a new proposal or innovation will have on the essential support services, including Library, Registry, Course Materials and Computing Help Desk.

The University has tried several ways of providing the support needed for online development and delivery, including a decentralised allocation of technical staff and resources to faculties and centres, a centralised Department of Educational Technology (with a mandate for innovation and service), and a lower-profile Educational Media Development group. No doubt further evolution of centralised and decentralised resources will occur in the future as AU tries to match changing needs with available funding and staff. A defining feature of AU is its ability to react quickly to such changes, although the constant ambiguity of structure and reporting relationships has its stresses on staff and systems.

Finally, the University has a Research and Institutional Studies unit. This combination not only provides support to academics engaged in research and the basic institutional data need by the University, it also houses the Institute for Research into Open and Distance Learning, which encompasses all the "mission-critical" research undertaken to evaluate and explore the experiences of AU's own students.

## Organisational Culture

The culture at AU, certainly in the last 5 years, has been influenced by: (a) growth in numbers of students, registrations and programs; (b) the drive for quality in all student services; (c) the expanding number of partnerships with many organisations; and (d) the incorporation of new communication technologies. These developments all make for exciting, though sometimes stressful, times. The Strategic University Plan for 1996-1999 and its 2000-2003 update are fairly focussed, short documents used to determine development and operating plans for academic and administrative matters. The Strategic University Plan and Update can be found at [http://www.athabascau.ca/html/info/sup/sup.htm] and [http://www.athabascau.ca/reports/sup99-03.htm].

Compared to many universities, AU is fairly fortunate in having a reasonably narrow mandate, and the ability to respond quickly to change. With the growth of interest in and use of distributed learning, AU is able to capitalise on its 30 years of experience in distance education. However, there are tensions between:

- growth, both within Canada and increasingly internationally, and quality;
- the need to have some centralised systems and policies, and the need for distributed systems to permit innovation; and
- the drive for more use of technology and the possible consequent exclusion

of those learners AU is mandated to serve.

An important and unique aspect of AU is the cadre of part-time remote tutors who provide, along with the academics, the teaching "front line." Many of these tutors have been with AU for a long time and they provide outstanding service to students. The incorporation of online communications has changed their work radically, requiring them to log in regularly, as opposed to one or two fixed telephone office hours. The transition, in consultation with the union, has been smooth.

### Processes

Underlying the AU Strategic University Plan is a set of nested operational plans for each academic, service and administrative centre. These rolling, 3-year plans collectively provide a detailed and fairly coherent overview of where the University is headed.

For undergraduate course and program development an Educational Plan provides general direction for the curriculum and aspects of its delivery. Each academic centre then has its own plan that is rolled up into a detailed 3-year development cycle. This is used to project the resources that are needed for academic staff, professional technical staff, and so on. Centres are free to adapt their processes to meet curriculum and teaching needs, and have a fair amount of discretion in using savings in their delivery budgets, which are incremented quarterly to match growth in enrollments, to incorporate more online systems.

Graduate centres run on a cost recovery basis, and have autonomy and responsibility for generating registrations, and using the revenue to build their systems, faculty and so on. In accordance with University policies on human resources, finance, and so forth, their business plans are approved by the Executive Group, and are vetted by Academic and Governing Councils. The general approach, however, is to provide graduate centres with as much freedom as possible to allow them to achieve their goals of growth and quality.

## Societal Context within Canada

The most direct description of the socio-economic status of Canada is to cite the United Nations Human Development Index (United Nations Development Program, 2000). Overall, Canada consistently ranks first. Thus, more than any other country in the world, Canada should have the resources and infrastructure to provide the highest quality services and programs to its citizens, wherever they live or whatever their circumstances.

Furthermore, distance education in Canada has a long and important history (Roth, 1986). Despite this, there have been enormous gaps and errors in the effort to extend education effectively to all parts of the country. For instance, 72% of northern Alberta communities have few or no post-secondary educational services (Alberta North, 1994). For more information on Alberta North, a consortium of northern Alberta colleges and Athabasca University, see [http://www.abnorth.ab.ca].

For instance, in the mid 20th century, many Aboriginal students were relocated from their homes to residential schools. Low participation rates in post-secondary education in remote northern communities suggest that mistakes have been made, and opportunities have been missed. Obviously there were other agendas at work as decisions were made over the years to centralise most university education in the southern cities, and to take Aboriginal children away from their parents. However, it would be incorrect to applaud the profile that Canada has in distance education, without also recognising that its use has been limited, and that until recently it was perceived by most campus institutions as being of lesser quality at best.

Post secondary education in Canada is a provincial responsibility, and the federal government transfers tax revenues each year to the provinces accordingly. While provincial governments are able to respond more readily to local needs, the lack of a national approach to education has its drawbacks. For instance, university-trained teachers in one province may have to requalify and recertify if they move to another. However, with the increase in distance education, provincial jurisdictions are being challenged.

The province of Alberta generally subscribes to the idea of minimal government infrastructure. Decisions made by the University, though subject to Ministry approval, have been ratified quickly, in recent years, and a good deal of support has been expressed for AU's successes. In short, the provincial government, especially compared to others in Canada, is unobtrusive, enabling and supportive. While we could always all use more operating funds, the strong economy in Alberta has led to considerable investment in all areas of education. For instance, $40 million (Cdn) was shared with post-secondary institutions over 4 years via a Learning Enhancement Envelope. Most of this funding initiative was used to develop online systems.

In terms of the availability of technology, the most recent surveys indicate that 42% of Canadians have access to the Internet at home or at work (Statistics Canada, 2000). AU students indicate a similar penetration and availability of technology.

Finally, AU faces increased competition for its students from campus universities that are moving online in various ways, and foreign institutions marketing their online programs in Canada. AU has responded to this increasing competition in two ways. First, it has taken steps to ensure that AU's programs

and services, whether online or not, meet students' needs, maintain flexibility, are learner-centred, and are of the highest quality. Second, it has built alliances with other online providers provincially, nationally and internationally to ensure that, collectively, more programs are available and that marketing and delivery costs can be consolidated. See for instance the Canadian Virtual University-Universite virtuelle canadienne at [http://www.cvu-uvc.ca] and the Global University Alliance at [http://www.gua.com].

## Institutional Demands

As indicated earlier, AU has a fairly coherent and integrated planning approach, stemming from the Strategic University Plan. Planning in detail for 3 years is becoming rather difficult, and while AU expects to be responsive to a changing environment, there is still a tension between trying to be as concrete and clear as possible about what is to be done, and what is actually undertaken. This is manifested, especially (though not exclusively) in the academic centres. Academics, being essentially creative people, prefer to devise and explore their own approaches to anything, and resent being told how their courses and programs shall be delivered. While wishing to support this creativity, which has led to a great deal of innovation over the years, the University as a whole is concerned with the diversity of systems it has to support, whether by the number and location of servers, technical helpdesk support, training, numbers of variations of course materials that need to be developed and inventoried, and so forth.

The second tension is between innovation and consolidation/reinforcement of previous work. For those centres more actively engaged in exploring online systems, the nature of the game seems to mean that once something is shown to be working, it is time to move on. Of course it is important for AU to be ready for the next generation of technologies and applications, but it must also be concerned with accommodating growth and maintaining quality in the meantime.

There is no systematic approach to these issues. To date, having open processes for budget development, program development, and technology issues, and having to deal with a relatively small faculty and staff complement has allowed AU to balance the issues reasonably well.

The need to develop and provide online non-academic student services in parallel with the course and program developments is crucial to AU's success. Again, in an increasingly competitive environment, the quality of these services will separate AU from others who approach online learning.

For its research profile, AU supports both disciplinary research, and mission-critical research which investigates various aspects of AU's offerings, systems and services. The Institute for Research in Open and Distance Learning collects

and organises this research, and this online journal [http://www.irrodl.org] is another manifestation of AU's commitment to learn from its own work and from others'. For some AU academics, the scope of research and scholarship for which they are responsible is thus wider and more flexible that for other universities. As is true for other open and distance universities, AU is a "laboratory" of distance and online learning, and legitimate research and development in these areas is included in any review of promotion and tenure.

## Critical incidents in the conversion

Before describing some of the course and program developments in online learning, it is more important in AU's case to discuss the more general impact of the WWW and related online technologies on the University and its service to students. Like other institutions, AU has had to update its student information system to one that uses a relational database, and which will, when completed, interface with other systems, including finance, tutor payroll, course inventory, class lists, student records, and library systems. This not only will be more efficient for the University and allow it to cope with change and complexity more effectively, but it will increasingly empower students, who will (with a browser and student number) be able to access a host of information and services related their studies. This is a diverse and complex development, and Table 1 gives examples that illustrate what this emerging technology backbone means for online learners. It is likely that none of these is, in and of itself, unique, but the application to online education and the interface between them is as important as, say, intense academic debates about the merits of various learning platforms.

Table 1 (see below/end)

With regard to academic offerings, three examples are cited here to cover the range of approaches AU has seen, and which occurred roughly simultaneously over the past 5 to 6 years.

Studies in Computing and Information Systems (CIS) [http://ccism.pc.athabascau.ca] have a natural fit between the interests of faculty and students. It can be assumed that, in order to study in this area, students will not only be equipped for online delivery, they will already be interested in and adept in a variety of computer skills. They will likely be keen not just to be given their courses online, but also to be actively involved in their design and development. This indeed has been the case. As the CIS courses have been developed and converted to online delivery, students provide feedback and ideas on the WWW delivery platform, provide suggestions for new freeware that can be added to the learning toolbox, and serve on a student virtual helpdesk. The CIS centre and programs therefore provide an excellent environment of development for

Web online learning systems. Not all of the CIS developments are applicable to all other centres, of course, where academics and students may simply want a fixed, reliable and effective teaching platform.

The online Master of Business Administration [http://www.athabascau.ca/mba/] offered through AU's Centre for Innovative Management (CIM) [http://www.athabascau.calendar/00/grad9_4.html] was the first online program of its kind in North America, and is now the largest MBA program in Canada. This venture is an interesting case study in and of itself, not just in terms of online learning, but also as a stand alone business (it is fully cost recovery) and as a way in which universities can launch new innovative programs.

CIM started with a loan of about $1 million (from unallocated university surplus funds) and a blank sheet of paper. A core of academics elected to join CIM. Lotus Notes was chosen as the groupware and learning platform, a curriculum was devised that reflected the needs of modern managers, and policies and processes were adopted that were learner-centred. Interestingly, although the program has been a huge success (there are over 1,000 active students in the program today, and it is Canada's largest MBA cohort), in attempting to explain and share the technology and principles with others, the main barrier to understanding it is not the online technology but one of academics' attitudes toward:

- teaching and learning;
- the power of collaborative learning (whether online or not); and
- the importance of excellence in "customer service" in an academic environment.

The influence of CIM has been felt throughout the university, especially by showing the importance of service to students, by reminding us that risks sometimes need to be taken, and by identifying the keys to success. All graduate programs at AU are delivered online to student cohorts using a variety of platforms, and the experience of CIM and the other original graduate program, the Master of Distance Education, has been invaluable to other units at AU.

A third example of a critical development at AU is at the other end of the scale to the previous case in terms of risk and investment, but is no less important or successful. During the same period as the development of CIM and with the leadership and support of its academics, the Centre for Psychology understood and took advantage of the power of the WWW to enhance traditional individualised distance delivery [http://server.bmod.athabascau.ca/html/centre/general.htm]. The Centre began by allocating its annual surplus to fund a part-time programmer, and now receives annual one-time funds from the University to continue its work. The Centre has developed a comprehensive set of WWW resources that students with online access can use to obtain a variety of

learning tools, including online quizzes and assignments, course materials, peer support, glossaries, links to AU services, hot links, and so forth. In the same period, the Centre has maintained the "print plus telephone" options for its courses, and enrollments and programs have also grown dramatically. Psychology is one of several academic centres that have steadily added WWW options over the years, and it represents the most unstructured and unanticipated type of innovation. It has shown us that, given the freedom and even a small amount of funding and support, academics with an interest and some background in online learning can achieve a great deal from their own desktops.

These examples are intended to show that innovation in online learning at AU has occurred successfully in all disciplines, has originated through both major, planned investments and through much smaller, somewhat ad hoc approaches, and using entirely different approaches to technology.

# Consequences

## Diversity

The diversity of approaches to incorporating online learning technologies at AU has had its benefits, but also created some stresses. There obviously would have been some great efficiencies had AU adopted a single learning platform. Training, technical and design support, staffing, and related costs would have been minimised, as would the demand on all concerned to cope with constant ambiguity and change.

However, the wide array of experience and developments in various approaches and platforms would not have been gained, and not to explore and develop platforms would be inconsistent with AU's mandate to be a leader in open learning. It is clear that AU's current strengths and opportunities in online learning have arisen from the relative freedom of academic centres to explore technologies, with concomitant support from the service areas.

But what of the students? What is their experience with this approach, where they may be taking several courses that have different online approaches? The evidence that we have is that this is but a minor factor in their satisfaction with AU. First of all, one can no longer simply refer to students as any sort of homogeneous cohort, given the wide variety of backgrounds, experiences with technology, and academic goals at AU. For instance, when AU surveyed students who used the undergraduate business Lotus Notes-based courses, those who were visiting for one or two courses only were less satisfied than those who were there to take a complete set of courses towards a credential. The visiting students found the installation of Lotus Notes and the ensuing learning curve to be too time consuming and cumbersome. The credential seeking students, once they

became familiar with the system, found it to be effective. Students taking CIS courses have reported similar experiences.

AU has no evidence from its students that the diversity of approaches to online technologies is an impediment to their learning, nor to having a sound learning experience, no more indeed than the diversity of approaches, seating arrangements and activities they would experience in classrooms on a campus. Furthermore, students who choose online learning are already experienced with the WWW, and are perfectly able to quickly determine how to navigate any site. Lack of a uniform approach across a discipline or across the University does not appear to be a key success factor for online learning. Indeed, in recent Alberta government studies, AU students' level of satisfaction with the quality of their educational experience was seen to be far above the provincial average, which is dominated by the student responses from the large, campus based universities. For more information, see [http://www.athabascau.ca/reports/survey99.htm].

## Effectiveness

The factors that are important to the effectiveness of online systems are the same for any teaching and learning system (Chickering & Ehrmann, 1996). For AU, the experience in distance education has provided a wealth of experience in developing effective materials, with clearly stated objectives, well-written, edited and designed content, a team approach to development, constant peer review, commercial quality in production standards, and so on. All these attributes are carried forward to the online environment. In addition, prompted by the increasing use of online technologies for communication, and consistent with these principles, AU has developed clear standards for responsiveness to students not only on course related matters with their tutors, but also with all related student service departments. For example, see [http://www.athabascau.ca/misc/expect/index.htm].

Not only has the online environment driven faster responses to student inquiries, it has also enabled more interactions among students, and a variety of either optional or required activities: simulations, case studies, projects and so forth. In a recent comparative study of MBA students at AU and at the University of Western Ontario, the learning experiences of students were explored in some detail. Some preliminary data on the advantages of the online environment in some of the domains indicates the following:

- AU students engage in more interaction of an explanatory nature – interaction in which they explain to each other what they think about the case study or discussion topic.
- AU students engage in more interaction of a cognitive nature – to argue

their position on a case study, to justify their own views and to critically reflect on the positions of others.

- In a series of questions related to the impact of the communications medium (face-to-face, videoconference or online) on their ability to resolve disagreements, create common understanding, and so forth, the online interaction ranked equal or possibly better than the other two modes (P. Carr, personal communication, November, 2000).

In 1999, AU created the Research Centre, with a mandate to support disciplinary research among individual academics, and to coordinate mission-critical research at the University. Because the University's Institutional Studies function is also located in the Research Centre, there is a substantial and important capacity for AU to independently investigate its own practices. Often, this occurs within the context of program or course reviews, or in the cycle of reviews of student service areas. In other cases, special reviews of delivery platforms are undertaken. Not surprisingly, an important area of such research is the effectiveness of the online learning environments that AU is developing. A cross-university Educational Review Committee oversees these activities.

## Implications

To a large extent, the overall impact of technology at AU is similar to that in any service-oriented industry. In order to meet students' expectations, to enhance learning, and to expand its student base across Canada and beyond, the University is systematically replacing its core systems (student information, finance, course materials, Library, etc.). It is also implementing a number of platforms that are designed to either enhance AU's long established and successful individualised study delivery modes, or to create new, online learning environments among student cohorts.

One key discussion that was held early on in the conversion was the impact of online conversion on accessibility. When only the minority of students had online access, such concerns were common, but since nearly 80% of students now have access to appropriate hardware and connectivity, the question now is – when will online access be mandatory for AU students? For undergraduate courses for which a computer would not normally be required, a non-online option will still be available, and a core set of materials (largely print, but sometimes with other media) will be prepared according to the policies and standards that AU has established over its 30 year history. For CIS and other computer-related courses, online access is required, as it is for graduate programs. With this policy however, there is some concern that the online conversion may be slowed or stalled by the insistence by many at AU for having only optional online activities, in an effort to preserve access for a declining percentage of students.

Be that as it may, the strong tradition of the University as an open institution, with its mission to remove barriers, will drive the decision for some years to come.

In terms of allocating resources for online conversion, the approach has been somewhat ad hoc, but, in retrospect, it has been effective. Since there have been a diversity of approaches to online learning rather than wholesale adoption of one platform, resources have been distributed incrementally and widely. Thus, the effectiveness of each approach can be determined before more resources are allocated. Similar approaches have occurred in other aspects of administration, be it the growth and development of the computing helpdesk, the support needed for servers, and the development of policies and standards. So far, the University has been able to build on its distance education systems, rather than having to reinvent and reengineer its systems. For new initiatives such as the graduate programs, CIS, and new e-commerce courses, a more deliberate approach to adopting online systems has been taken, with appropriate modifications to existing practice being permitted where a clear rationale is provided.

There are a number of specific implications of the diversity of conversion processes that will require ongoing discussion and adjustments at AU. In terms of quality control, a common framework for assessing the effectiveness of any platform or approach is needed in order to compare systems and to draw useful conclusions for future development. Such frameworks have been described (Eastmond, 1995) and it will be a major initiative of the aforementioned AU Research Centre to develop a coherent approach to quality control among the various online teaching and service systems.

The separation of course development from course delivery, found in the traditional, largely print-based, distance education system, is narrowing as AU adopts more online approaches and enhancements. While this convergence of development and delivery helps solve the issue of maintaining course currency, it has all sorts of implications for the University, from the very general (e.g., the allocation of resources among academic and service areas), to the specific (e.g., maintaining an accurate inventory of course materials). This convergence also impacts the scalability of the University's offerings. The model of investing heavily in a course package that can serve many enrollments, plus a scalable delivery system of tutors, is gradually becoming less applicable. In the undergraduate School of Business, the parallel offering of courses to individual students (using a core course package and optional online enhancements) as well as to cohorts of students in an integrated online environment will allow AU to look closely at whether the purported savings of development resources in the latter is sufficient to cover the increased delivery costs, and whether there are limits to growth of registrations in the cohort based online model.

For the academic staff, the last 5 years has been a time of extraordinary growth and change, and, with a few exceptions, each academic is working on some aspect

of online conversion or course and program enhancement. Since academics have different ideas, backgrounds and levels of expertise, support staff (designers, editors, visual designers, etc.) are organised and trained to respond in a number of ways in each course team. This leads to interesting implications for human resource management. As the various learning platforms and their associated human resource needs evolve, there is a continual emergence of new position types, and levels within these types. Each learning system requires a unique blend of technical, design and pedagogical expertise, and once each position is established, the needs evolve rather quickly. In terms of traditional human resource management of recruitment, classification, reclassification, and salary adjustments, this rather rapid flux in the supply of, demand for, and shifting complexities within technical and design staff results in increased workload for the human resource unit. This situation may even suggest a new approach to establishing such positions, with new systems of classification and remuneration that reflect the very dynamic working environment.

## Conclusions

AU's approach to the conversion of its courses and programs to online has been to (a) encourage a diversity of approaches, (b) balance the need for centralised versus distributed technical and design resources, (c) focus on the concomitant conversion of all student services, (d) establish student service standards, and (e) conduct research focused on effectiveness of all these developments. AU recognises that it will need to adapt its approaches continuously in order to increase the quality of its offerings and services, and it will need to partner with other institutions to expand its offerings and to increase access for students in Alberta, throughout Canada and internationally.

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**Table 1: Impact on learners of some online initiatives at Athabasca University**

| Online Initiative | Description and Impact |
|---|---|
| AU Web site | A comprehensive Web site, an easily accessible and navigable information source for potential and current students, is fundamental to all organisations. For an institution such as AU, it is critical. One measure of its impact is that AU's site receives about 1 million hits a week, 15% of which can be ascribed to internal use. |
| Information Centre and Intranet | The Information Centre backs up AU's Internet site. Attendants have access to a wealth of information, provide students with better response to telephone inquiries, and, as far as possible, deal with each inquiry without further referral. This is enabled by a comprehensive Intranet and read-only access to other databases. |
| PLA online | Together with Laurentian and Lakehead Universities, AU has developed an online prior learning assessment (PLA) process. Students can easily access the portfolio format and guidelines as well as develop and submit portfolios for assessment at [http://www.athabascau.ca/html/depts/lrnacc/general.htm]. |
| Library | AU's Library [http://www.athabascau.ca/library/] has an electronic gateway. Students can access a range of library services and a constantly increasing number of databases, many with full text. Online library service goes a long way to eliminating the traditional problems and perceptions related to library support for distance learners. |
| Collaborations page | Articulation agreements with colleges and professions are accessible online. Students can see for themselves what options they have in transferring to AU [http://www.athabascau.ca/cgi-bin/credit_transfer.pl]. |
| Virtual Helpdesk | The Virtual Helpdesk [http://ccism.pc.athabascau.ca/html/students/stupage/vhd.htm], developed by the Centre for Computing and Information Systems, is staffed by students to help other students. It is key to building a community of interest even among self-paced home study students not part of a course or program cohort. |

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# Deakin University: Going Online At A Dual Mode University

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**Abstract**

Deakin is a dual mode university with more than half of its students doing at least part of their study at a distance and with an entrepreneurial arm that provides distance education services for even larger numbers. Online provision has been developing over a decade, enriching traditional distance education in programs with mixtures of on- and off-campus students. It has been supported by central services and corporate applications, leading to reasonable consistency in the thrust. A current aim is to ensure that it is sustainable at a high level of quality.

## Introduction

Deakin University is situated in the state of Victoria in Australia. It is a moderately large university of 28,192 students (18,171 equivalent full-time student load). It is also a dual mode university, with 43% of its students studying off campus (24% equivalent full-time student load) and a further 12% studying in mixed mode (18% equivalent full-time student load). Twenty two percent of Deakin students are from other countries, but only about a quarter of these are off-campus students studying in other countries (with the largest number in Malaysia). There are almost equal proportions of men and women studying off-campus and their average age is 34 years. Over 40% reside in communities where Deakin has campuses, 56% live in the state of Victoria, 36% in other parts of Australia and 8% overseas.

Almost half of off-campus students are in undergraduate degree programs; 34% are in postgraduate programs and 17% are in pre-degree certificates and diplomas. All five faculties have off-campus programs but two-thirds of students are enrolled in two faculties, Arts, and Business and Law.

Deakin has six campuses as the result of mergers in the early 1990s of the original Geelong-based university with colleges in Melbourne and Warrnambool. Negotiating the distance between the campuses is an important challenge of university operations, as the driving time between the easternmost campus in Melbourne and the westernmost campus in Warrnambool is approximately 5 hours.

In spite of these distances, Deakin is not a federated university. Its five faculties (Arts; Business and Law; Education; Health and Behavioural Sciences; and Science and Technology) operate on multiple campuses, offering the same programs in different locations and off campus. Similarly, the administrative and academic support divisions of the university are integrated and provide their services in multiple locations. Furthermore, and unlike most Australian universities with distance education programs, Deakin has always served off-campus and on-campus students through the same administrative and support infrastructure; there has never been a separate unit responsible for the broad range of off-campus services.

The University has a private division, Deakin Australia, which is a major commercial provider of educational programs. It is one of the largest suppliers of training in Australia, working with more than 50 organisations and its client list includes some of Australia's largest companies, professional associations, unions and government bodies. It provides educational services for approximately 34,500 distance education students, primarily in Australia as well as Europe and Asia, with offices in Geelong, Melbourne, Sydney, Canberra and Washington DC. While many of the programs offered through Deakin Australia are of the continuing education variety, some articulate into Deakin degrees; others lead to Deakin awards or to joint awards of Deakin and a professional body.

Deakin has moved progressively to introduce online facilities and resources over more than a decade, through a combination of anticipating possibilities and responding to demand. Periodic project funding has assisted the process but all parts of the University have participated as part of their mainstream activities. Traditional distance education resources continue to be produced and used, but an interactive element is being added to distance learning that reflects contemporary views on best practice in teaching and learning. Both on- and off-campus students are participants in the online environment.

The problems and issues surrounding this development are not unique to Deakin but reflect particular qualities of this University in its time and place: (a) how to provide facilities that are accessible and easy to use; (b) how to help staff shift from their customary practices to use the online facilities to create rich and engaging learning environments; (c) how to structure support for this transition; (d) how to focus strengths and assure quality to create a sustainable future.

The University has been using the development and implementation of its teaching and learning plan to identify issues, set objectives and implement strategies for resolving them. More than 80 people, staff and students, are participating in the implementation teams and the objectives have expression in the University's annual priorities. These priorities are the subject of reports to the University's Council.

This case study describes features of the University pertinent to the subject,

identifies external and internal factors impacting on development, identifies events that precipitated activity, reviews some of the outcomes, and offers summary observations.

## Structure, culture and processes

### Structure

Deakin is governed by a 21 member University Council comprising *ex officio* members, appointees and elected staff and students. The Vice-Chancellor reports to Council. The University's Academic Board, with both internal elected and *ex officio* members, is advisory to Council and, as stated in the Deakin University Act,

> may make to the Council any recommendation about the academic affairs of the University and in particular may make to the Council such recommendations as it thinks proper with respect to instruction, studies, examinations and assessments, research, degrees, diplomas and discipline in the University (State of Victoria, 1974).

This governing structure places considerable power in the hands of Council and the Executive and reflects an Australian shift in the 1990s to a more managerial form of university governance (Higher Education Management Review Committee, 1995).

The integrated structure of teaching and support services at Deakin is a legacy of the original university established in 1975. An "open campus" was envisioned wherein all students, whether on campus or off, would use the same high quality learning resources and have opportunities for meaningful interaction with staff and peers (Jevons, 1982). Thus, on-campus students would not only attend classes (primarily of the tutorial variety) but they would also receive the study materials normally provided to distance learners. Off-campus students would receive these traditional distance learning resources and have access to residential schools, itinerant tutors or, later, audio teleconferences. While the open campus model was never applied in all programs of study, and while there was slippage to more traditional classes for on-campus students and heavier reliance on learning resources for off-campus students, the concept remained firmly part of the culture. Importantly, it was extended to the organisation of academic support and administration, with each Division charged to provide equivalent, if not identical, services to all students, whatever their mode of study. This form of organisation has had a certain benefit as the use of online technologies becomes ubiquitous: each faculty and division has a core understanding of flexible provision and an infrastructure that accommodates this.

The multi-campus nature of the University is another important structural feature. There is a need to teach the same courses on different campuses and off campus, and to ensure the same coverage of topics and the same standards across campuses that previously were different institutions. This has encouraged the use of uniform learning resources and the rapid adoption of online communication in the University, for administrative purposes as well as teaching and learning.

Like most universities with a major distance education component, Deakin has always had a central unit responsible for educational design and learning resource development. This unit has had different names and configurations over the years, sometimes a single unit and sometimes split into educational development and learning resource divisions. Nonetheless, it has provided a focus for consistency in the quality and style of learning resources and a site from which to develop, promote and support the use of online technologies. The structural challenge in the shift from traditional distance education to online approaches has been to revise staff responsibilities and change the pattern of work without simply adding new functions.

Deakin Australia is another important structural factor. From the time of its establishment, it has operated in some ways at arm's length from the University. When it offers award courses, they are courses of the University and subject to the standard approval and accreditation processes. Much of its work, however, is in the provision of educational services for its clients. The need to operate flexibly and quickly led to the establishment of its own parallel infrastructure. In the move to the online environment, there are recognised benefits in collaborative development of infrastructure and sharing of expertise, and there is a consequent increase in joint activity.

## Culture

The merger of three institutions, one a university with a research and teaching culture and two colleges, which were vocationally oriented and not funded for research, has required the development of a common culture independent of mode of study. There were also, however, differences in approaches to teaching and learning. Traditionally, the colleges had much more contact time for on-campus students, and staff have been forced to reduce this intensive face-to-face teaching. In addition, the academic staff on the Melbourne campuses faced the new expectation that they would develop learning resources and teach at a distance; Warrnambool, in contrast, located in a region with a low population base, had previously augmented its on-campus enrolments with distance learners. In Geelong, although the different schools of the University varied in the degree to which they enrolled distance students in their principal programs, there was a shared understanding of distance education that placed heavy reliance on the learning resources. References to "tutorials in print" implied that the materials

did the teaching and the infrastructure of the 1980s did not make provision for easy telephone contact with academic staff or other forms of access to academic advice when students needed it. Though it might have been expected that this would lead to emphasis on the use of online technologies for depositing and distributing learning materials, there has been a strong thrust towards computer communication.

There is a tradition in Australian universities of coordinated curricula with prescribed content in units (equivalent to courses in North American parlance) and common resources, assignments and examinations, however many people may be involved in the teaching. This is consistent with the usual practice in single mode distance teaching universities. In addition, Deakin espoused the course team approach, initiated by the UK Open University, for the development of learning resources. The culture thus supports a collaborative approach to teaching and learning. While what goes on in a classroom at Deakin may not be open to external observation, many elements of teaching are not private or at the discretion of the academic staff member.

Furthermore, as in many single mode distance teaching universities, academic staff develop learning resources as one of their normal responsibilities and the University owns these resources. The University thus far has not seen the debates about intellectual property that have arisen as traditionally campus-based universities move to distance and online education. Another interesting point is that Deakin policy does not encourage staff to develop learning resources for personal profit and sale: academic staff must obtain the permission of the Council to assign commercial textbooks that they have written in their courses.

Finally, the last decade has seen dramatic changes in Australian higher education, driven by government, that are reflected in cultural change. One is a shift from collegial to more managerial forms of governance; another is reduced core government funding and the need to seek resources from other sources; a third is increased attention to measures of performance. Universities are operating more strategically and becoming more market-oriented and customer-focused. This is reflected in Deakin's aim to reach out to more fee-paying and international markets using its distance education expertise and experience in an online environment.

## Processes

Deakin's strategic priorities are set out in the "Strategic Planning Framework 1999 – 2001" (Deakin University, 1999) which was adopted by the University's Council. This is a short document that consists of a vision statement, a set of values, nine strategic priorities and a small number of key performance indicators. Underpinning and aligned to the Strategic Planning Framework are plans covering specific performance areas (e.g., Deakin University, 2000) and

the strategic plans of faculties and divisions. Council approves annual priorities distilled from the various underpinning plans and receives both qualitative reports on achievement and quantitative reports on strategic and operational performance indicators. In this way, the broad strategic priorities are given substance and a clear line of reporting and accountability is established. To illustrate, the University's current strategic priority for teaching and learning is:

> Strengthen teaching and learning, including flexible and lifelong learning, through focused planning for course development and delivery and an increased emphasis on attracting and retaining an outstanding and diverse body of students and staff (Deakin University, 1999).

The two objectives in the teaching and learning plan that are most relevant to this case study are:

> Objective 10: Deakin will build upon its reputation in the provision of distance and flexible enrolment and study options to become a global university, respected internationally both for the quality of its educational provision and for innovative application of information technology to teaching.

> Objective 11: Deakin will restructure its flexible learning support services to provide support and strategic guidance for its globalisation strategy. (Deakin University, 2000)

In the annual priorities for 2000, several strategies address these objectives; for example:

- Implement the instructional management system with strategies and schedule for deployment and appropriate training;
- Develop a University plan for a systematic and targeted approach to distance and flexible learning; and
- Complete the administrative restructure of teaching and learning support services.

It is important to note the process of widespread consultation in the development and implementation of University plans. For example, the teaching and learning plan was developed over an academic year under the direction of the Deputy Vice-Chancellor. A small working party was responsible for drafting;

the Academic Board and Executive oversaw the process through their Joint Committee on Teaching and Learning; a consultative draft was circulated for comment throughout the University community in mid-year; and the Academic Board approved the plan before it was submitted to Council. Six teams, comprising approximately 80 individuals drawn from academic and general staff and students, are overseeing the implementation. One of these teams has produced discussion papers and a draft plan for the establishment of a virtual or e-campus.

This consultative process has several benefits: it helps ensure that issues of concern to students and staff throughout the University are identified and addressed; it provides a forum for discussing potential strategies and solutions; and it raises awareness of matters of strategic importance. These are particularly important in a multi-campus university with different prior cultures and practices.

## Extra-institutional factors

### Government policy

The federal government exerts considerable influence over higher education in Australia. This was illustrated in a study of *University Autonomy in Twenty Countries* by Anderson and Johnson (1998). They concluded that, while the government has limited power (comparable to "Anglo-American" countries) to direct higher education, it is like the mid-range European countries in the degree to which it is perceived to exert influence. Some of its policy directions have had a significant effect on the development of distance and online education.

One example is the encouragement of universities to use information and communication technologies for teaching and learning. Beginning in 1989 and continuing to the mid-1990s, it was a government strategy to use distance education as a wedge to drive technology into the universities. While the reasons for this were not simple or easy to interpret, it is notable that a government report (House of Representatives Standing Committee on Employment, Education and Training, 1989) advocating coordinated encouragement of technological innovation at all levels of education coincided with the selection of seven leading distance teaching universities, their designation as national Distance Education Centres and the establishment of a coordinating body, the National Distance Education Conference, with a government-managed agenda. The strategy was evident, for example, in the allocation of equipment grants from the National Priority Reserve Fund to universities designated as Distance Education Centres, in the funding of a technological innovations program through Open Learning Australia and in commissioned reports (e.g., Deakin University, 1993). A grant of $2.27 million to Deakin University for an Information Technology Enhancement Program provided a major impetus for online developments (see below).

A second example is the shift in rules about the charging of student fees. Until the late 1980s, there were no fees in Australian higher education. A Higher Education Contribution Scheme was then introduced in which students had the choice of paying nationally fixed fees at a discount on enrolment or later through their taxes when they were in the workforce. A subsequent series of rule changes have affected the market for distance and online education: postgraduate programs (other than higher degrees by research) were first permitted to attract discretionary fees above the base level and now are no longer subsidised by government. This sort of rule change can dramatically affect enrolment in a period as short as a year.

## Online access

The use of information and communication technologies is dependent on student access to the online environment. A national survey of open learning and distance education students as early as 1993 found that 77% had access to computers, 58% had some experience with computer communication and over 80% thought that electronic mail and computer conferencing would be useful in their courses. Thus, students even at that time were well ahead of the general public in their adoption of communication technology and were well disposed to its introduction. This prompted the University to move ahead in 1995 to expand the use of e-mail for academic communication and support services, to introduce FirstClass computer conferencing facilities and to expand its use of the WWW. Current information supports the view that Deakin now can reasonably expect all students to arrange their own computer access, with the possible need to provide assistance in exceptional cases, and a draft policy to this effect is under consideration. The decision will be influenced by an investigation by the Australian Vice-Chancellors' Committee into the legality of such a requirement.

The other factor in online access is the method of connection. In the early years, Deakin facilitated connection by subscribing to datapac services, negotiating modem access in major centres and providing its own modem bank. These unwieldy solutions were superseded by widespread accessibility of Internet service providers (ISP). From 1998 all students except those studying for higher degrees by research were required to use an ISP to access the University from home. This policy change was readily accepted. Connect time and its associated costs continue to be factors since most homes in Australia do not have high bandwidth access to the Internet at flat rates. High bandwidth is restricted to certain neighbourhoods in major cities and costs are highly dependent on location and extremely volatile. Deakin has devised strategies to minimise connect time.

### Competition

Competition is a salient feature of the current environment. Particularly noteworthy are the movement of campus-based universities directly into the online marketplace and the establishment of consortia, such as Universitas 21 and the Global University Alliance, the latter for the express purpose of marketing and supporting programs of its members. Deakin Australia was an early and successful provider of educational services for corporations and professions and the University was Joint Australian University of the Year in 1999 on the basis of its educational partnerships. It is essential for the University to ensure that its methods and services continue to be at the forefront and to continually evaluate its partnerships and alliances.

## Institutional environmental demands

In the first half of the 1990s, Deakin focused on consolidating the merged institutions, expanding distance education programs and building entrepreneurial educational services. The current leadership has taken a strategic focus which, for teaching and learning, is aimed at: (a) identifying and promoting high profile and high quality programs, (b) recasting the University's distance education mission to reflect contemporary circumstances and future developments, (c) improving and realigning supporting infrastructure to meet current and future needs, (d) assuring staff capability to operate in the new environment, and (e) ensuring sustainable programs and practices.

The impetus for more comprehensive online developments can be traced to three principal sources. The first is staff. The facilitative strategy of providing central facilities, infrastructure and support has enabled adoption by enthusiasts and the spread of enthusiasm, so that a considerable number of programs now have embedded online elements that are considered essential to learning outcomes. Furthermore, some programs would now lack credibility if students were not developing and using online skills. Academic staff, therefore, are advocates for improved systems and support. The second is the Executive which has recognised that distance education is its best vehicle for expanding its educational market and that effective use of the online environment is essential for this. The third is the University's teaching and learning management plan. It espouses a vision for the student learning experience that emphasises interaction and collaboration as well as the development of skills, such as teamwork and information and technological literacy, which an online environment can assist. The teaching and learning plan has policy status and from 2001 all courses undergoing initial and continuing accreditation will be scrutinised for evidence that the skills are being developed.

Several developments relevant to online education reflect these internal de-

mands:

- A university-wide instructional management system, using TopClass, will be linked to the University's information systems and provide integrated administrative and teaching tools. Full implementation will commence in 2001.
- The University's website is being redesigned and one aim is that it better reflect Deakin's virtual or e-campus; in conjunction with this, new services and facilities are being developed.
- The exponential growth in the use of computer conferencing, for on-campus as well as off-campus students, has resulted in a decision to upgrade the University's FirstClass licence.
- Academic professional development programs, and their associated funding, reflect staff training needs including, in these times of budget constraint, the need to teach efficiently as well as effectively.
- Ongoing assistance in the use of technologies is provided through a combination of a 24-hour help desk and staff in local work areas.
- Learning Services, the central unit that advises on learning environments and develops learning resources has been restructured to reflect the requirements of online teaching and learning.
- Accreditation and quality assurance policies and criteria are being revised and will include explicit consideration of teaching and learning strategies as they relate to specified learning outcomes.

Money is an over-riding institutional concern. Australian public funding for higher education is low and falling, and diversification of funding sources is a relatively new phenomenon. Dramatic changes in teaching and learning have occurred in concert with increased workloads. The challenge for Deakin is to craft a sustainable future at the forefront of practice.

## Critical incidents

### Progressive movement online

Deakin has been characterised by progressive introduction of online technologies over a long period of time. Its first systematic use of online communication began in 1981 in a Graduate Diploma of Computing. From 1987 all students were automatically given free e-mail accounts. The real growth of online communication in programs of study began in 1990, however, after an easy-to-use

text-based system (known as TEAS), with bulletin board and e-mail capabilities, was developed for a particular course and presented as a model for other programs. With rapid developments in technology and enthusiasm generated by TEAS, a more sophisticated system (Deakin Interchange) was introduced in 1995. Installation, from a set of disks, enabled students to open a desktop environment with web browser, e-mail, computer conferencing and other software now relegated to memory (e.g., FTP and Telnet). Although comparatively awkward to install and use by today's standards, Deakin Interchange marked the beginning of growth in the use of computer conferencing (from 45 users in 1995 to 5,000 in 1997). From 1998 a simpler solution was adopted: students and staff received the Deakin Learning Toolkit, a CD-ROM operating like a web browser with information, software, tutorials on the use of some programs and services, and hot links to University websites. This enables remote and on-campus students and staff to participate in the same online environment. A new Toolkit is issued annually. Using computer conferencing as an indicator, in 1998 there were 7,000 users and in 2000 there are 22,000 users. At last count, 4,719 separate conferences were operating.

In these developments, the University has anticipated as well as responded to demand; in fact, TEAS was developed on the side by interested academic and computing staff without central funding or support. In each iteration, the aim was for an integrated system, easy to install and operate, used by students and staff. Both Interchange and the Toolkit have provided tools that students and staff use in their wider university life, not just in courses. Again using computer conferencing for illustration, there are public conferences for cafeteria-style conversation and student services staff moderate discussions on aspects of student life.

Another aspect of the progressive movement online is the initiation of major development projects to fashion online environments tailored to the needs of particular programs. In these developments, the online component is integrated into the overall design of the program and either replaces other activities (which may have been paper-based, for example) or adds elements that previously were missing or less adequately provided.

For traditional distance education courses that currently make little use of the online environment, the issue for redevelopment concerns the mix of print and online resources. There is no suggestion that print will disappear, but there are discussions in faculties and in Learning Services about how extensively a systemic online environment should be deployed and how this should affect traditional practices (such as the preparation of extensive study guides). There is opportunity to apply agreed principles because the University provides central support for development and production.

## Program rationalisation

The introduction of online communication technologies on a large scale began around the time of the University's mergers and presented somewhat different conceptual challenges for those accustomed to primarily print-based distance education and those accustomed to intensive face-to-face teaching. Interestingly, the need to develop common teaching programs across the University provided an opportunity not only to develop a common teaching culture but also to introduce online components as a standard feature of redeveloped courses. This was particularly evident in the Bachelor of Commerce which replaced myriad undergraduate business degrees. The coordinators of its development ensured that computer conferencing would be a standard feature for off-campus students, and resources were also provided to develop a number of computer-aided learning programs. The online features of this program have become standard for on-campus students as well.

## Government project funding

The University's efforts to develop the use of information technology for teaching and learning were given a major boost in 1994 by a federal government grant of $2.27 million (Holt & Thompson, 1997). This grant enabled the establishment of a multimedia resource and development centre and enhancement of the University's capacity in several areas: (a) computer-mediated communication, (b) computer-managed learning, (c) digital imaging and storage, and (d) library electronic course updater and reserve.

Beyond the value of tied funds for development, the numerous projects operating under a single management framework with clear accountability provided a strong focus on online development and engaged people throughout the University.

## Flexible learning initiatives

In 1997, the Deputy Vice-Chancellor and the Vice-President (Administration) jointly established a fund to assist faculties to move courses online with the support of the central educational development unit. The aim was to facilitate the mainstream use of low-end, low-cost, high-volume and easily achievable technologies. In mid-year, they rolled together this initiative and a suite of other projects and programs under the heading "flexible learning initiatives". Included were: (a) a research and development program using leading-edge technologies for integrated online teaching and learning, (b) a video conferencing project, (c) the development of the Deakin Learning Toolkit CD-ROM, (d) a review and redesign of learning materials development and production pro-

cesses, (e) a professional development program to support flexible teaching and learning, and (f) several projects focusing on redesigning aspects of the University's infrastructure.

Most of the projects and programs had reference groups but, in addition, a representative coordinating committee and several subcommittees were established. The effect was to improve planning and accountability, to ensure increased cooperation among faculties and divisions and to improve the perception of communication and consultation.

### Plan-driven development

With the arrival of a new Deputy Vice-Chancellor in 1999 and the adoption of the "Strategic Planning Framework 1999 – 2001," the University's planning became more focused and placed greater emphasis on specifying outcomes and on strategic use of available resources. Implementation of the teaching and learning plan (Deakin University, 2000) involves clearer identification of target student markets and high priority courses as well as articulation of the University's principles and strategies for operating online. Whereas in the past there was a tendency simply to add new programs and facilities, the dominant aim now is to create a sustainable future where high quality is assured.

## Intended and unintended consequences

### The learning/teaching system

In a dual mode university like Deakin, the introduction of online facilities for teaching and learning reduces any justification for treating on-campus and off-campus students separately. The resources and facilities provided in the online environment can enrich the learning experiences of both. Just as Deakin traditionally provided its off-campus study materials to on-campus students, so the online facilities are typically available to everyone.

In online teaching and learning it is necessary to rethink teaching and learning strategies for on-campus as well as off-campus students. Online technologies offer irresistible opportunities to increase and entrench communication and interaction in the learning experiences of off-campus students, thereby improving their quality and scope. The experiences of on-campus students, for whom face-to-face interaction is assumed, though not always assured as class sizes increase, are also enriched by access to online resources and experiences. While the results of evaluations are largely encouraging, much work remains to be done to ensure that these aspirations are fulfilled. In particular, there is some anecdotal

evidence that some students need to be convinced that interaction that involves group work is of benefit to them. This is part of the work of selling the principles embodied in the teaching and learning plan to students.

Course teams, implemented on the UK Open University model in the 1970s and reaffirmed in 1990, are gaining new relevance in the online environment. With diverse roles to be filled, there are opportunities for academic staff to make contributions that reflect their strengths and interests. In traditional distance education, course team members collaborated in the development and review of topics for fixed, and mainly print-based, learning resources. In the online environment they can extend the collaboration to learning facilitation, managing learning environments and teams, managing the deployment and use of resources, working with clients and collaborators, advising students, managing assessment, and monitoring and evaluation.

## Institutional level operational systems

While Deakin has not had the plethora of local online solutions that characterises some universities, the coordinated flexible learning initiatives and subsequent plan-driven development prepared the way for an institutional instructional management system as the platform for online programs. This is seen as the most effective way of supporting online education across the University. The particular solution being implemented uses TopClass linked to the University's information systems and to FirstClass in order to sustain the accustomed level of sophistication in computer conferencing.

The library and the divisions of the University that provide academic, administrative and technical support have moved dramatically to provide online services and support, and they work much more collaboratively than they did in the past, both among themselves and with the faculties. The Deakin Learning Toolkit, the instructional management system and the University's WWW environment have provided one focus for this collaboration, requiring input from several divisions of the University as well as the faculties. Another example is the collaboration of Learning Services, Information Technology Services and the Library in the establishment of digital repositories and metadata systems.

## The course development management system

The traditional learning services that provided educational design and resource development and production services for distance education have been restructured and new positions have been created. The restructuring has taken place without layoffs although there has been some natural attrition. While there is still considerable production of print-based learning resources, there is increasing emphasis on assisting academic staff to design and use online learning environ-

ments and resources. The restructuring has been a difficult process for some staff who have seen their accustomed jobs disappear or change dramatically and have been required to develop new skills for new responsibilities.

### The course delivery management system

The distinction between course development and course delivery is blurring. In traditional distance education, the development and production of static learning resources was distinct from the learning process. Online environments, in contrast, are dynamic, providing opportunities to add and manipulate resources as well as for interaction. While resources are still developed in advance, they can no longer be seen as doing the teaching; the process becomes the central feature.

## Implications and conclusions

In 2000, one of the teams involved in the implementation of the teaching and learning plan has focused on identification of issues for the renewal of Deakin's distance education. This work informs the implications and conclusions drawn from this case study.

### The institution

For the University, the shift from traditional distance education to the online environment has been prompted by consideration of its place in a wider world than the parochial Australian higher education system. Where does it fit among the newly emerging institutional models? What markets will it aim for and where will they be? Will it be a global university and, if so, what does that mean? Whom will it be competing with and how? What new alliances does it need to form? How can it build on its early and successful start with its corporate and professional programs? What information should it draw on to inform its decisions?

Alongside these questions about Deakin's future place in the expanded world is the issue of how it will represent its online environment. It already has an extensive one but until recently it has not thought of it as a virtual or e-campus. This concept is providing a way of visualising an integrated presence comprised of what to now has been thought of as a collection of systems, facilities and activities.

## The administration

For the administration, it has been useful to have the central divisions providing on- and off-campus services under one budget line. Though the challenges of shifting from traditional practices cannot be underestimated, there is a culture of providing off-campus services that translates nicely to providing online services. The online environment, with its requirement for integrated systems, has dramatically increased the collaboration among divisions, notably the library, academic administration, student services, information technology and learning services. What were once discrete operations are brought together.

In some areas, especially in the Learning Services division which is traditionally responsible for developing and producing distance education resources, the work of staff is being transformed. In traditional distance education, the emphasis was on product: the learning resources. In the online environment, the emphasis shifts to include not only planning for courses but consideration of what occurs during learning. Learning resources may even be dynamically created during the process. Much of the assistance to academic staff must be to help them facilitate learning in the online environment. All of the positions have been reviewed, and some have been dropped and replaced with new descriptions. Most new positions are being filled with existing staff and the transition from old to new work practices is underway. This is a daunting task that has been stressful and taken considerable time.

The shift online also raises resourcing issues. Many of the major advances at Deakin have been started with internally or externally funded projects. In reality, however, the University's online environment needs to be part of its mainstream operations and funded within the normal budget process. Equipment and corporate systems are funded annually from the central budget. Budget centres need to ensure that their priorities encompass online developments and that they have staff who can work to these priorities. The central, as well as local, staff development budgets need to fund programs for both academic and general staff to assist them in using the online environment.

## Academic staff

Staffing policies and models need to be appropriate to the diverse requirements of teaching and learning environments with online components. The currently circulating discussion paper asserts that the University needs to ensure that its best scholars and teachers have central roles in planning and developing teaching and learning programs and in the process of managing and moderating learning environments. Furthermore, it needs course team models that permit division of labour and recognise contributions based on individuals' specialist skills. The introduction of online facilities into teaching and learning environments requires the filling of multiple roles (e.g., course planning and design, learning facilita-

tion, managing learning environments and teams, managing the deployment and use of resources, working with clients and collaborators, advising students, managing assessment and monitoring and evaluation). These developments are consistent with Deakin's structure, with its multiple campuses and coordinated teaching of units and courses, and its approaches to the use of learning resources. It is neither efficient nor supportive of effective learning to assume that all the roles are filled by a single entity or individual, the teacher.

In addition, the full development of the e-campus will create an e-campus community that may benefit from and be strengthened by staff, as well as students, who are geographically dispersed. These could include scholars and practitioners who undertake part-time appointments to contribute their special expertise to Deakin courses (comparable to the growing number of international scholars with concurrent appointments in institutions in different countries) and qualified academics who play an ongoing role in facilitating learning, perhaps contributing international perspectives or providing interpretations and support in different localities. Facilitative policies should strengthen the University's learning community and enhance its reputation as a leading institution.

Staff working in the e-campus need appropriate training in online technologies and pedagogies and the integration of these technologies with other modes and resources in teaching and learning environments, and access to advice on teaching and learning strategies when they need it. The use of online technologies in teaching and learning environments is relatively new for many staff. Furthermore, the technologies and facilities are developing and changing rapidly, providing new opportunities and challenges. Continuing professional development is essential to support teachers' creative approaches to teaching and learning and their ability make effective use of opportunities to enhance administration, the use of resources and communication.

Staff need to feel encouraged to participate in online teaching and learning and to integrate it with other modes and resources, and to be recognised and rewarded for their positive contributions to effective teaching and learning. The University needs to foster a culture where staff feel that they are creating and enhancing their own futures by developing their skills, participating in online teaching and learning and contributing to Deakin's general expertise. A representative team of staff and students has advocated that specific attention be directed to: appointment, tenure and promotion criteria; the principles and processes for allocating workload; and strategies for recognising and rewarding contributions to online learning.

## Students

Deakin students have welcomed the online facilities and services provided by the University. Increasing numbers of programs make use of educational tech-

nologies in their core activities and academic support areas have developed programs, including discussion groups that use computer conferencing, and that mirror or extend on-campus services. There is also a lively social life that is conducted via computer conferencing. It is important to note that it is not only off-campus students who spend time in this environment. While it is rapidly becoming an essential aspect of student life for off-campus students, reducing their sense of isolation and giving them opportunities for collaborative learning that they lacked in the past, the online environment is one in which on-campus and off-campus students mix. There is clear evidence from public computer conferences of such interaction; what is needed now is effort to integrate these students in learning environments. As the e-campus concept is developed and given a more coherent form, it may help generate a sense of identification and engagement that aids motivation. Whether it leads to better learning will depend on the collective ability of the members of the University to use online facilities to create rich and stimulating learning environments.

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# Converting To Online Course And Program Delivery: The University Of South Australia Case Study

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**Abstract**

The University of South Australia's (UniSA) approach to converting its distance education programs to online delivery is to manage it as a part of establishing an online teaching and learning environment for all of its programs. UniSA's move to online teaching and learning derives from a clear vision of its future, is informed and directed by a comprehensive framework for teaching and learning, and enabled by appropriate structures, processes and resources. The institution has chosen to develop a relatively low-cost, easy to use online teaching and learning environment that has facilitated large-scale conversion to the online mode for all teaching and learning, including traditional distance education.

## Introduction

### Brief description of UniSA

The University of South Australia was established as the newest university in the State of South Australia in 1991. It was formed from the then South Australian Institute of Technology and parts of the SA College of Advanced Education, each of which was also the product of a number of antecedent institutions, some of which were established early in the State's colonial history. In defining itself as a University, UniSA has, in the 10 years since foundation, taken a managed approach to establishing its vision, policies and priorities.

Some features of the institution are that it:

- operates from six campuses – five metropolitan and one regional
- has around 25,000 students, making it the largest in the state

- has 2,000 staff
- has an annual budget of more than $AUS200 million.

UniSA is a dual mode institution, with both distance and on-campus provision generally taught by the same academic staff with parity of content, expectations of student outcomes, and esteem between the modes. Management of all elements of program delivery rests with four teaching divisions under a common senior management structure. Distance education students are also supported by a central administrative unit that works closely with academic and administrative staff in the divisions. The enrolment pattern of distance students as a component of overall intake is similar to the national profile – that is, around 13% of UniSA students are fully involved in external programs. As well as fully on-campus and fully distance education modes, about 2,000 students mix enrolments across the modes, studying predominantly on-campus, but taking one or more courses as distance students when this suits their personal circumstances. The University also teaches programs offshore, mainly in Eastern and South-East Asian countries.

Distance mode programs tend to be concentrated in particular disciplines and professional areas, notably education, nursing, Aboriginal and Islander studies, humanities, social sciences, and business. Engineering, information technology, allied health, art, and architecture and design tend to have limited experience in distance education, although they have been quick to move to augment programs with online delivery options.

Where programs are available in distance mode, any student may elect to study as a distance student, whether or not they are physically remote from the institution. Indeed, many elect to study in this mode because it offers the flexibility they desire to balance employment, family or personal priorities with study. The University regards enrolment in either mode as a matter of student choice.

## Overview of efforts to convert educational programs from non-online to online delivery

The University has been engaged since 1993 in a planned process of achieving what it visualised as its future learning environment, to be fully realised by 2003. This included: (a) recognition of the significance of information and communications technologies in supporting student access and learning; (b) the formulation of an overarching teaching and learning framework that informs and directs the development of online learning; and (c) the resourcing of equipment, systems and infrastructure to support widespread use of these technologies in program delivery.

The Academic Board of UniSA is committed to developing programs that foster

an agreed set of attributes in graduates through a teaching and learning environment that is student-centred and flexible. This policy directive and associated academic planning involves identifying how university resources are to be used to achieve these ends. Online delivery mechanisms allow greater flexibility for students and consequently the move to supplement on-campus and distance programs with online forms is supported. In this light, the conversion of distance programs to online forms is seen as a relatively rapid and straightforward means of improving flexibility.

The conversion of distance education programs for online delivery is only one aspect of the University's move to online delivery for all its programs. In many ways, distance teaching and learning resources, being largely print-based, present the least technical challenge for wholesale conversion to online forms of delivery through the WWW. Production of print resources at the University had used highly standardised document templates in a common word processing package. Such standardisation has permitted the application of rule-based conversion programs to order the digitised text appropriately for online display. In fact, as we shall detail later in this case study, such templates have suggested ways of approaching the online teaching and learning environment.

Likewise, our general experience in distance education and commitment to the professional development of academic authors as literate contributors to asynchronous, resource-based learning have also contributed to our emerging model of flexible delivery.

## Problems and/or issues encountered

Moves to online modes of delivery raise a number of issues that can be grouped as follows:

- *Concepts and paradigms*. There has always been potential for tension in Australia between the paradigms of on- and off-campus (distance) delivery. The former tends to employ highly synchronous, face-to-face transmission or interactive group delivery forms. The latter favours asynchronous, print and other tangible resources delivered to individuals (Gillard, 1993). *Flexibility* (Nunan, 2000) and *online* as interpreted through each of these paradigms results in further confusion. Similarly there is lack of clarity about online learning as supplement, complement or replacement for other modes.
- *Capabilities of staff and students* to use online modes of teaching and learning effectively.
- *Resources* for online teaching and learning including access to appropriate equipment and networks, training, development and support.

- *The 'objects' that need to be available* to students and staff to facilitate online authoring of, and interaction with, teaching and learning resources.
- *Managing the implementation and maintenance of online modes*, including, for example, planning processes, changing work practices and reskilling of staff, and changing organisational structures.

These issues together impact upon the rate and areas of take-up and are elaborated below.

## UniSA's approach to resolving problems and/or issues

Because of the nature and history of the institution, UniSA's approach to these issues has tended to be on a whole-of-institution basis and highly integrated within policies and structures.

### Concepts and paradigms

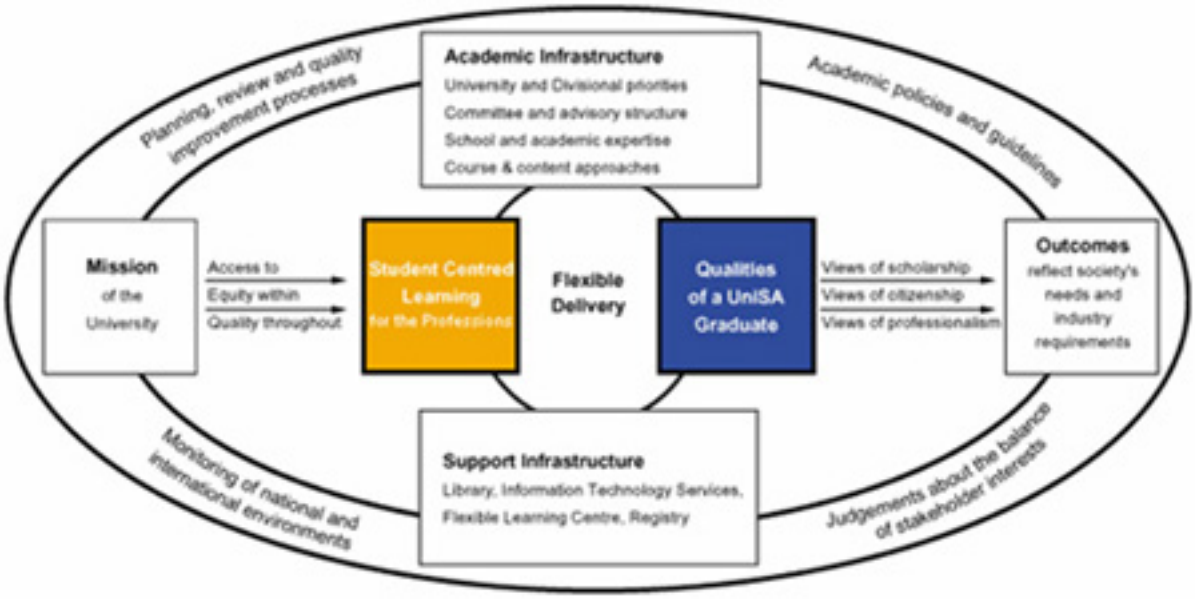
The University has addressed the conceptual tensions between the different delivery modes by developing an overarching teaching and learning framework. There are three key elements around which this framework is constructed. Two of these are conceptual: student-centred learning for the professions and a statement of agreed qualities to be fostered in University of South Australia graduates. The third element is enabling: that is, these conceptual commitments will be realised through the flexible delivery of programs. Our understanding of flexible delivery can be summarised as the provision of learning resources and the application of technologies to create, store and distribute course content, enrich communication, and provide support and services to enable more effective management of learning by the learner. In particular, the concept involves a view of learning in which a teacher does not predominantly mediate the student's experience (King, 1999, p. 271).

This policy position informs and directs teaching, learning and assessment within all of the University's programs.

Online teaching and learning is regarded as a means of increasing flexibility of delivery to provide for greater student access to, and control over, their learning whether they are studying on-campus or in distance mode, or offshore.

The University has dealt with the potential confusion between on-campus teaching, distance education, flexible delivery and online developments by replacing existing models and metaphors with a simple but conceptually powerful teaching and learning framework that features systems and processes rather than modes or student cohorts. This is critical, as it enables the identification of equivalent pedagogical elements of a teaching and learning environment across modes. The model is represented diagrammatically as follows (Figure 1).

**Figure 1: Systems and processes model of teaching and learning**




This framework, which distances itself from traditional concepts or categories, suggests a realignment and revaluation of current practices. In this way, it supports change and legitimates online flexible approaches that supplement, complement or replace aspects of the existing teaching and learning environment.

### Capabilities of staff and students

The conversion to online delivery necessarily is dependent upon enabling teachers and learners to operate effectively in the new environment. Teaching staff need to be familiar with the University's common delivery platform and to be able to use it as a production tool in a way similar to the way they would use a word processing application to prepare lecture or tutorial handouts. This needs to be matched with knowledge of how the communications capacities, sometimes described as shared workspace and private workspace, of the platform can be used.

Students need to be able to participate in online delivery from the moment they enrol, to be inducted into more sophisticated use of the environment during the initial orientation to their program of study, and to continue developing online literacy within their chosen professional or discipline area for the duration of that program.

**Resources**

The effectiveness of an online teaching and learning environment is heavily dependent on the availability and reliability of hardware, software and networks. The University made two critical decisions that have enabled it to provide an effective environment within its limited financial means. First, the decision was taken to standardise its information technology provision. All staff and on-campus student facilities share a common PC desktop environment equipped with the Microsoft suite of products. Hardware is obtained through a limited number of preferred suppliers, and software upgrades are taken on an institution-wide basis as a result of central decisions. Distance education students are supported in the use of University online services by making all provision available through a simple web browser. The second crucial decision was to restructure the University's budget profile to fund developments of technology and the library through staff reductions. In 1997, the University changed its model of income allocation to make savings of the order of $AUS18 million within a government operating grant of $AUS147 million – a 12% saving (University of South Australia, 1997). These savings would be applied to increased expenditure on information technology and maintaining library capital expenditure. Expenditure on information technology is expected to increase by some 30% over the period 2001-2003 (University of South Australia, 1999).

Support for the online environment, which is common to all staff and students, is coordinated through University-wide service units operating within a senior management portfolio grouping. The portfolio includes the Information Technology Services Unit (which manages and supports the infrastructure), the Library (which provides training for staff in PC applications), and the Flexible Learning Centre (FLC) (which is developing and supporting the online teaching and learning environment, UniSAnet, and providing professional development and support for academics in relation to online teaching and learning). The FLC provides support in a number of ways: (a) through person-to-person induction to the capabilities of UniSAnet; (b) through provision of helpdesk support, by means of WWW-based information; (c) through group based staff development sessions; and (d) through input from editorial staff on optimising text based communication and structuring for online presentation. UniSAnet, the online platform developed by the University, has similar features to commercial products such as WebCT and Blackboard, but is highly integrated with university core database systems such as student records, and human resource, finance and other administrative data. WWW pages are dynamically generated using Active Server Page technology and students can access all resources through a single logon.

**The 'objects' that need to be available**

Online teaching and learning had developed haphazardly within the University through the efforts of individual academic enthusiasts with technological skills. Some provided services for on-campus students, others directed their efforts

to distance students, and many made no distinction between potential student users. But the critical issue was that these had been individual – even idiosyncratic – in their approach, and reflected no coordinated use of software. Any technical platform would therefore need to satisfy the enthusiast and more advanced user by add-ons to the basic environment, as well as presenting a simple and easy to use interface for the non-technical (and even technophobic) majority of teaching staff. The development of UniSAnet is discussed in detail in King (in press).

Student satisfaction with teaching and learning is not simply a matter of the course content, but depends on their perceptions of the total teaching and learning environment they experience. It has therefore been important to develop an online teaching and learning platform that integrates administrative and service capabilities as well as teaching delivery. That is, converting the content and methodologies of educational programs to online delivery must also address issues about how students access services such as enrolment, fee payment, library services, learning and language support, health and welfare information, careers information and services and so on. A significant step in this direction has been to establish *Learning Connection,* a program of coordinated student services made available through physical offices on each campus, and, more importantly, as online services in a wide variety of support areas for both students (whether on- or off-campus) and academic staff. It is accessible 24 hours every day, again requiring only a standard web browser for access.

**Managing implementation and maintenance**

Conversion to online delivery cannot be predicated on the acquiescence of staff or students. Resources also need to be applied over time to promotion, encouragement and support for using the platform, and the removal of bottlenecks and obstacles to uptake.

To promote strategic conversion to online delivery within the academic divisions of the University, access to corporate resources to develop programs online is linked to the annual academic planning process. That is, where professional support is needed to add to the efforts of teachers in moving to or developing online educational programs, corporate resources are provided only to those programs that have been formally accorded priority by the academic divisions. The level of support is then negotiated between the divisions and the Flexible Learning Centre and becomes the basis of a service contract.

Moving to online delivery also challenges existing structures, work practices and skill sets in professional, technical and administrative areas of support units. It also requires significant coordination between units. The commitment to customer-service notions underpinning such coordination also requires new structures, work practices and skill sets.

As indicated above, coordination of activity in service areas has been facilitated

structurally by the establishment of a portfolio of service areas under the direction of a pro-vice chancellor (deputy president). Such a structure facilitates necessary integration between the use of converging technologies and customer service approaches to the delivery of programs. At the unit level, the Flexible Learning Centre is continually engaged in restructuring the work arrangements of its staff so that they can operate in ways that add value to the activities that teaching academics undertake using the UniSAnet platform. This is no simple matter. It requires the FLC staff to reshape the way they conceive their role. What was once a technical contribution to production is now a consultancy service to support learning.

## How conversion is influenced by UniSA's structure, culture and processes

The University of South Australia was formed by merger of two much older institutions ten years ago. The circumstances surrounding the creation of the new university have led to distinctive approaches to online teaching and learning. First, the emergence of a new institution out of different organisational cultures meant it had some scope and a political imperative to establish a unique identity and locate itself relative to the two existing universities in the State of South Australia. Second, the merger was planned and managed such that neither component dominated the form of the new organisation, but rather each component took part in defining and building the structures, processes and culture of a new institution. In this way, much former practice was shed and the institution was enabled to imagine its future more freely than might have been the case for a large and established older institution. Government also intervened and created certain conditions for achievement of university status by the new institution, one of which was a mandate to make special provision for indigenous and disadvantaged groups within the community. This fed into the need to consider, in particular, the approaches adopted as part of the teaching and learning ethos we wished to foster.

From the outset, the university benefited from a strong central leadership that forged a blueprint for institutional development. The institution identified a learning environment it aspired to achieve over a 10 year period, and the means of achieving it were set in train. Academic and service structures were all closely examined and restructured (and continue to be restructured) to align with the mission and goals the institution had set for itself. This process was also intended to enable the institution to adapt to changing external forces impacting upon the sector in general, and the institution in particular. These extra-institutional factors are discussed later in this article. Institutional planning, review, and comprehensive quality assurance and improvement processes were central to the strategy adopted by management to forge the nature of the

new institution.

Thus UniSA can be seen as being characterised as strongly led by policy and institutionally managed approaches to whole of institution change. This has made possible, amongst other things, large-scale online development during a period when the institutional funding base has had to accommodate major shifts from almost total reliance on government funds to pursuing much less certain earnings from other sources.

As in any large and evolving institution, continuing tensions exist within and between institutional subcultures. These revolve about notions of academic autonomy and managerialism, of central and devolved management models, as well as pedagogical debates about teaching and learning. While considerable commitment to the new mission and approach of the University has been achieved, there are still pockets of resistance. It is not surprising that the movement to online teaching and learning, as a focal point for change in an area that many academics regard as both discipline-determined and relatively unproblematic, is sometimes a site where resistance is played out.

However, there are other forces operating that support engagement with the benefits of conversion to online teaching and learning. These are closely tied to institutional and local planning and associated resource allocation processes. Academic planning is linked to the level of access to corporate resources consequently available to schools and divisions. Course development and delivery decisions are considered and reviewed at school and division level and when their budgets are under strain, decisions about program viability and variable costs per student are brought into sharp focus. Such a focus encourages strategic decision-making and a concern for cost-effectiveness that has been strongly conducive to the movement to online delivery. This is not to say that the University believes that moving to online teaching and learning will lead to cost savings. Rather, it is understood that greater quality and added value is likely for a similar outlay of resources and that, strategically employed, online approaches have the capacity to foster a significantly improved customer focus in program delivery. In short, rather than believing online teaching and learning enables us to do more with less, we believe that, strategically applied, we can do better with present resource levels.

The conversion process has been facilitated by the construction of an online teaching and learning environment (UniSAnet) as a corporate resource that reflects a number of principles articulated by the University community. There were expectations that UniSAnet would:

- establish an online presence in the teaching and learning of subjects that would readily accessible by all staff and students of the institution and scalable to any level of likely growth,
- be simple enough so that staff and students with the lowest likely levels

of information technology skills would be able to use it successfully, but capable also of accommodating innovative online teaching and learning resources already developed by innovative individual academic staff, and

- have a standard set of authoring and communication tools that would be adopted across the University and form the basis of putting materials on line such that UniSAnet would become the masthead for all online dimensions of the University's teaching and learning program.

With UniSAnet, moving to online is more than a conversion process; the technology also enables the transformation of the distance teaching and learning environment. Critically, it is a significant force for the development of increasingly flexible approaches to teaching and learning. The conversion process is a combination of transposing existing distance education resources to online materials and of upgrading them by utilising other capabilities and capacities encompassed within UniSAnet.

Rapid conversion of print-based distance education materials was facilitated by the development, by the FLC, of rule-based conversion programs (macros) that could take structured distance education documents (administrative information booklets and study guides) and automatically convert the text to WWW-based forms.

UniSA has had a particular approach to distance education that has influenced its construction of UniSAnet. Where other distance education institutions have followed a model where instructional designers construct learning materials using content authored by academic staff, UniSA adopted a philosophy of encouraging and supporting its academic staff to become literate distance educators. This has been achieved through formal professional development programs and also by way of the production of templates for authoring print materials that have, embedded within them, elements of instructional design.

Similarly, UniSAnet has, for the novice online teacher, developed wizards that encourage authors to make appropriate pedagogical decisions in constructing teaching and learning resources. For example, staff entrée to UniSAnet is through an automatically generated personal home page. This provides an attractive layout, with basic contact information compiled from information held on University databases. Capacity then exists for staff to organise and build the teaching and learning components of the site, using minimal information technology skills. Staff home pages are then linked to their basic subject page (also automatically generated). This site uses a wizard to construct and organise the teaching and learning arrangements and resources for the site. The subject page, in turn, is also linked to program information compiled from database materials held by the university Registry.

Conversion to online teaching and learning is facilitated by providing a structured repository for existing teaching and learning materials as well as an op-

portunity to add a range of new teaching and learning tools using the capacities of the platform. For example, UniSAnet makes automatic links to resources and services to enhance student learning – library, language and learning support, health and welfare, administration, bookshop – within the learning materials provided to students. In this way staff and students are well served by the platform, and features can be built-in to provide for student choice and control. Thus conversion from distance to online delivery goes beyond the individual design decisions that a particular staff member might make to include features of the program in which the subject is located and to incorporate the generic service framework of the University.

UniSAnet is thus constructed with features that are consistent with and which promote an institutional culture that places the learner and learning at the centre of academic and support infrastructures.

## Influence of extra-institutional factors

Australian universities have been facing something of a crisis in recent times and consequently so has open and distance provision. Elements of the crisis are common internationally, but many would see the situation exacerbated by recent Australian government policy. There is some measure of agreement on the forces that are combining to generate new demands on universities. The Vice Chancellor of the University of South Australia, Professor Denise Bradley (University of South Australia, 1997) identifies:

- globalisation of economic systems,
- rapid development of communications technologies which are revolutionising both the way we do things and our contact with people across the globe,
- changing patterns of work and employment, and
- growing economic and social inequalities within and between nations.

Another Australian Vice Chancellor, Professor Jan Reid (1997) mirrors some of these and adds:

- the political economy of higher education,
- the reconfiguration of knowledge within and between traditional fields of scholarship,
- the increasingly interventionist tendencies of government, the professions and employers,

- the funding and deregulation of higher education, and
- competition for the potential client base for universities.

Possibly the most significant factor for UniSA has been the desire to differentiate the University from local state and national universities in order to compete for potential students. The major means of differentiation is the provision of better teaching and learning opportunities for our students through more flexible, student-centred learning. The university sought to become a national leader in:

- applying information and communications technologies to the management, administration, teaching and learning within programs, and
- developing infrastructure and tools to extend its existing teaching and learning resources to online forms.

Such developments would open the way for possible income generation from program delivery, short course delivery, offshore activity and through commercialisation of UniSAnet itself. Indeed, the UniSAnet platform has been successfully taken up by other providers and is now commercialised through a wholly owned University company, *KnowledgeSouth*.

## Most influential institutional environmental demands

One of the most fundamental institutional issues in managing moves to online delivery has been how to rethink the deeply ingrained notions and metaphors held by academic staff that are associated with on-campus forms of teaching and learning and traditional distance education.

The latter has been closely associated with "production house" metaphors. Quality of program delivery was closely associated with the quality of the main teaching artefacts – the study guide and supplementary print materials. On-campus education has often been associated with teacher performance and interaction with students in the lecture and seminar group. Moves to online delivery have been perceived as either electronic book production (distance education model) or a denaturing of the performance and interaction modes of on-campus by "reducing" it to text-based forms.

Online delivery provides both a means of production of resources and a means of communication and interaction. Further, students can explore different layers of information within the online approach. They are able to map the boundaries of their program and determine the extent of their involvement in the ancillary services and resources that have been integrated into the program delivery.

Online delivery requires new metaphors that are based not in the simple transposition of study guides to electronic forms, but based in mutual involvement of teachers and learners in learning. The literature about online delivery (e.g., Chong & Sakauchi, 2000; Cox, Clark, Heath & Plumpton, 2000; Klockner, 2000) has a focus upon conversation – conference space, shared workspace, *threading* and *weaving* – to capture meaning from online conversations. Yet, at the same time, it also acknowledges that workspace contains other dynamic products or resources. Such resources provide information that awaits translation by the learner through conversational frameworks into meaningful learning resources. Typically, resources include hot-linked information, databases, guides to study, multimedia products, and so on. Online learners work within and experience a learning milieu or space that contains, but is not controlled by, teacher intentions. Different metaphors operate within this space. For learners operating in shared workspace, their metaphor is "conversation". For teachers, the closest metaphor to traditional practice is the "tutorial handout" as this is commonly a sketch map or resource aimed at stimulating conversation. Online learning is at the centre of a process of replacing "teaching" with "learning" metaphors. Thus conversion to online is the pivot upon which whole of institution cultural change turns in this critical area of university core business.

Three further critical institutional environmental issues that address the institution's need to differentiate and thus compete are:

- responsiveness – that is, the rate and extent of conversion of programs to online
- quality assurance of online teaching and learning programs within a total teaching and learning environment, and
- restructuring of academic and support staff infrastructures to address online teaching and learning.

In relation to institutional (corporate) concerns, both responsiveness and quality assurance are issues that are central to meeting the institutional goal of differentiation from competitor institutions. That is, how responsive we are to conversion will determine both the rate and extent of UniSA's differentiation. At the same time, the institution would wish to ensure that the quality of its online teaching and learning is the highest possible.

Issues about restructuring are largely concerned at University level with changing academic and support arrangements to address the online environment. It could be argued that there are fundamental changes necessary within academic teaching structures to move from a teaching to a learning focus, because teaching is such an individually constructed activity. Conversion at this level necessarily involves the decision-taking processes of the school or division that will entail consideration of issues such as program planning, resourcing and workload.

Such structures can be much more resistant to change as they are seen to embody collegial values that many academics see as central to university governance and management.

## Critical incidents in conversion to online delivery

The University's efforts in converting educational programs to online modes need to be appreciated as part of a long term planning process that encompasses a number of critical events summarised below, some of which have already been touched on.

First, the University articulated its vision of its future learning environment to the year 2003 in 1993. Among other features, this environment would be characterised by flexible teaching strategies emphasising student management of learning, and communications technologies applied appropriately to teaching and learning. An informal future learning environment working party later became a more formal group with responsibility to recommend specific changes to create electronic access to teaching and learning.

The second critical event was the reshaping of support for flexible learning, achieved by the creation of a Flexible Learning Centre (FLC). This involved merging the Distance Education Centre (containing staff experienced in production processes and academic staff development for external teaching and learning) and the Centre for University Teaching and Learning (a group of teaching and learning support professionals with a primarily on-campus focus). The FLC's role was to bring about changes in staff development and student support to facilitate institutional moves to electronically mediated learning.

The third critical event was a substantial whole of institution budget restructuring that provided the means to put in place the computing and communications infrastructure necessary to support wide scale online teaching and learning. Two elements of this were strengthening the electronic network between campuses and creating a common e-mail environment for all staff and students, using Microsoft Exchange.

The fourth critical event was the funding of a project to establish a common platform and tools that would be the institutional mechanism for developing online programs. Such a mechanism would have the following features: it would be scalable, and it would form a baseline system able to be used without specialised training by non-technical teaching staff from their desktops, involve no specialist software or plug-ins, and without requiring technical production interventions. This project resulted in UniSAnet, the University's masthead for online teaching and learning.

Conversion of educational programs to online modes at the University thus oc-

curs within an overarching teaching and learning framework, facilitated by the provision of appropriate structures, processes and infrastructure. The purposes of conversion are to improve, for students, access to and control over learning opportunities to develop as graduates with a distinctive set of qualities or attributes. Conversion is seen as a series of teaching rather than production decisions.

UniSAnet, as a vehicle for online teaching and learning, has been shaped by conscious decisions to eliminate staff dependence on expert production processes. A range of tools and wizards make developing guides to study, authoring quizzes, or constructing student evaluation instruments a simple process requiring no more skill than basic ability to use the average word processing software. Academic staff development resources are thus able to focus on pedagogical issues about online learning rather than on technical skills. Professional development for academic staff focuses on structuring content for online learning, using communications capacities within online learning, using virtual groups for learning, obtaining online feedback to improve learning and so on.

## Intended and unintended consequences of conversion efforts

### Learning/teaching system

The intended consequence was to introduce an online presence into all subjects taught by the University of South Australia. At August 2000, 17 months after UniSAnet was launched, there are 411 courses with online study guides, 90 of which have a range of self-assessment quizzes and automatic feedback for students, and 264 offer between 1 and 22 discussion groups. A complete online student support service, *Learning Connection*, is available on a 24 hour, 7 days a week basis. There is a similar level of technology backup for the system with sufficient access, storage and communications capacities. The success of the conversion has meant that hard copy materials to support teaching and learning will now be produced from the online materials.

Unintended consequences include a passing of print costs to students (at a distance) and to the Information Technology Services Unit (on-campus), as it runs the computer pools students use. The latter has been substantial and some academic staff seem to be putting materials on the WWW to avoid developing handouts for face-to-face classes as a cost-saving measure. Of course, costs are simply being internally displaced.

## Institutional level operational systems

The capacity of the domestic bandwidth over which material has to be delivered to distance students is a problem in Australia. Connectivity and delivery speed are becoming something of a problem. An interim solution of eschewing graphics and animations, which require wide bandwidth, has been adopted.

There has been a minor problem in a limited area of the University in that teachers in Computing and Information Systems are frustrated by the common reliance on Microsoft-based products. UniSAnet technicians have worked to provide solutions to their specific teaching problems, but there are strong attitudinal barriers yet to be overcome.

Demand for other areas of the University's operations to be more accessible online has been generated. This ranges from e-business dimensions to specific educational features such as the online submission and return of assignments and a growing requirement for administrative functions to be fully accessible. The UniSAnet team has had significant success in leading edge innovations, including the developing of online survey instruments, and a tool for the recording of success against the University's agreed graduate attributes. Rollout has also been more rapid than we anticipated. There is also the interesting challenge of commercialising a product that is in demand from other institutions while aspects are still being beta-tested within our own University.

One unintended consequence has been that the success of the conversion has pointed to the limitations of the wizard that is used to guide the structuring and shaping of the resources that are being imported into the online platform. This points to the need for a more flexible wizard(s) that cover a wider range of teaching and learning situations (including the development of resources and services for face-to-face teaching) and provide a more extensive range of guidance to staff who are involved in delivery and transformation decisions.

## Course development management system

The course approvals process within the university has recognised the connection between changes in delivery arrangements or moving from modes (internal to external) and has recently specified procedures that make decisions about delivery an issue within course approvals. Also, changes to delivery are often linked to strategic purposes as well as increasing flexibility (e.g., the marketing of course delivery offshore) and these need to be addressed within the wider University planning processes.

A necessary consequence of the approach we have taken is to pass responsibility for the quality of learning resource production back to academic staff. In the past, the administrative arm of the distance education operation exercised con-

siderable influence in setting standards and, partly, realising them through the production services we offered. Now, quality is a matter of divisional systems and the performance management process, which makes it a reactive rather than pre-emptive system.

### Course delivery system

The intended consequence has been to raise issues about the appropriate technology for the learning task and the platform has provided a vehicle for this. The production and communications capacities of the system provide viable options to conventional delivery mechanisms that in turn raise issues about the choice of appropriate delivery techniques.

An unwanted consequence has been to increase the costs of course delivery. This has been because threaded discussion groups and recourse to e-mail for communication between staff and students has increased student access to academic staff, who are the costliest component of course delivery in Australia.

### UniSA in general

A whole of institution development such as UniSAnet is only possible where the policy framework and resources are made available. The success of UniSAnet is driven by student acceptance and use of the capacities that are contained in the platform. This has been assisted by student uptake of an electronic environment that is integrated into the physical structures of our campuses. For example, all students have e-mail and there is access to computing facilities in purpose-built pools, stand-up sites in cafeterias and corridors, with similar provision in the library and administrative areas. This leads to an expectation that the capacities of information and communications technologies will be exploited to deliver subjects and courses.

## Implications of the experience

### UniSA in general

There are three obvious implications: (a) an increase in institutional competitiveness in the recruitment of offshore international students, (b) an increase in morale and institutional pride as staff see the quality and customer-service dimensions of the system realised, and (c) a clear adding of value to both academic staff and students in the development and delivery of programs.

## Implications for Administration

Staffing for the development of UniSAnet has had to take precedence over other areas of need. There has also been a challenge to staff formerly involved in the production of print and other tangible resources to redeploy their skills into the online environment, and some have found this difficult. Management has had to seek solutions that allow for staff satisfaction both within and beyond involvement in the new online system.

One dimension of this has been that the basic assumptions of work practices for some staff within the Flexible Learning Centre have been seriously challenged. This has been discussed above in relation to the movement from production models of resource production to support for learning, that is, staff have moved from being technical professionals to consultants and advisers.

UniSAnet has also challenged systems development protocols and without strong collaboration between the Flexible Learning Centre (responsible for UniSAnet) and the Information Technology Services Unit (responsible for maintaining the IT network and standards of the University) difficulties may well have arisen that slowed development. This required conscious effort by the two managers and involved setting up regular meetings for consultation and information exchange.

Online delivery has been the means of a significant immediate improvement to conventional distance education by eliminating logistical delays of printing, packaging and postage in the preparation of learning resources intended for distribution to students.

## Implications for Academics

The UniSAnet approach has been directed to allowing academics to concentrate on the preparation of content rather than having to acquire information technology sophistication or focus on the production aspects of moving online. The celerity with which so many have moved courses into the UniSAnet system is a measure of the success achieved. Further, electronic media enable more information to be gathered about processes, facilitating the necessary information base for greater reflection on practice.

## Implications for Learners

While the inhouse system requires the lowest level of information technology competence on the part of students, it is nonetheless the case that many benefit from computer literacy programs run during the Orientation Week of the first academic year. In the last two years, one hour programs have been run continuously throughout that week, using senior students who have undergone a

specialist train-the-trainer program. In each year, 48% of all first year students have participated in the program. There are, of course, issues about distance students getting similar support. Print versions of materials have been made available and online tutorials that deal with all standard University software are available.

There are, however, still problems of access. Genuinely remote students require costly long-distance connections to Internet Service Providers and the capacity to download materials is constrained by the capacities of the local telephone network. In part, this is offset by the immediate availability of materials on enrolment and 24 hour a day WWW-based support services.

### Implications for institutions converting from traditional to online distance education

The University of South Australia's experience is one version of the Australian approach to online delivery. It has clearly been facilitated by former institutional involvement in distance education – experience and infrastructure in resource production, an ethos supporting the non-traditional student, and a commitment to systemic forms of support. Most institutions have not adopted our approach of developing their own teaching and learning environment, but there are similar opportunities for those adopting whole-of-institution commitment to commercial authoring and communications packages.

At base, we believe that our successful conversion from conventional distance delivery to online provision that includes services for on-campus students involves central planning, a commitment to a student-centred view of teaching and learning, and adequate resourcing, both for necessary infrastructural development and subsequent professional development.

## Conclusions

The University of South Australia has sought to use distance education expertise and value commitments as the underpinning of its move from distance education to online delivery. In addition, it has developed a theoretical rationale, embedded in its planning and quality assurance processes, that posits a particular view of outcomes-oriented, student-centred learning at the core of its teaching and learning framework. This view can only be implemented through flexible delivery approaches that embody the technological dimension of online learning.

The success of the institution in developing its own approaches has been achieved at relatively low cost. At the macro level, the budget reprofiling exercise freed

resources to fund the infrastructure development that is a prerequisite to large-scale change, and funded the development of a platform appropriate to the needs of the institution. At a micro level, programming and conversion resources have come from a reprioritisation of roles and responsibilities and reskilling in relevant areas rather than the application of significant new resources. Change has involved an institution-wide reworking of roles, responsibilities and resource distribution that is pervasive, and so difficult to quantify with any precision. What is certain is that whatever the internal costs have been, successful and large-scale conversion to online is a move the University could not afford *not* to take.

Success has also come through predicating developments on the need for minimal information technology skills on the part of both staff and students, and access capability that requires no specialist software other than a web browser.

This movement, however, has involved a recasting of the assumptions and dominant paradigms shaping distance education practice, with consequent implications for the work of some technical experts, support staff, and academics. Conversion of non-online programs to online is not merely a process made easier or more difficult by the nature of systems and materials – it provides a pivot and opportunity for rethinking and reworking approaches to teaching and learning. It is about organisational change, and thus is subject to all the complexities and issues that such change entails.

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# Empire State College: The Development Of Online Learning

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**Abstract**

Empire State College was founded in 1971 to meet the needs of adult and other nontraditional student populations in the state of New York. Its initial delivery model was individualized instruction with a student working with a full-time faculty member to develop a unique plan of study and learning contracts to support that plan. By 1979, the College established the Center for Distance Learning, which developed and still offers structured, print-based courses to students with no requirement for on-site meetings. It began to experiment with computer-supported learning activities in the late 1980s, employing professional staff to support the exploration of technology and to provide assistance to faculty in instructional design. However, it was not until 1994, with the formal creation of the Center for Learning and Technology, that the development of online courses and programs was systematically pursued. This article outlines the development of online programs since that time, emphasizing the issues and challenges faced by the institution in seeking to provide quality, cost-effective distance education.

## Introduction

### Description of the institution

Empire State College (ESC) was founded in 1971, under the leadership of Ernest Boyer, the Chancellor of the State University of New York (SUNY) at that time. Boyer recognized that, while the broad distribution of public colleges and universities in New York State provided geographic proximity for most of the residents of the state, SUNY did not meet the needs of those who could not take a full time course load, or could not attend regularly scheduled classes because of work, family and community commitments. SUNY Empire State College was founded with a mission of access and quality and with a goal of establishing new ways of teaching and learning.

The three key barriers to access were defined as place, time, and curriculum. The problem of geography generated a plan to disperse instructional sites and, in so doing, to utilize other SUNY campuses and local communities as sources for such traditional academic needs as library access. The matter of time was addressed by establishing individually scheduled interactions between a student and a faculty member and enrollments that could begin any day of the year. The need to meet a variety of academic goals generated a broad, generic set of registered programs, unique in New York, within which individualized curricula could be created. It was recognized that, because of their other commitments, students at this College would likely require a longer period for degree completion and would, in the process, need useful academic credentials in the interim. This led to the offering of both 2 and 4 year undergraduate degrees. Subsequently, the College was approved to offer masters level degrees as well.

Consistent with the social issues that drove the College's development, the philosophy of the founders explicitly incorporated learning that could have occurred anywhere, not just in a lecture hall under the tutelage of a faculty member. To distinguish its faculty role from those found in more traditional colleges, Empire State College referred to faculty members as mentors.

ESC's development of print-based distance learning materials was initiated, in its current form, in 1979 when the College established the Center for Distance Learning (CDL), incorporating a number of the prior initiatives focused on the development of structured learning materials. CDL had a dual purpose in both serving its own matriculating students working entirely at a distance and students from centers and units across New York State, who were incorporating distance courses into their programs. The history of the College, including the development of its distance learning program, is discussed in some detail in *The Promise Continues* (Bonnabeau, 1996).

## Efforts made to convert programs delivered via print to online modes

Throughout the 1980s, CDL generated about 2,000 enrollments a year in its print-based courses. By the late 1980s, the College began to explore ways to incorporate computer-based activities into its distance learning course offerings. The first attempt involved the addition of a text-based computer conferencing software called CAUCUS to existing print courses. Another initiative, begun in 1991 and discontinued in the spring of 1995, involved the use of televised lecture-based courses, using one-way video and two-way audio, offered at classrooms located at community colleges in New York State. These synchronous courses used the SUNY Network delivery system and were staffed with on-site academic assistance. The intended audience for the program, known as SUNY by Satellite, was community college graduates interested in pursuing bachelor's level programs in business.

As the potential of asynchronous, computer-based instruction grew, the College's efforts to expand into this area were hampered by its small size and resource base. By 1994, the potential of technology in instruction had exploded onto the higher education scene. After 15 years of experience in print-based distance learning, Empire State College began to work with others in the State University of New York to initiate online educational delivery. With substantial funding from the Sloan Foundation, and in a collaboration known as the SUNY Learning Network (SLN), a number of institutions began to establish new, or convert existing, courses for web-based distance learning. The initial planning and implementation of this project were among the responsibilities assigned to ESC's Center for Learning and Technology. The context for the SLN project will be discussed below.

## Problems and/or issues encountered

The development of asynchronous learning was attractive to ESC. It provided opportunities for students to work on their own schedule and to interact, by computer, with each other and with a faculty member. The College developed more computer-based courses in the initial years of the SUNY Learning Network than did other SUNY partners, and, under the aegis of the SLN, began to build a full baccalaureate business program available on the WWW. However, the majority of the faculty at the College, who work with students in the geographically distributed centers and units, did not embrace or participate actively in the development of online courses and programs. This initially resulted in low enrollments in the newly developed courses, at centers and units as well as on the part of CDL matriculants. And since the Center for Distance Learning was functioning at this time in the College's history as a self-contained program, there were internal issues in regard to resource allocations for the project, to mission and audience, and to internal competition for students. By 1997-1998, CDL had developed a successful strategy for marketing these courses to its own matriculants, on the ESC web site [http://www.esc.edu/OnlineDegrees] as well as through the SUNY Learning Network [http://sln.suny.edu/sln].

## Institutional responses to these problems and issues

While devoting considerable energy and the resources of the Center for Learning and Technology to the SUNY Learning Network and CDL's participation in it, the College undertook two other initiatives in order to demonstrate the power of technology in all aspects of its programs. One of these initiatives was implementing a technology infrastructure in support of the distributed model characteristic of the College, including the widespread distribution of PC workstations and the development of internal applications such as e-mail, online academic records preparation and processing, and online resources for the use

of students and faculty across the College. The other was an internal planning project, cutting across the various programs of the College, focused on the question of distance learning at ESC.

### Overview of the case

This case covers briefly the internal and external factors that influenced the transition from a print-based distance learning program to one combining both print and online courses. The main thrust of this article is on the involvement of ESC's faculty and professional staff in this development, with special attention to the role of the College's Center for Learning and Technology in the SUNY Learning Network.

## Structure, Culture and Processes Unique to Empire State College

Empire State College is an institution that prides itself on presenting an alternative for adult learners. It has sustained its commitment to the initial innovation of individualizing academic programs and the content of particular studies with individual students during its 30 year history. The distributed and decentralized structure that supports mentoring in centers and units across the state is paralleled by a more structured set of programs offered, usually by term-based programs, and coordinated centrally from the College's offices in Saratoga Springs. The Center for Distance Learning is, as noted above, one of the structured programs developed and coordinated at the College's administrative site.

Over much of the life of distance learning at ESC, full degree programs were available in only two of the generic program areas (Business, Management and Economics; Community and Human Services) and in Interdisciplinary Studies. Students enrolled in small, print-based courses, having frequent contact with their instructors by phone and mail. Though not meeting mentors face-to-face, the students enrolled through the Center for Distance Learning have the institutional association of a mentor, who serves as an academic advisor and who provides support in addition to that given by the course instructor.

In contrast, most of the College's students were connected to a specific geographic location, enrolling in a center, which might have 20 or more faculty members, or an affiliated unit, which could have as few as 2 mentors. Learning opportunities were necessarily rooted in the actual resources available to the local faculty. In spite of the preference for one-on-one learning, the College has always employed a large number of instructional approaches. Assisting students to adapt to the learning approaches of the College, and developing individual-

ized degree programs were heavy, front-loaded faculty responsibilities. As the proportion of part-time students increased, the numbers of individuals assigned to a primary mentor grew accordingly. This additional work, and the lack of growth of state support for public education, encouraged the use of structured learning options, which could replace some of the individual mentoring.

The co-existence, peaceful and otherwise, of these two quite different program approaches (and their variations), is one of the most unique features of ESC, leading to multiple structures, processes, and goals. The College's administrative culture has been based on concepts drawn from strategic management; particularly, it has focused on being open and responsive to opportunities that fall within the overall mission and the directions set to realize that mission. In attempting to be agile and entrepreneurial, planning and implementation processes are incremental, using new initiatives as prototypes or pilot activities for wider dissemination after a successful trial period. In response to the public disinvestment in higher education experienced throughout its history, ESC has consistently explored and developed self-supporting programs that could bring additional resources for reinvestment to the institution. These newer programs are based on more structured models of instructional delivery and on distance learning.

## Extra-institutional and Environmental Factors Significant to Empire State College

Empire State College began its history with a unique mission and target audience. Over the 30 years of that history, there has been a sharp decline in the public investment in higher education, particularly though not exclusively in New York State. There has also been increasing competition for adult students in higher education, including on the part of colleges and universities that had not recruited this population in the 1970s. Many of those recruitment efforts have used the language that was once unique to ESC in reaching out to new audiences. At the same time, there has been a rapid development of technology which can and does support a variety of educational initiatives. There are also workforce development concerns that stress the importance of life-long learning. The volatile mix of these factors presents both opportunities and threats to the College, and has focused its planning and development efforts in the area of technology based academic and student support services and on increasing online program development.

## Influential Institutional Environmental Demands

With the creation of the National Research and Education Network, authorized by the Federal High Performance Computing Act in 1991, the development of a public communications network became the focus of the New York State Forum for Information Resource Management. Their report, published in December 1992, had as its first recommendation the creation of an integrated network for education (New York State Forum, 1992). By 1994, the Office of Educational Technology, part of SUNY system administration, had outlined a five-year plan which included the goal of networking its campuses and providing access to students in every part of the state (State University of New York, 1994). In 1994, a funding grant from the Alfred P. Sloan Foundation's Learning Outside the Classroom Program began the work which was the basis for the SUNY Learning Network [http://www.sloan.org/programs/edu_asynchronous.htm]. In January 1995, a group of SUNY Presidents published a report, outlining twelve objectives addressing the implementation of distance learning (State University of New York, 1995). James W. Hall, founding president of ESC, was serving as Vice Chancellor for Educational Technology during this period.

The SUNY institutions participating in the Learning Network collaborated to create a development and delivery platform, but single site service systems for cross registration between the participating institutions have not been established. The participating institutions continue to register primarily their own students and to function independently, duplicating academic programs and courses. This independence means that, while SUNY is one of the largest distance learning providers in the country, expertise and reputation exist primarily within the individual campuses.

Internal to ESC, strong faculty interest in distance learning has developed only in the last two years. While there were a few early starters in the 1980s, mistrust of distance or technology delivered education had evolved as the norm. Additional resources, such as computers and professional development funds, facilitated the recruitment of faculty for course development in the early years. Faculty had to be encouraged by administrators, by distance learning faculty colleagues, and occasionally by the students themselves to consider registering students in WWW courses. While some faculty members remain suspicious of structured WWW courses, there has been a marked increase of interest in the potential of these methods for design of instruction in the last 2 years. Mistrust of online course development originated from the budget climate in New York State during the late 1980s through the mid 1990s and the resulting competition for resources within the college. Nonetheless, center and particularly unit mentors made use of CDL print courses as institutional resources for students. That usage has extended to online courses.

A high investment was made by instructional technology and course development faculty to develop the early online programs. These programs were ini-

tially supported by a combination of external funding and decisions to use the print-based program resources to sustain early enrollments. The College made a deliberate decision to focus development within areas that represented significant student demand in both print-based courses and mentored programs, initially Business, Management and Economics, and now Community and Human Services. This is in contrast to many institutions that based development of online courses on faculty interests, resulting in a scattering of courses from many different areas of study rather than in programs delivered entirely online.

## Critical Incidents in the Conversion to Delivery of Online Programs

The College's prior use of two technology-mediated deliveries influenced its web-based developments. First, a positive culture was cultivated by the work of innovating faculty who began using text-based computer conferencing as a distance delivery mode as early as 1986. Advantages and characteristics of this mode were discussed and documented in publications which created, at least in some parts of the College, an interest in the pedagogical advantages of student-to-student interaction at a distance, a feature not easily incorporated into the center and unit based programs (Eastmond, 1995; Fey, 1992; Marantz & England, 1993; Roberts, 1987). These studies, particularly Eastmond's dissertation research, which culminated in *Alone But Together: Adult Distance Study through Computer Conferencing*, confirmed the benefits of electronic networking in reducing the intellectual, and sometimes social, isolation of adult students studying independently. The Fey study, particularly, confirmed that networked learning complemented the College's "traditional" mentor-student teaching model.

The SUNY by Satellite experience established a framework for collaborative program development, particularly with SUNY community colleges. The 1994 Sloan grant, noted above, was crucial to ESC's online course development. This grant provided funding for ESC and seven other SUNY institutions to develop both courses and an asynchronous learning network infrastructure. Grant funding established the project as a collaborative development within the SUNY system and funded Empire State College staff positions as the project team, giving the College's Center for Learning and Technology a unique status within the consortium. While this gave ESC's technology staff a significant role in the implementation of the SUNY Learning Network, it also led to confusion about their roles and responsibilities vis-á-vis the College. Table 1 summarizes enrollments, activities, and critical decisions in the college's implementation of online programs.

ESC's implementation of online programs has a direct relationship to its continuing print-based course offerings. As noted, the College has focused on developing online courses that allow students to pursue academic programs entirely

online. However, the CDL course catalog lists course titles for both print and online delivery. Courses that constitute core subject matter in the two online program areas are offered on a regular schedule in both delivery modes.

**Table 1**

***Empire State College development of online courses: Chronology of events and decisions***

| | Timeline* and Growth | Events | Critical Decisions |
|---|---|---|---|
| Innovation | 1994-1995<br>- Planning<br><br>1995-1996<br>- 6 courses<br>- 65 students | ▪ Received Sloan Grant for ALN<br>▪ Developed statewide delivery network<br>▪ WWW delivery using Lotus Notes product | ▪ Terminate synchronous video program<br>▪ Collaborate with other SUNY colleges<br>▪ Assign ESC staff to system-wide project (network development, faculty development, course design, student support) |
| Expansion | 1996-1997<br>- 18 courses<br>- 191 students<br><br>1997-1998<br>- 38 courses<br>- 515 students | ▪ Adopted Course Management System<br>▪ Standardized faculty development process<br>▪ Added student help desk | ▪ Adopt uniform Course Management template<br>▪ Focus on replicable and scaleable processes<br>▪ Integrate WWW courses into college's distance learning organization |
| Institutionaliza | 1998-1999<br>- 81 courses<br>- 859 students<br><br>1999-2000<br>- 127 courses<br>- 1515 students | ▪ Created online support services ("Virtual Student Center") | ▪ Reallocate staff from system-wide project back to ESC<br>▪ Focus on online student services<br>▪ Expand degree programs |

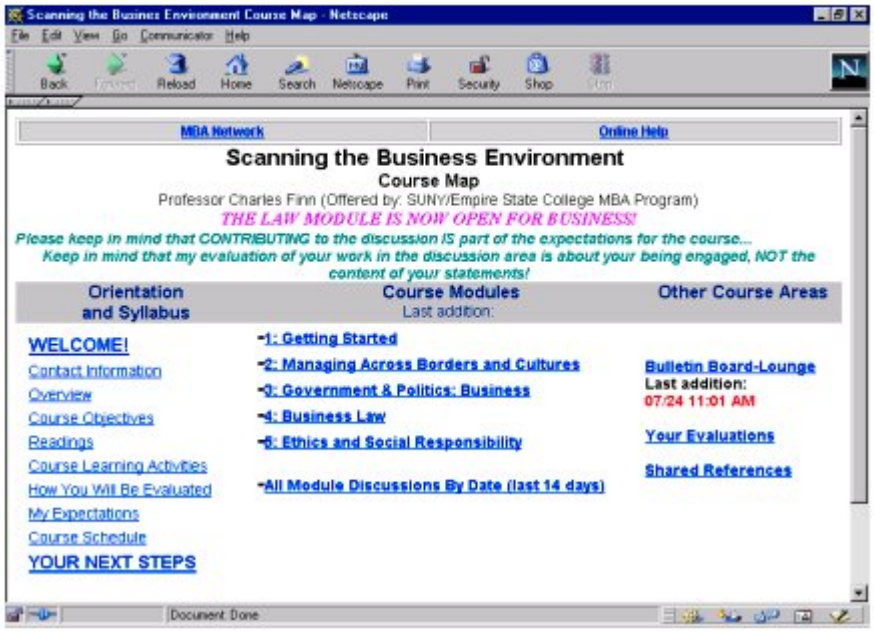
* Timeline is based on the academic year, fall through summer

A critical decision made during the second year of the SLN project was to adopt a single standardized course management system and template. Figure 1 is an example of a course management template for a business course. Although use of a single course management system and template was of significant benefit to students enrolling in online courses, it was not always viewed positively by faculty at ESC or elsewhere, particularly among those who were interested in technology and in exploring software options. In its first year, the faculty involved in the SLN project were volunteers interested in technology. Grant

funds permitted generous compensation including extra service payments, laptop computers, a 1 year development timeline for courses, and a stipend for software, training, and conference travel. By the second year, the project was expanding, and the demand for new course developers necessitated involvement of faculty who were less enthusiastic and knowledgeable about technology. With this second group of faculty the use of a single course management system and template was a benefit. To further support faculty less comfortable with technology, the CLT staff institutionalized a faculty development and decision process which emphasized text-based interactive assignments such as discussion, small group work, and self-assessments (multiple choice and true/false). Examples of these kinds of learning activities can be seen at [www.esc.edu/examples] – this is a password-protected site: User name: **Faculty Guest**; Password: **guest.** Development of more labor intensive course supplements such as graphics, simulations, and audio/video files were left to individual faculty members, rather than being supported by project staff.

**Figure 1**

**Example of Course Management Template**




A corollary decision was made to concentrate time and effort on "replicable" and "scaleable" processes. The CLT staff automated a number of support functions such as creation of course files, security access to courses, and term course listings. While this was more time-consuming in the short run, the processes

and tools have allowed the SUNY Learning Network to grow, during a 5 year period, from 4 courses and 50 students to 1,000 courses and 12,000 students [sln.suny.edu/sln]. During this initial phase of development, the College piloted online delivery of some services, including online registration and orientation, academic advising, technical help and librarian assistance.

A third critical decision, implemented during the expansion phase of the SLN (the academic years 1996-97 and 1997-98), was to assimilate the web-based courses into the College's distance learning operation, moving from special project status into full integration. Until that point, the management of course development and delivery systems had been parallel to, but primarily independent of, the College's print-based distance learning operation. Faculty development, instructional design practices, course review, materials ordering, initial student contacts, and even recruitment, marketing and orientation sessions were handled by the grant project team. In fall 1998, the College began full integration of online course development and delivery with its other distance learning program. The decision supported expansion of the web-based program, both in enrolling existing ESC students in online courses and marketing to new audiences. During the assimilation period, online faculty were included in tutor development activities and academic coordinators from the Center for Distance Learning took on oversight of course development. Management of course delivery was integrated with the core distance learning operations, a process facilitated by the college's implementation of a new administrative system.

During the 1998-1999 academic year, the College made the decision to reallocate the CLT staff from supporting system-wide distance learning to ESC projects. This decision reduced the College's influence on distance learning within the SUNY system. However, the reallocation made staff available for another key activity: development of online support services for students. While the College had a robust set of online course offerings, it had not focused on online student support services. Through the Virtual Student Center Project [www.esc.edu/student], the College began systematic development of these services online. While the college had always been adept in being able to provide support services at a distance via phone and mail, web-based technology permitted other institutions to leap frog from in-person to WWW services ahead of ESC.

In 1999, Empire State College decided to expand its degree offerings through programs in Community and Human services [www.esc.edu/onlinedegrees]. This decision responds to student interest, but also challenges online program development. In many ways, the target audience and faculty for this program resembles those of the Business, Management and Economics program 4 years ago: students are less likely to own computers and have Internet access, and faculty have not had much experience using technology. The College is using some of the same incentives used earlier to support development in this area of study.

## Intended and Unintended Consequences of Conversion Efforts

The move to web-based delivery was motivated by three considerations. Primarily, the College was concerned about its ability to continue to compete in a distance learning environment that was moving to greater use of technology to support learners. At the same time, the College saw the potential for improving the quality of learning for students working at a distance by promoting greater interactivity with faculty and other students. Greater interactivity also had the potential to improve student satisfaction and retention as well. Finally, some faculty were also interested in the innovative aspects of technology assisted learning and in exploring the potential for improving student learning and faculty work.

Improvements to the learning/teaching system have been realized, but probably not to the extent we initially hoped. Retention rates for the web-based courses mirror the rates for the College's print courses, which range around 70 to 75% for advanced level business courses and around 60 to 65% for introductory business and general courses. Currently ESC is engaged in research focused on the introduction of its online program in Community and Human Services, which will explore such differences. Students in WWW courses are much more likely to complete on time, and generally seem to be satisfied with, the online courses. Results of student satisfaction surveys indicate that adult students value highly the interaction with the instructor as a contributor to the learning experience. Students also apparently find benefit in their interactions with other students; regression analysis of the end of term survey data show that students rate highly the opportunity to share different perspectives on course issues and to provide mutual support (Jiang & Ting, 1998; Richardson, Tunwall & Carnevale, 2000).

An unintended consequence has been the impact on the faculty who have participated in online course development efforts. Adjunct faculty teaching in both the print and online courses greatly improved the currency of resources and access to resources for students. Course designers have begun to incorporate publisher resources and focused web sites into both print and online courses. In addition, a number of faculty from various parts of the college began to work collaboratively in course development teams. These faculty speak enthusiastically about the impact of solving teaching problems with their colleagues and transferring the successful methods they have developed in online teaching to other modes of delivery.

Faculty have also improved responsiveness to students and have greater access to resources. In the initial years of teaching online, faculty often over-taught and then raised concerns about increased workload. They created course designs and response systems that resulted in the need to individualize all responses to students. Attention was given to this problem by the CLT staff and the CDL

faculty who coordinated course development to help faculty to create designs which allowed for automatic feedback or student-to-student interaction, not always requiring individualized responses.

The Center for Distance Learning has deliberately moved away from operational systems that rely on mail, fax and phone for students and faculty. All faculty and adjuncts are expected to have access to the WWW, and the Center has designed systems to facilitate reporting on student progress. Within the last several years, student service systems have been designed to allow students to apply, register, check on their status and connect with other students on the WWW. As expected, students in both online and print courses quickly began to use these services to do their business with the College. Over 50% of distance learning students now register for courses, whether print or online, on the WWW.

Recruitment goals for online courses included both internal marketing to the existing students of the College and attempts to reach out to new audiences. Analysis of inquiries and registrations indicate that new students are attracted to online courses. They are slightly younger than students registering for print courses (the average age is the 30s rather than 40s), more often male, and generally employed. Many students are attracted to ESC's programs because of interest in individualizing their study and getting credit for prior learning as part of the degree program. Unlike these general goals, students pursuing programs online report their primary interest is in completing degrees or courses entirely on the WWW. Online course enrollments represent only ten percent of CDL's overall annual enrollment. Internal marketing has not been as effective as anticipated, with less than a third of the online enrollments coming from other centers and units of the College. CDL had projected that online enrollments would have grown to half of its delivery within 5 years of initial development. While online enrollments are growing, enrollment in print course also continues to grow.

## Implications of this Experience

Debates relating to the value of technology or distance supported delivery are evident in almost all higher education institutions. Those most centrally involved in ESC's development of online distance learning opportunities recognized that this debate was only telling if it centered on reinforcing the institution's core values of student-centered approaches to education. The College has developed its online programs in response to the academic interests of its existing student populations. It worked for several years to prioritize a standardized approach to web-based delivery of both courses and related student services and to create an advising culture which supported the value of learning through this delivery approach. The development of programs rather than individual courses resulted

in a more cohesive marketing message, which encourages students to return to a program. The development of online services for students at a distance is closely aligned with the delivery of courses. The ability to grow and sustain enrollment requires attention to the needs of the adult student and to their interactions with the institution.

The process of establishing policies and procedures to support viable online programs was accomplished in the early stages of the SLN project. They were applied and amplified, within CDL's planning processes, once the project was integrated fully into its operations. As a result, a number of potentially controversial issues were resolved at the pilot stage.

The marketing of new online teaching and learning options has been facilitated by the parallel development of technology resources for the entire ESC student and faculty. In fact, the Virtual Student Center, though conceptualized as a support for distance learning students, has proven to be a more general resource, used by both students and faculty throughout the College.

The College has embarked on a research and evaluation study, related to the implementation of its online Community and Human Services program, that will address a number of the questions posed by the institutional data presented in this article.

## Conclusion

If examined from the perspective of program development, Empire State College, as well as other institutions engaged in developing online academic programs, required an extensive investment to actually implement such programs. The College's development was subsidized by grant funding, through the State University of New York. SUNY as a system has supported the expansion of online course development for interested members of the system. ESC's successes in this area would not have been possible had funding been restricted to the annual budget of the College.

In the 6 years since it introduced online web-based courses, the College has seen an increase in enrollment, though it has not reached a level that allows for reinvestment, much less the recovery of initial investment. Nonetheless, the College's focus on providing degree programs entirely online and the support services required by distance learners has allowed it to expand its initial mission of access and flexibility. Online course and program development has emerged from and reflected the substantial experience of the faculty in facilitating academic achievement for adult students and in increasing the experience of community among distance learners.

While the continued development of online programs at Empire State College

will require additional resources to expand both academic and other student support services, the initial investments in infrastructure and learning management systems has made ongoing development easier. The College has been able to adapt many of its technology developments and service supports to new applications, such as its online MBA program. The College's substantial experience in providing programs at a distance for adult learners has grown as a result of its efforts to include web-based online delivery as an option. Most recently, this experience has been the basis for addressing Federal government mandates in regard to providing educational services to people serving in the military.

The College's strategic planning reflects a continued emphasis on online programs as well as the full integration of online academic resources as a tool for teaching and learning. ESC has articulated a blended resource model in terms of delivery, including online and print-based courses, individual mentoring and tutoring, cross-registrations at other colleges and both local and college-wide group studies. The differences between distance learning and other forms of higher education have never been as extreme at Empire State College as in more traditional institutions in the United States.

The online program began in 1995-1996 with 6 courses delivered to 65 students. Online enrollments in 1999-2000, the fifth academic year during which online courses were offered, included 1,515 students in 127 courses. The proof of concept of the College's focus on developing online programs, learning resources and student support services will be the result of continuing efforts to increase scale.

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# Converting Student Support Services To Online Delivery

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Regents College

**Abstract**

This case study describes how Regents College (soon to be Excelsior College), an accredited, private, distance education institution with administrative offices in Albany, New York addressed the structural, management, and resource issues that came into play when converting distance education programs from print-based and telephone delivery to online delivery. The study uses a systems framework to describe and analyze the circumstances and issues surrounding the creation of six student support services: electronic advising, an electronic peer network, an online database of distance courses, an online bookstore, a virtual library, and an alumni services website.

## Introduction

Based in Albany, N.Y. Regents College [http://www.regents.edu] (soon to be Excelsior College, [www.Excelsior.edu]) is an accredited, private, degree-granting distance education institution designed for adults who choose to complete their college degrees in a self-paced, portable manner. Regents College is considered a standard bearer in distance learning, having served as a model for several other college programs across the United States. Nevertheless, the College retains its unique character in that virtually all of its degree programs use an outcomes-based assessment of learning model.

With an enrollment of 17,000 students Regents College awards degrees in 32 programs at the associate and baccalaureate levels in business, liberal arts, nursing and technology, a Master of Arts degree in Liberal Studies and a Master of Science degree in Nursing. The College serves primarily working adults at a distance by means of the assessment of prior learning, academic advising, learning support services, educational brokering, and credit-by- examination. Students earn degree credits in many ways but primarily by taking Regents College examinations, transferring credits from regionally accredited institutions, or using faculty evaluated collegiate training programs from business, industry and the United States military.

## Conversion of Programs to Online Modes

Born as a paper-based institution, Regents College recognizes the important role the availability of online student support services plays in recruiting students to the College, facilitating their degree completion, and establishing and maintaining an active alumni. Within the last three years the College has established electronic advising, an electronic peer network, a virtual library, an online bookstore, a web-delivered database of distance courses, and an online alumni service. This paper describes how these services were converted from services delivered by print and telephone to services delivered online.

## Problems and Issues

Problems and issues encountered in the conversion of program support services to online delivery include the provision and allocation of resources, the availability of appropriate technological infrastructure, organizational structures and procedures, service quality, student access and equity, and policies on academic honesty and student behavior. Perhaps the most crucial question that had to be addressed was whether to provide a particular service in-house using existing resources or to outsource that service to a vendor. The way in which this question was answered influenced the impact on the types of problems and issues generated.

## Resolving Problems and Issues

Regents College's existing management and organizational structure and administrative processes were used to resolve problems and issues. The College consists of five divisions reporting to the Office of the President: Academic Affairs, Enrollment Management, Finance and Administration, Institutional Advancement, and Organizational Development and Human Resources. The College's committee structure includes Executive Staff (the president and vice-presidents), the Operations Staff Committee (chaired by the president and composed of the vice-presidents and mid-level managers from all divisions), the Academic Affairs Council (chaired by the division vice-president and composed of deans and directors) and ad hoc committees as needed. In addition, problems were addressed directly (without involving a committee) by the appropriate administrator(s) and staff.

## Case Study Organization

This case study uses a systems approach as an organizational framework. A systems framework provides a means to examine extra-institutional societal fac-

tors acting on the institution from without and factors acting from within. The study begins by describing the structure, culture, and processes unique to Regents College and the societal factors that have had the greatest influence on the College. In the next section, the study identifies the most influential environmental demands on the institution. The remaining sections of the paper focus on the chronology of events associated with the process of converting student support services to online delivery, intended and unintended consequences of conversion, and the implications of this experience for the College and other institutions planning to convert services to online delivery.

Sources of data used in preparing this case study include a range of documents (proprietary and public) maintained by the College such as strategic long-range plans, memoranda, minutes from committee meetings, discussions with members of Executive Staff, Operation Staff, and Academic Affairs Council staff and other staff members as necessary. Techniques of qualitative data analysis (Miles & Huberman, 1994) were used to explore, analyze, and display data.

## Distinguishing Structure, Culture, and Processes of the Institution

Regents College was established in 1971 by the New York State Board of Regents as its external degree program serving adults who had some college credit but had not completed a college degree. The College's mission was (and remains) to expand educational access with economy and efficiency, particularly to those historically underrepresented in higher education. In 1998, the Board of Regents granted the College a charter to operate as a private, independent college.

A distinguishing aspect of Regents College is that except for graduate level degree programs, the College does not offer courses (i.e., units of study consisting of about 135 hours of study) of its own. It has no campus, resident students, or classrooms. Students enrolled in Regents College earn degree credits through courses offered at accredited colleges and universities in the United States and in other countries, distance learning courses, and military and industry training evaluated for college credit by the American Council on Education (ACE) and the New York National Program on Non-Collegiate Sponsored Instruction (PONSI). Credits can also be earned through Regents College Examinations, a series of 50 examinations developed and administered by Regents College to measure college-level knowledge in a variety of disciplines.

Another distinguishing feature of Regents College is its emphasis on the evaluation of prior learning and the application of acceptable credits to degree programs. Regents College was founded on the philosophy that "What you know is more important than where or how you learned it" (see Appendix A) and the college remains committed to this philosophy today. Unlike other U.S. colleges

and universities, Regents College requires no academic residency.

It is important to note that Regents College has no resident faculty. The faculty of Regents College (approximately 350) is drawn from many colleges and universities, industry, and professions and is comprised of senior, tenured professors. Faculty establish degree requirements, determine how these requirements will be met, and vote to recommend candidates for degree conferral to the College's Board of Trustees. Although, faculty typically join Regents College because they support the mission of the college, they identify primarily with their home institutions. However, when faculty meet at Regents College, many of the turf battles found on their home campuses do not exist at Regents College where they are on neutral territory.

Another distinguishing aspect is that the role of academic advising staff differs from that of advisors at colleges where advising duties fall to faculty. At Regents College advisors are not faculty members. They are full-time professional advisors without instructional responsibilities. Advisors focus on evaluating student credit, pointing students toward new sources of credit (e.g., distance courses), and advising students on study resources. Therefore student support services are broader and qualitatively different from those expected in more traditional distance learning institutions.

## Extra-institutional (societal) Context

Several external environmental factors influence Regents College as a distance education institution. The most important of these include continual growth in the number of adults returning to higher education in the United States and abroad (Maehl, 2000; UNESCO, 1998), the preference of adults to continue working and living at home while earning a college degree, the growth of the Internet and World Wide Web, the increasing availability and importance of computers, competition for adult learners from traditional institutions and corporate entities offering distance education programs, and the opening of new international markets. In addition, increasing student expectations for fast, economical, personal, and courteous service has placed additional pressure on Regents College to continually improve the quality of services offered to students or risk losing enrollments to those better able to provide them.

## Institutional Environmental Demands

The key institutional environmental demands on the College emanate from increased accountability required by a new board of trustees. The executive staff instituted a college-wide planning process that articulated a vision for the col-

lege, reviewed the institution's mission (in light of the external environmental influences), and identified strategic initiatives and short and long-term goals for achieving that vision. Most importantly, the College leadership established structures (e.g., a system of quarterly reports and annual staff performance review) that supported the implementation and monitoring of the strategic plan.

The College's strategic long-range plan provides the framework for the activities of staff and is therefore an important internal environmental factor. The current strategic plan (Regents College, 2000) contains ten strategic initiatives designed to advance the College toward achieving its mission. Strategic initiatives particularly relevant to the conversion of student services to online formats include the following: the establishment of strategic alliances, building a learning infrastructure, developing new academic programs, using a balanced set of measures of institutional success, closing the service gap to students, maximizing the use of technology, and assuring the financial health of the institution.

The implementation of the College's strategic plan provides much of the context for the conversion of online student support services. In addition, the renewed organizational energy that came, in part, from the College earning its independence from the Board of Regents in 1998, contributed to the willingness of the College's leadership to support innovations, particularly those well-aligned with the strategic long-term plan.

## Chronicle of Efforts and Events to Convert to Online Programs

This section describes the conversion of six student support services to online delivery. Components of the old and online versions of each service are described and the resources required to convert and maintain them.

Table 1 provides a time line for the conversion of services including implementation dates, time required between the decision to convert each service and implementation, and the approach used (developing the service primarily in-house or outsourcing to a vendor).

Conversions began with advising in April 1997 and finished with alumni services in July 2000, a span of three years and four months. Only one service (EPN) required more than a year from the decision to convert to implementation. Table 1 also indicates a trend away from using an in-house approach.

**Table 1. Service Conversion Time Line**

| Service | Date | Time required | Approach |
|---|---|---|---|
| Advising | 10/97 | 7 months | In-house |
| Electronic Peer Network | 5/98 | 15 months | In-house |
| DistanceLearn | 7/99 | 1 year | Outsource |
| Bookstore | 8/99 | 1 year | Outsource |
| Library | 2/99 | 1 year | Outsource |
| Alumni | 7/00 | 4 months | Outsource |

## Advising

Academic advising is core service of the College. Therefore, when the College became an Internet node in April 1997, it moved quickly to provide students electronic access to advisors. The College evaluated e-mail software packages and selected Lotus Notes, in part, because it could support an advising system that required students to contact an advising team rather than individual advisors. Team e-mail boxes were established to facilitate this system.

In the past, advisors used primarily telephone, supplemented with postal mail and fax to communicate with students. Since these means of communication are still regularly used to advise students, the implementation of electronic advising represents an addition to existing advising services rather than a replacement. However, this addition generated new problems and issues for staff, discussed later in this paper as consequences of the conversion to online delivery.

The process of installing the new e-mail system and training staff to use it proceeded systematically. Staff were trained to use Lotus Notes for internal e-mail in April and May of 1997, so that when the system was linked to the Internet, virtually no additional training was necessary. The College was able to use Office of Information and Technology Services (OITS) staff for most aspects of this project such as configuring hardware (a new server was required) and software. However, outside consultants were sometimes used to troubleshoot problems. Once the e-mail system had been implemented, the system was maintained with internal resources.

Since the College had already installed the Lotus Notes e-mail system for internal staff communication, resources required to enable electronic advising were incremental. These included the equivalent of one professional level technical

staff working full time for three months, one support level technical staff working one week, and one professional level academic staff working one week.

## The Electronic Peer Network

Because of the geographic dispersal of students and differences in work schedules, Regents College students have not historically had convenient access to fellow students for academic or emotional support or to engage in collaborative learning activities. The Electronic Peer Network (EPN) is a website [http://gl.regents.edu] that was created to provide a means for students to interact academically and socially as they progress through their degree programs. The EPN also enables students to interact with staff and to access additional resources. EPN members use the website to locate study partners, join online study groups, chat with other students and staff, and access resources related to their programs and career goals.

The EPN replaced the Learning Network which consisted of a paper directory of student contact information distributed to members twice per year. Students mailed or faxed in a membership form that included their name, address, phone number (eventually e-mail addresses), and degree program listed in the directory. Learning Network members used the directory to contact other students in their program.

The impetus to convert the Learning Network to a web-based service was provided when the Office of Learning Services received a small grant from the National Center for Adult Learning (NCAL) to create an Electronic Peer Network. Learning Services and OITS in collaboration with Fiscal Services decided to develop the EPN primarily in-house because of the uniqueness of this service. Vendors specializing in providing electronic peer networks did not exist.

The process of converting this service was more difficult, time-consuming, and expensive than anticipated. With little notice, OTIS had to incorporate into its work flow a complex, technologically sophisticated, labor-intensive project by the deadline specified in the grant. The design and development process involved hundreds of hours designing systems, selecting, testing, and installing software, setting up a secure registration system, and working with consultants to solve technical problems that surfaced on a regular basis. In addition, hardware had to be selected, purchased, installed (including a new server), and tested. Learning Services staff were also involved in many of these activities, some of which required rapidly learning and applying new skills. Overall, the startup and maintenance costs of this project were ten times more than those anticipated when the project was first proposed (Brigham, 1998).

The EPN also requires a substantial increase in resources dedicated to maintaining this service. Whereas the Learning Network had required a full-time

coordinator and minimal secretarial support, the EPN requires a full-time coordinator, a full-time computer application engineer, a part-time technical support person (evenings and weekends), significantly more secretarial support, a portion of the College's webmaster's time, and about a dozen staff to monitor discussion groups and facilitate real-time chats. Startup and annual operating costs for the design development and implementation of the EPN are displayed in Appendix B.

## DistanceLearn

To complete their degree programs, Regents College students often require credit-bearing educational opportunities beyond those offered by the College's battery of examinations. Therefore, in 1987 the College created DistanceLearn, the nation's first electronic database of distance courses and examinations that do not require a period of face-to-face instruction. DistanceLearn currently contains over 16,500 distance courses and examinations available from over 270 accredited colleges and universities in the United States and several countries. DistanceLearn is installed on Peterson's website at [http://www.lifelonglearning.com] and can be searched by institution name, subject, keyword, delivery method, and cost (DistanceLearn, 2000).

For almost 14 years DistanceLearn has been available to advisors on the College's LAN as a DOS-based application. DistanceLearn assisted advisors in their role as educational brokers. Advisors searched the database for students while they were on the telephone and printed out copies of course information for faxing or mailing to students. Before DistanceLearn was available on the web, a few students accessed DistanceLearn themselves by purchasing it on computer disks from the Regents College Bookstore.

When the College decided to make DistanceLearn accessible on the web, it found the cost prohibitive (estimated to be $250,000 - $300, 000) to do this conversion in-house. Therefore, the College entered into a collaborative agreement with Peterson's, Inc. who designed and developed a website for this purpose. The College used internal resources to convert the DistanceLearn from a DOS-based application to a format (Microsoft Access) that would allow Peterson's to install it on their website. The College was able to accomplish this task with existing resources and staff (i.e., one full-time and one part-time position).

Resources required to convert DistanceLearn from a DOS-based application to a Microsoft Access database required the equivalent of one professional level technical staff working full time for six months, one technical consultant working two weeks, one support level technical staff working one month, and one professional level academic staff working two weeks. (Note: Cost data related to creating the website and installing DistanceLearn on the website is proprietary and cannot be provided in this paper.)

## Bookstore

Providing students with convenient, affordable, rapid, and reliable access to study materials and resources is a crucial aspect of distance learning. Given the widespread geographic distribution of Regents College students, establishing an online bookstore with 24 X 7 access was viewed as a way to significantly improve the existing bookstore service.

For several years Regents College had outsourced its bookstore to another college. However, student complaints about poor service and the absence of online services prompted the College to seek another vendor. Recognizing that the College could not provide the desired level of professional service in-house, it solicited proposals from vendors specializing in serving distance learners and contracted with Specialty Books. Specialty Books created a website [http://www.specialty-books.com/cgi-bin/regents] where students can order and pay for study materials and resources (students may also order by phone, postal mail, and fax). Since student complaints virtually disappeared with the establishment of this online service, the demands on Regents College staff actually decreased.

Changing to a bookstore that provided online access for students required virtually no additional resources from the College. Screening vendors required two weeks of professional level administrative staff time and negotiating a contract and articulating needs required one week of professional level staff time. Time spent by a support level Regents College staff member to liaison between College staff and Specialty bookstore staff to maintain the shelf list continued to require about one day per week or 20 % of a full time support level position. Overall, arranging to have a bookstore accessible online provided a new stream of revenue to the College via a negotiated agreement with the vendor.

## Library

Obtaining research materials and assistance to carry out research has been a persistent problem for adult distance learners, particularly for those not living near or having access to adequate libraries. Accrediting agencies are beginning to recognize the importance of providing library services to distance students and are beginning to develop standards for distance education programs. In February 2000 the College implemented the Regents College Virtual Library (RCVL) as its solution to providing library services for students.

The RCVL provides library services that students can access from a Regents College website [www.library.regents.edu] designed and maintained in collaboration with Johns Hopkins University. This website integrates core library services including reference services, interlibrary loan, a virtual reading room, and online databases that support Regents College degree programs. Students can request

hard copies of books and journal articles for home delivery and receive help on an individual basis via e-mail or telephone from a reference librarian located at Johns Hopkins University. Online tutorials help students use these services.

Before the advent of the World Wide Web, the College included library research advice in sections of several printed publications. But for the most part, students were on their own to access library resources locally.

As Regents College has no campus or library, outsourcing the RCVL was a forgone conclusion. The College solicited proposals from universities and decided to contract with Johns Hopkins University. Regents College's responsibility was to host a website on its server and develop a sophisticated online registration system that would authenticate students and allow access to several databases provided by different vendors. This was accomplished by Regents College existing internal OITS staff with some help from consultants. The College pays a sum of money (proprietary information) to support the services provided by Johns Hopkins. These services include managing the website, providing a full-time librarian dedicated to assisting Regents College students, staff, and faculty and a half-time interlibrary loan librarian.

Resources required for Regents College to host the library website on its server were accomplished with existing hardware and staff including available space on a webserver and two weeks of a webmaster's time. Incremental costs required to develop an online registration system that would allow library patrons to use one username and password to login to several proprietary databases. These resources included the equivalent of a highly skilled technician 25 days of work time. In addition, ten percent of a professional level position is required to communicate the ongoing library resource needs of Regents College students, staff, and faculty. Administrative planning requires the equivalent of two days per month of a professional level position.

## Alumni Services

Regents College recognizes its 89,000 alumni as a valuable resource for the College. Alumni are potential mentors for current students, motivators for prospective students, prospective graduate students, and sponsors of college scholarships and activities. However, historically alumni did not have an effective means for communicating with the College or with one another. Therefore, the College created an alumni website [http://alumni.regents.edu/] as a place for alumni to maintain contact with the College and to build a sense of community with other graduates and College staff.

The alumni services website which opened in July 2000 currently contains news about Regents College, links to career resources, access to Regents College memorabilia, alumni surveys, an electronic version of a Regents College alumni pub-

lication, *Live and Learn,* and a variety of features of general interest to adults. Features on this site continue to be developed.

Before implementing the alumni services website, the College used *Live and Learn* to keep alumni informed about Regents College. In addition, the College's database was used to prepare mailings to students. Staff resources included a half-time secretary and, for the past two years, a full-time director. These resources have been sufficient to support the current website.

The alumni services website was outsourced to a vendor (mypersonal.com) for a number of reasons. Regents College resources were already committed to other web-based initiatives so that this project could not be implemented quickly. Another reason was that using this vendor required no fee for website design and maintenance. The website is supported by revenue raised through the sale of links to the site. Therefore, incremental costs to the College were and are inconsequential.

## Intended and Unintended Consequences

The conversion of student support services to online formats has had several intended and unintended consequences. The primary intended consequence of conversion was to facilitate student progress toward degree completion by providing better and more accessible support services within the framework of the College's strategic plan.

Overall, this intended consequence was realized. Converting support services to the web increased service access and quality. Electronic advising increased student access to advisors as messages could be exchanged day or night. The EPN increased interaction among students (Brigham, 1998) as students formed study groups and supported each other. Converting DistanceLearn to the web allowed students to locate distance courses at their convenience. The online bookstore replaced poor service and limited access with excellent service and expanded access. The virtual library gave students access to resources formerly inaccessible. (Note: It is too early to assess the impact of the alumni services website which recently opened.)

Unintended consequences have also occurred and varied with each service. Online advising generated new issues: establishing a response time for answering messages, integrating e-mail with phone calls, letters, and faxes, and tracking and storing messages. The implementation and maintenance of the EPN required more time, money, and staff than projected. However, staff were forced to learn new skills later applied to other programs within the College. The EPN also received two national awards [from the National Academic Advising Association (NACADA) and the Association for Continuing Higher Education (ACHE)] thus achieving recognition for the College as an innovator. Installing

DistanceLearn on the Peterson's website caused DistanceLearn to lose some of its identity. Feedback from website visitors indicated that they were not sure who owned the database (Regents College) and who maintained the website (Peterson's). An unanticipated consequence of establishing the online bookstore was that a void was created when student complaints about poor bookstore service virtually stopped. However, this void was soon filled by more frequent contact with the bookstore to keep the shelf list current on a day-to-day basis instead of conducting the semi-annual update which had been done in the past. Finally, like the EPN, the cost of implementing and maintaining the virtual library was greater than anticipated and, it appears that the demands on time of the College's liaison to Johns Hopkins will be greater than expected.

## Implications of the Conversion Experience

A major implication of the conversion experience is that Regents College has significantly increased the costs and benefits of providing student support services for its programs for the foreseeable future. In converting services to online delivery, the College has raised expectations of students who now expect to be able to interact online with students, staff, and faculty and to obtain resources and information in Internet time. As new services and capabilities appear on the web, students expect student support services to keep pace. This increases the demands on the College to devote a greater portion of its resources to enhancing services at the risk of losing enrollments to other institutions.

Another implication of the conversion experience is that the College has moved away from an organization that processes paper and student records and toward one that develops and maintains relationships with students. As increasing numbers of students take advantage of online services, it is anticipated that interaction among students, staff, and service providers (including websites) will increase. Although there is anecdotal evidence, research needs to be conducted to confirm this growth.

The implications for institutions planning to convert to online delivery of programs are that the cost of conversion in terms of time, energy, and resources is likely to be greater than anticipated, but so are the benefits to students and the institution as a whole. Other institutions should take note that the student services converted to online delivery at Regents College were well-aligned with the College's strategic objectives, facilitating the adoption process (Rogers, 1983). Unless similar alignment exists between the strategic objectives of an institution and services to be converted, the conversion process may not be successful.

## Conclusions

This case study has shown how a distance learning organization converted six student services to online delivery. The impact of these services on students, staff, and faculty appears to be positive (e.g., bookstore complaints are down; advisors report increasing numbers of students using e-mail; chat rooms are active on the EPN). Moreover, the results of a recent service quality survey conducted by an outside consultant indicated students perceive an 18.5 % improvement in Regents College services since 1997 when a similar survey was conducted (Aguinis, 2000, p.1). However, the results of this study are suggestive as online services were embedded in the survey and were not the primary focus. A more targeted approach would be necessary to determine the full effect of these specific services.

Institutions considering converting traditional services or programs to online delivery may find the experience of Regents College instructive when deciding whether to provide a service in-house or to outsource it. It should be noted that the College relied primarily on outsourcing for four of the six online services discussed in this paper. For the most part, outsourcing has eased the burden on internal resources of the College and, in the case of at least one service, the online bookstore, outsourcing has resulted in increased revenue and service improvement. The new Alumni website also shows signs of generating revenue for the College while improving contact among graduates. Institutions, (particularly those pressed for resources) would do well to consider outsourcing as a cost-effective means of providing online services.

This case study has several implications for further research in distance education. Cost-effectiveness models need to be developed that will demonstrate when it is advisable to outsource the conversion of traditionally delivered distance services and programs or services and when it is not. The positive and negative effects of outsourcing on students, staff, and faculty need to be investigated to better understand them. Another avenue of research is to investigate the extent to which online services facilitate or impede student progress in degree programs. Is there a relationship between the use of online services and attrition? Student satisfaction? Student achievement? These questions can and should be addressed as increasing numbers of institutions implement online services and programs.

# Appendix A

## Regents College Mission Statement

Regents College affirms that "what you know is more important than where or how you learned it," and believes that students can demonstrate their knowledge and competencies through a variety of methods. The College exists to advance the learning of students, primarily adults, who for personal, economic, family, or other reasons, choose to pursue their education in a flexible, self-paced manner. While remaining open to all, the College ensures academic quality through rigorous programs, student-centered advisement, and careful assessment. By offering high-quality innovative educational opportunities to those desiring an alternative to traditional institutions of higher education, the College strives to broaden individual horizons, develop intellectual autonomy and respect for inquiry, expand career interests and options, and inspire a commitment to lifelong learning.

Regents College exists to increase access to education with excellence and economy, particularly for those historically underserved by higher education. The College seeks to meet the needs of a pluralistic society that is increasingly dependent upon an informed and educated citizenry. The College is an international resource and, by example and by advocacy, a major force in expanding access to higher education. As a leader in innovative education, the College works in active partnership with other colleges and universities, employers and organizations to remove barriers to educational opportunity. The College complements the academic offerings of more conventional institutions of higher learning in the interest of equity, economy and efficiency.

# APPENDIX B

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**EPN Startup and Annual Operating Costs**

| **EPN Startup Costs** | |
|---|---|
| *Category* | *Cost* |
| Hardware (Compaq 6000 Server & Components) | 28,092 |
| Software | 800 |
| Consulting Fees | 12,500 |
| OITS Personnel (Including fringe & overhead) | 48,175 |
| Learning Services Personnel (Including fringe & overhead) | 26,000 |
| Other Personnel (Including fringe & overhead) | 14,000 |
| **Total** | **$130,467** |
| *Annual Operating Expenses* | |
| Hardware (Compaq 6000 Server & Components) | 30,000 |
| Software | 1,000 |
| Consulting Fees | 8,500 |
| OITS Personnel (Including fringe & overhead) | 164,000 |
| Learning Services Personnel (Including fringe & overhead) | 74,500 |
| Other Personnel (Including fringe & overhead) | 28,500 |
| **Total** | **$306,500** |

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# *Addressing some Common Problems in Transcript Analysis*

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## Background

Computer conferencing is one of the more useful parts of computer-mediated communications (CMC), and is virtually ubiquitous in distance education. The temptation to analyze the resulting interaction has resulted in only partial success, however (Henri, 1992; Kanuka and Anderson, 1998; Rourke, Anderson, Garrison and Archer, 1999; Fahy, Crawford, Ally, Cookson, Keller and Prosser, 2000). Some suggest the problem is made more complex by failings of both technique and, more seriously, theory capable of guiding transcript analysis research (Gunawardena, Lowe and Anderson, 1997).

We have previously described development and pilot-testing of an instrument and a process for transcript analysis, call the the TAT (Transcript Analysis Tool), based on a model originally developed by Zhu (1996). We found that the instrument and coding procedures used provided acceptable – sometimes excellent – levels of interrater reliability (varying from 70 percent to 94 percent in pilot applications, depending upon user training and practice with the instrument), and that results of pilots indicated the TAT discriminated well among the various types of statements found in online conferences (Fahy, et al., 2000).

That work clarified some of the conceptual and theoretical problems with transcript analysis. Initial development concluded with the realization that these issues needed resolution, or at least serious exploration, as our testing of the TAT proceeded.

This paper is a brief commentary on some of the issues which we and others have encountered in transcript analysis, with a description of steps we are taking, or exploring, to address them. It is intended to contribute to what Garrison (2000) referred to recently here as a theoretical framework, "a broad paradigmatic set of assumptions that provides the elements of a theory, but without the detail and completeness (nuances) of a comprehensive theory (p. 3)." Included here are two previously reported problem areas: how the obvious orthographic and syntactic features of transcripts might serve as useful indicators of underlying interaction patterns, and the progression of topics in conferences as revealed by structural indicators.

## *Common Problems*

Discriminant capability and reliability among users have been major problems in previous transcript analysis work. Discriminant capability means a coding instrument readily and

unambiguously permits placing of conference content into discrete and useful categories. It has not proven to be easy to achieve, as demonstrated by the prevalence of admitted coding problems in transcript research. Gunawardena et al. (1997), for example, found problems using Henri's (1992) model to distinguish between cognitive and metacognitive activities in conferences. They concluded that a large number of units could have been coded as either (p. 404). As a result of this experience, Gunawardena et al. developed their own analytic tool, but concluded that it was a poor discriminator: over 90 percent of transcript postings fell into a single category (p. 425). In another study, Kanuka and Anderson (1998) reported two problems attributable to weak discriminant capability of their instrument: an "overwhelming" number of messages were coded into one category, and messages could often be coded into more than one category (p. 65). Zhu (1996) also had acknowledged that her classification system permitted postings to fit into several categories (p. 837).

Reliability is directly affected by lack of discriminant capability: if categories are not clear, discrepancies in coding will occur. In fact, reliability is often either low or not simply mentioned at all in published reports of transcript analysis research, and to inprove reliability researchers often resort to convenient but inefficient and expensive strategies such as collaborative coding (Kanuka and Anderson, 1997; Rourke et al., 1999). Such strategies may meet the need for consensus in an specific research context, but they do not argue for the reliability of the coding instrument.

Problems with discriminant capability may be attributed to two causes: complexity of the instrument (both too many categories or codes, and lack of mutual exclusiveness among them), and use of an inappropriate unit of analysis (anything other than the sentence).

Complexity is directly related to the number of codes available. Some coding tools simply contain too many categories, forcing users to make many excessively fine discriminations. Gunawardena et al.'s (1997) model included over twenty categories grouped into five "phases"; Cookson and Chang (1995) employed four main groups of criteria, with each further subdivided into four more categories; Higgins' (1998) model used as many as twenty; Rourke's (1999) model has twelve indicators, in three groups; and Zhu (1996) used 8 categories. Obviously, with more categories there is more likelihood of ambiguity, definitions of differences among categories must be made unambiguously clear, and there is more need for training and practice for potential users.

Some researchers have rejected the sentence as the unit of analysis, and then faced uncertainty about what to code. Henri (1992), in her early and influential work, argued for "units of meaning . . . rather than messages proper" (p. 126). She argued that "CMC messages harbour more than one unit of meaning," and that each analytic purpose could and should "define its own relevant unit of meaning" (p. 134.) Objecting to the "mechanistic" in Henri's approach, Gunawardena et al. (1997) rejected Henri's methods and attempted to code whole messages in a single category or "phase," with the poor results already mentioned. Rourke et al. (1999) judged sentences and paragraphs were "artificial and arbitrary" (p. 60), and instead used a 12-point, 3-group analytic system (which in fact does appear actually to have been applied to the coding of sentences).

While focus is on the meaning of the interaction of the conference, the unit of analysis must be something obvious and constant within transcripts. In our work with the TAT we have concluded that this is the sentence (or, in the case of highly elaborated sentences, independent clauses which, punctuated differently, could be sentences). Sentences are, after all, what conference participants produce to convey their ideas, and are what transcripts consist of.

We find support for our position on the importance of the sentence for analysis of transcripts in two concepts from linguistic analysis of electronic communications: the macrosegment (Herring, 1996) and the discourse topic (Witte, 1983). Macrosegments are trans-sentence components of texts which consist of both notional and surface components. Notional coherence in texts is achieved by the writer through choices made about words, sentences and paragraphs, including the structure of the writing conveyed by orthographic and syntactic features. Notional coherence is contained in, but transcends, the merely orthographic, syntactic and structural features of the transcript. Put another way, the macrosegments containing a conference's ideas and themes are not bounded by the limits of the text, including sentences and paragraphs, though they are constructed from them.

While notional meaning transcends textual structures, those structures should not be ignored. Skillful writers provide structural and syntactic clues to help readers accurately get the point. Structural elements of text help form and convey the notional relationships of the argument, and good readers are therefore alert to them.

Obviously, the transaction between a writer and a reader is complex, involving both parties. The concept of the discourse topic recognizes the mutual participation of both parties in textual communication. The discourse topic is "what the writer intends to communicate" (Witte, 1983) – what the writer hopes the reader will understand. What makes discourse topics problematic – in fact, what makes seeking "meaning units" of any kind a perilous, even impossible, task – is their inherent subjectivity: the "meaning" of any "meaning unit" depends largely on what the reader brings to it. Since a writer's meaning does not reside in the simple textual elements alone, discourse topics must consequently be inferred or constructed by the reader; meaning reflects the interaction of the reader's knowledge and experience with the text of the message. Thus, regardless of what writers intend, what readers understand is based on the interaction between the message and the readers' experiences, knowledge, and capability for understanding the topic (Witte, 1983).

An element of threaded transcripts potentially adds to our understanding of the progression of discourse topic as it emerges and evolves in a conference: the threading structure itself. Using the date- and time-stamps of postings, the progression of the discussion can be reconstructed in detail. Our ongoing research is exploring how these structural features might be used, perhaps in combination with the TAT analysis of message content, to illuminate important internal patterns of interaction in the transcript.

## *Transcript analysis research with the TAT*

The theoretical assumptions provided by the framework above have resulted in the following strategic decisions in our work in progress with CMC conference transcripts:

- The sentence is the unit of analysis
- The TAT is the method of analysis
- Interaction is the criterion for judging conference success
- Topical progression (types and patterns) is the focus of analysis

.

The TAT classifies transcript content (usually sentences) into one of four categories: 1) questioning, 2) statements, 3) reflections, and 4) interpersonal coaching and scaffolding.

- **Questioning:** includes vertical questions (there is a "correct" answer somewhere), and horizontal questions (there is no one right answer; all input welcome.)

- **Statements:** contain no self-revelation, transmits information impersonally, and usually do not especially invite dialogue.

- **Reflections:** the speaker displays trust by revealing usually guarded material (values, beliefs, doubts, reasoning processes, experiences; both what he or she thinks, and why).

- **Coaching and scaffolding:** intended to encourage, support, model, provide hints and help, and generally support others in difficulties, new or unfamiliar experiences, crises, or moments of doubt, insecurity or high emotion.

Using the chronological information provided in the transcripts, we focus in our analysis on the types and patterns of progression of the topics under discussion. Several features of each posting are coded (these are steadily evolving and changing):

- **Level:** initiating or following another posting. If following, we note how far into the progression of the discussion or topic the posting occurs.

- **Progression type:** parallel or sequential. Parallel posts are those made to the same initiating posting or topic; sequential postings provide extension or depth to the discussion or the topic. For example:

  **Parallel progression**

  Comment A

  Comment B

  Comment C

  Etc.

  **Sequential progression**

  Comment A

  Comment B

  Comment C

- **Response rate:** high or low. ("Unusual" exchanges or single postings are particularly of interest. High response generators, resulting in unusually large numbers of subsequent

parallel or sequential postings, are called "response triggers." Postings which receive no responses are also studied.)

- **Interaction patterns:** how individual members of the conference perform and interact. (This analysis exposes the leaders and followers, those who initiate or "trigger" interaction, those who follow, and those who have strong response-type preferences. Patterns are being investigated in relation to variables such as gender, personal communication patterns, and other features of observed conferencing behaviour.

While this work is ongoing, some promising, intriguing or confirming results have already been noted in a pilot application of this approach with a transcript of 71 postings, consisting of 8283 words, created by 14 graduate student participants (seven women, six men). Importantly, the TAT succeeded in discriminating among the types of possible responses, detecting the following distribution of types: questions, 7 percent; statements, 45 percent; reflections, 28 percent; scaffolding and coaching, 21 percent.

Compared with results reported by Herring (1996) in her analysis of electronic communications, we found the following in our pilot analysis:

- Women were more assertive in the test sample, and men less so: women made 53 percent of the initiating posts, and accounted for 55 percent of the words posted, while equal numbers of men and women never made initiating postings.
- Men, however, were more overtly assertive: All the postings expressing outright disagreement (6) were made by men.
- Finally, there was little support for a key finding of Herring's work: students in the sample made more statements than reflections. Herring's students were more interested in exchanging views than information.

## Conclusion

We expect to report shortly on an analysis of a much larger amount of transcript material. We are also assessing other instruments and techniques; Rourke, Anderson, Garrison and Archer's (1999) tool for assessing social presence, for example, has some promising features we intend to explore further.

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# Book Review – Managing Technological Change: Strategies For College And University Leaders

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Managing Technological Change: Strategies for College and University Leaders
A. W. (Tony) Bates (2000)
San Francisco: Jossey-Bass, Inc.
pp. 235
ISBN 0-7879-4681-8

It's well written, cogent, and enjoyable. I saw a presentation by Bates last year and didn't like it. Either I was in a bad mood and didn't hear his message, or that message was different from the message of the book "Managing Technological Change." Likely, it was the former. This book is a must read for anyone in higher education who deals with technology, teaching, administration, or some combination of these elements. The book incorporates technology in that it lists web sites related to a number of topics covered in the various chapters. For example, in the chapter on leadership, visioning, and planning, there are a number of listed web sites that offer examples of strategic and technology plans.

Not only is the book well written, but it is also comprehensive in nature. It covers topics of vital concern for all who are involved in technology-enhanced or technology-based learning. Some of the topics include: (a) the challenge of technology and rationales for using it; (b) technology forms, approaches and their impacts on teaching and learning; (c) leadership in technology use, organizational structures, visioning and strategic planning; (d) infrastructure and access issues including physical and human infrastructure, funding, infrastructure adequacy, the relationship of infrastructure to academic planning, and the issues associated with requiring students to purchase technology or to access it; (e) supporting faculty in terms of development of faculty skills and products, faculty fears, intellectual property, and copyright issues; (f) the costs of teaching with technology; (g) funding strategies, collaborations, and competition; (h) management of technologies; (i) research and evaluation; and (j) a perspective on the technology challenge that faces us all.

The book hits a number of nails right on their heads. It holds true to its intended audiences: administrators, academic department heads, and faculty. The messages for each are important and timely. A few examples will demonstrate what I mean.

University central administrators who read this book will learn about the singularly important job of providing a vision for technology within a university.

When one considers the power of technology and what it brings to each of our desks, the job of visioning becomes centrally important. Technology is becoming less expensive and more powerful, providing many smaller organizational units within a university or college the power to do things that were previously the domain of well financed, centralized production units. Because of this, the importance of visioning and laying out a broad plan about where an institution might go is critically important.

For the faculty member, the issues about design of technology-supported or enabled courses are addressed well. Issues of faculty members' concerns are addressed. In treating these issues Bates rather unassumingly, but importantly, builds his logic and presentation on principles. Thus the approaches that he describes and suggests are flexible (a theme that resounds throughout his book) and adaptable to any number of situations.

Bates covers the waterfront. His is not a "one size fits all" formula. The concepts and approaches are applicable in numerous settings ranging from the small liberal arts college to the large doctoral research university. Bates calls upon his experiences with the British Open University and the University of British Columbia as well as his extensive work with other higher education institutions to provide practical advice and examples.

One of the weak areas or perhaps better stated, an area that I'm not in total agreement with is the notion of the digital divide. Bates comes down squarely on the side of high tech. and more of it. He feels that an institution must provide value-added learning benefits in order to require students to have a computer. However, this does not do much for those who cannot afford the technology tools. While I agree with Bates that value-added is a must for requiring students to purchase technology, that argument does not span the digital divide in terms of student ability to afford technology.

Another weakness is the disjointed presentation of quality issues surrounding technology-enhanced education. Bates devotes little more than a page to discuss elements of quality even though he states "it will become increasingly important for universities and colleges to achieve high quality in any technology-based teaching and learning materials and programs that they develop" (p. 64). The second to last chapter on research and evaluation should be read in conjunction with the brief section on quality. The use of the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) of instructional design as a framework for quality elements in managing technology might well be considered as an addition to the book's brief discussion of quality.

There are little gems of thoughts and truisms scattered thought out the book. They stand alone and carry important messages for us all. Here are a few examples:

- "Reallocation is the ultimate test of an institution's commitment to teach-

ing with technology" (p. 4).

- "To assume that investment in technology will lead to reduced cost in higher education is to misunderstand the nature of the educational process in higher education and the relationship of technology to that process" (p. 19).
- "Whatever the philosophical arguments for or against the use of technology for teaching, improved cost-effectiveness in higher education requires more than just investment in new technologies. It will also require radical changes in teaching methods and organization" (p. 35).
- "Most university teaching has not been influenced to any extent by research into the psychology of learning, organizational management research, communications theories, or human-machine interaction, all of which have influenced one way or another the development of postindustrial knowledge-based organizations" (p. 41).
- "Although technology infrastructure plans are essential, they are not sufficient. It is equally important to develop academic or teaching plans that specify the ways in which technologies will be incorporated into teaching learning activities" (p. 46).
- "Just drifting into technology for teaching can be a dangerously expensive and ineffective policy" (p. 48).
- "It will help enormously if the senior management of the institution has provided an institutional vision or context for change within which the department's vision can 'nest"' (p. 50).
- "The real challenge for a department considering requiring students to have computer access is in ensuring that the computer will provide genuine value-added teaching...The worst policy is to make computer access optional" (p. 90).

For me, a highlight of the book was chapter 2, "Leadership, Vision, and Planning in a Post-Fordist Organization." It should be studied carefully by senior administrators who are being confronted with technology and teaching challenges. Bates uses the open universities from around the world as examples of industrial models of education and notes that they do not exist in North America, in part due to the fragmented state and provincial education systems found there (true of Canada and the United States, but certainly not Mexico). I would add another reason (at least in the United States), the advent of the land grant university.

I like Bates notion of leadership.

> Leadership is not so much a *strategy* as a *quality*. It is really the responsibility of the board of governors and the president, or deans, through their appointment processes, to ensure that senior managers or heads of department have leadership quality and an understanding of the strategic importance of applying new technologies to teaching and learning. (p. 44)

The charge is laid at the door of the central administration, "Presidents and vice presidents have a responsibility to take the long view, to respond to the pressures from society, and to think of the interests of the institution as a whole" (p. 53). What a great message!

Bates uses the Western Governors University (WGU) as an example (among others) of a "post Fordist" (post-industrial) university. While political in his choice of this example, he might have chosen better. WGU is on the ropes and there is concern that it will make it into the realm of sustainable organizations. In spite of the plan for thousands if not tens of thousands of students in a matter of a few years (which have elapsed) and the support of millions of tax and private dollars, WGU presently enrolls about 230 students.

Bates offers strong suggestions about technology infrastructure and organizational structure (though they are treated in separate chapters). From chapter 4, "Technology Infrastructure and Student Access" comes another example of Bates' building on principles. Principle: "Even more important than the physical infrastructures are the people required to make the physical infrastructure work" (p. 77). Application: "There are...four levels of human support required to exploit technology to the full...technology infrastructure support staff...educational technology support staff...instructional design staff...[and] subject experts" (pp. 77-78). Each of these levels is discussed in enough detail to allow a person to develop role statements and begin to staff a technology infrastructure support organization. In concluding this chapter, Bates makes what seems to be an alarming (to faculty members at least) comment. "Although technology infrastructure is important, it is not just a capital cost but also requires high operating costs, which brings it directly into competition for funds for teaching and research" (p. 93). But he just as quickly offers a solution to the dilemma he describes. "There should be strong links and integration between the overall technology plan and the use of technology for teaching and learning, and these in turn should be integrated with the overall vision and strategic directions of the institution" (p. 93).

Bates' chapter on costs (chapter 6, "Calculating the Costs of Teaching with Technology") is one of the few I have read on this topic that acknowledges pedagogy as a cost factor. He spends some time on the issues of student-teacher ratios, noting that they are the basis for many cost factors. It is a fairly comprehensive treatment of approaches and factors to be considered in trying to come to some understanding of the costs of technology based education. A careful

reading of this chapter will help administrators who are perhaps unfamiliar with technology to more easily understand the costs associated with its development and deployment. It certainly drives home the point that technology is not a cheap method to deliver instruction.

Of equal importance to administrators is chapter 8, on organizing for management. This chapter offers guidance to anyone who is either taking a new management job in the educational technology world, or who is a student of technology and organizations. Bates recognizes the amount of technology work that gets done in spite of organizational boundaries. It has been my experience that technology types love their work, but have some misgivings about working in an organization. They love to collaborate across unit divides. Hence, I resonate to the premise that the author offers: "Staff willing to work collaboratively will often work around or across organizational boundaries, and perfect organizational arrangements will not work if petty jealousies and conflicting ambitions get in the way" (p. 181). Bates treats both decentralized and centralized organizational models and then describes a "lightly coordinated decentralized" model (p. 185). This chapter is typical of most in that it offers ideas worthy of experimentation, if not implementation.

Chapter 9 deals with what, for me, has always been a problem in distance and technology-supported education – evaluation and research. Systematic inquiry in the past has used traditional research designs and evaluation models. Bates offers the ACTIONS model (Access and flexibility, Costs, Teaching and learning, Interactivity and user-friendliness, Organizational issues, Novelty, Speed) for assessing the effectiveness of different teaching technologies as a framework for evaluation. He also includes some important questions that need to be asked.

His ideas about researching software applications are on target. Bates relates a situation that parallels a personal experience of mine that underscores the need for rational approaches to software selection. Our unit settled upon a course authoring tool that we had judiciously studied. We had carefully considered a number of the leading software applications and settled on one that we thought was best. Days later, I received a letter from our university president asking why we were not using a competing application. It seems the competing software company's vice-president had personally called our president and explored with him the use of his product. I had to carefully explain how and why we made the selection we did. Bates' suggestions about this assessment function may well have saved us time in defending our choice.

While this book is mostly time-free (i.e., it is not easily outdated because of technology advances) there are some parts that succumb to anachronisms. Bates speaks of projectors that can be connected to an instructor's laptop computer for display in lecture halls. More modern versions of the projector can accept runtime versions of PowerPoint or Presentations on micro-disks that eliminate the need for the computer. These small points are easily and readily forgiven because of the preponderance of help and insight the book delivers.

A small nagging point is Bates' view of how technology is changing teaching. While he lists several attributes that are unique to technology-enhanced learning, he does bring into the argument a couple of points that are not limited to technology, but rather, are actually good practice no matter how the instruction is based. For example, using new technologies to develop and design higher-order learning skills is not limited to just distributed learning. In fact some researchers believe that low-order learning skills predominate in distributed learning.

In summary, this book is founded on principles. It speaks to the relevant issues. It offers numerous examples. It is well constructed and written. Hats off to Tony Bates. Now, I'm not biased, but it is great to be able to recommend a book without reservations. And so much the better when it is written by someone from my alma mater.

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# Book Review – Open And Distance Learning In The Developing World

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Open And Distance Learning In The Developing World
Hilary Perraton (2000)
London: Routledge
pp. 228
ISBN 0-415-19419-9 (pbk)

Hilary Perraton's review of distance education throughout the developing world is the subject of this book. Founding director of the International Research Foundation for Open Learning, Perraton presents us with a good discussion of the social, technological, political, and economic aspects of distance education in the last 30 years. His well-framed contextual evidence makes this mandatory reading for those interested in open and distance learning in the third world. This book clearly delineates the parameters under which the reader is expected to understand arguments made. For example, Perraton's explanations of efficiency and cost include comparisons and contrasts to enrollments and overall expenditure (parameter a). The concept of efficiency becomes more difficult to articulate when one looks at enrollments and investments in relation to the completion rate of students (parameter b). The work offers practical information for comparing and understanding distance education in specific contexts, thus making solid arguments based on available data. Many parts of this text illustrate this point, such as the concluding suggestion that, where available in the developing world, distance education has positioned itself better at the tertiary level than at the secondary.

In the informative first two chapters Perraton discusses the place of distance education in the overall context of education for different countries and reflects upon the mosaic of projects and institutions. If governments are to fund out-of-school and non-formal education efforts, evidence suggests that distance education can help. The lack of pressure by current students, as well as unconvinced leaders, may explain why governments have not upheld the investment in distance education in a consistent manner. Moreover, despite all of its promises, non-formal education has not responded as a solid alternative to formal education. Perraton points out that it actually has "been under pressure to look and become formal" (p. 18). Distance education has been affected by this trend.

Chapters 3 and 4 help the reader understand the significant differences associated with school policy and teacher training in the third world. An analysis of technology provides us with comparative information, particularly on the use

of radio. Funding difficulties have driven different developments as we begin to see that, with few exceptions, projects have not lasted over time. As for the training of teachers, distance education has proven to be an important contributor, comparing favorably in costs to traditional teacher training. Perraton introduces us here to the flipside, which few would look at when making the argument for distance education for the poor: completion rates.

The fifth chapter introduces the reader to a review of open and distance institutions of higher education in different geographical areas. Although there are concerns about their results, these institutions have enrolled a significant proportion of the higher education student population of the developing world. The birth of the Open University in the United Kingdom offered a reference point, but rightfully, the author provides enough detail to show how different countries promoted the creation of similar institutions based on their own needs, even fostering the operation of regional universities at a distance, a source of much of international practice and multinational policy. An analysis of costs follows in chapter 6. Perraton points out that it is difficult to make the economic savings argument across the board. While in some cases teacher education efforts at a distance have proven to be effective and perhaps similar in their expenses, others have not. The case for higher education may clearly suggest the opportunity to save on resources, so long as it is never compared to actual numbers of students who complete. In doing so, it is easy to see that distance education, like traditional higher education, is costly and, in many cases, inefficient.

Echoing a frequently observed conclusion about the inequitable effects of technology for the poor and women, Perraton leaves chapter 7 suggesting that under present circumstances and given current trends technology will only benefit those who already have access. If interaction is to occur, distance education benefits from technology. Due to the way technology has been deployed around the world, one may be led to believe that the trend will be more hurtful than benign. Complicating the issue is the observation that traditional technology deployments parallel the technology of today. What has changed is the underlying system under which education rests, briefly discussed in chapter 8.

Chapter 9 explores the political economy of distance education. Several reasons are outlined for creating and fostering distance learning systems in the developing world. For some governments internal demand may explain distance education efforts, yet for others perceived cost savings are often cited. As outlined and discussed in this section, public policy suggests that distance education reinforces more than threatens the existing educational structure. Given the arguments presented, one is left to decide whether to regard distance education as a triumphant approach meeting the much-needed demand for education or as a substandard alternative helping maintain the status quo as desired by the ruling class. The final chapter discusses this question by looking at adequacy, efficiency, effort, performance, and process, indicators nicely borrowed from E.G. McAnany, a prominent development thinker in the United States.

Overall, this book offers a much needed review of distance education in the third world. Because this work has implications regarding policy and costs, the reader will likely be forced to take a stand depending on his or her experience. Readers in the developing world may be disappointed that there are not more specific examples. However, discussions of the most prominent cases are cited to illustrate general world trends. One counter argument, based on a national program, by no means reflects the way policy and/or expenditure has been done internationally. The Mexican Telesecundaria clearly illustrates this aspect as it departs from the international norm in this sense. Readers in the industrialized world may find general viewpoints in accordance with their views beyond policy, including technology (i.e., access) and culture (i.e., "second world" countries). Direct foreign experience does not always guarantee accurate characterizations of the developing world, nor does it offer meaningful courses of action in the face of criticism. This is evident at times throughout Perraton's text (e.g., "the near-abandonment of media" suggesting teaching that "is less varied"; p. 151), in addition to depicting recurrent concerns (neglecting radio's powerful potential for public education for example) already thrown out to the public by others.

Strong at framing problem areas regarding distance education, Perraton leaves us wondering whether distance education has ever suited the developing world. From *importing content* in the context of the African Virtual University to increasing efficiency in the teaching systems as a source of economic soundness worldwide, one is forced to inquire what may be the alternative. If the education mix for development includes prescribed forms of distance education, gaps would be reduced sooner. With Perraton, many readers will agree to dream about making distance education as effective as conventional education. The challenge is, of course, to go beyond the dream.

This book is an excellent review of distance education's most important concerns in the developing world. The comprehensiveness of Perraton's review of relevant developments of the last few years makes the text a fundamental reference for further discussions in the field.

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# Book Review – Higher Education Through Open And Distance Learning

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Higher Education Through Open And Distance Learning: World Review Of Distance Education And Open Learning (Vol. 1)
Keith Harry (Ed.) (1999)
London: Routledge/Commonwealth of Learning
307 pp.
ISBN 0-415-19792-9

There is a growing awareness of the important role of open and distance learning in higher education. This awareness has opened the debate around various issues addressed in this text. Where open and distance learning was once seen as an experimental alternative to traditional delivery, new technologies have now made it much more than an experiment. Open and distance learning has grown into a higher education industry on its own and has become one of the main pathways to global education.

Keith Harry, the editor, has put together a valuable collection of contributions, giving the reader a true worldview on open and distance learning in higher education. The contributions include the theoretical, the practical, the factual as well as some reflective contemplation on the issues of open and distance learning. The volume does not read very easily because of the variation in styles of writing. It has nevertheless been very well edited and provides the reader with a well-structured and concise source of information.

There are 31 contributors, each one addressing specific areas of importance for the debate or providing certain facts giving the reader more information on various practices.

Keith Harry and contributor Hilary Perraton introduce the publication with a reflection on the role of open and distance learning for the new society. This reflection acts not only as an introduction but summarises the contents neatly within the general categories of international developments, national responses and institutional change. Attention is given to economic and political change, technological opportunity and regional and international policy and development, with special attention to cooperative ventures (p. 6). The introduction concludes with some serious reflection on the current status of open and distance learning institutions.

According to the authors of the introduction, the convergence of open and distance learning and conventional education has been encouraged by three factors:

the drive for dual-mode status, technology, and the need to meet the demands of new audiences. These underlying factors are found within the discussions of the various authors, highlighting different aspects of open and distance learning throughout the publication.

This book is divided into two parts: Part 1 deals with 5 themes in open and distance learning while Part 2 takes the reader through regions of the globe with case studies of significant open and distance learning institutions presented by various contributors. The regions with their different case studies and authors are:

## Africa

- Cooperation competition or dominance: a challenge in Southern Africa (Tony Dodds, Evelyn Nonyongo and Jenny Glennie)
- The Open University of Tanzania (Geoffrey Mmari)

## America

- The University of the West Indies (Ed Brandon)
- Distance education in Latin America: growth and maturity (Fabio Chacón)
- University distance education in Canada (Douglas Shale)

## Asia

- The Bangladesh Open University: mission and promise (Greville Rumble)
- Distance Education in China (Xingfu Ding)
- The Open University of Hong Kong (David Murphy and Yvonne Fung)
- Developments, networking and convergence in India (Santosh Panda)
- Contemporary distance education in Taiwan (Hung-Ju Chung)

## Europe

- Distance education in Central and Eastern Europe (Andras Szus and Janet Jenkins)
- Western Europe (Hans-Peter Baumeister)

- The European Commission and open and distance learning (Corinne Hermant-de-Callatay)

### Oceania

- Distance education in Australia (Bruce King)
- The South Pacific: kakai mei tahi (Claire Mathewson and Ruby Va'a)

The afterword to the publication is written by John Daniel.

## Part 1 – Themes

The themes under discussion in this section of the book deal with issues universal to open and distance learning. Chapter 2 presents the first of the five themes – the internationalisation of higher education. The authors, Denis Blight, Dorothy Davis and Alan Olsen, approach internationalisation from the view that open learning and distance education are, by nature, not limited by natural and political borders. They address questions arising from this by outlining developments in the internationalisation of higher education, describing how international delivery of open and distance learning takes place and providing highlights of such issues as quality, student support, and curricula. They also mention the impact of technology in international education.

Chapter 3, on the impact of telecommunications, is authored by Robin Mason and deals with the field of "educational telecommunications" (p. 32), which is a rather strange delineation of a hitherto unknown telecommunications field. This immediately raises the question of whether the use of perfectly ordinary telecommunications equipment in the educational environment can lead to a reclassification thereof as being of an "educational" nature. This particular chapter deals with the application of certain technologies to enhance and support distance education offerings. It warns against the creation of a technology divide between able and disabled and advantaged and disadvantaged (p. 35), even in the use of text-based systems. The author deals with both asynchronous as well as synchronous delivery, highlighting advantages and disadvantages. This chapter, although dealing with an important aspect of open and distance learning, has fallen prey to one of the dangers of writing about technology; information that seems to be relevant and timely during writing loses its relevance due to the rapid development of technology and becomes dated when published.

With professional reflective practice and lifelong learning the theme of chapter 4, Patrick Guiton emphasises the significance of open and distance learning to professional continuing education. The fast pace of development of information

technologies and their utilisation by open and distance learning is changing the context in which professionals work. Direct access to upgrading of careers and solutions to day-to-day problems are made possible by the Internet. In this chapter, Guiton examines the possibilities that are emerging for professionals to guide and direct their own career-long learning. He also looks at the changes that need to be brought about by universities to acknowledge the context in which their learners are participating in the learning experience. As professionals will seek more ways to direct their own upgrading and change of career direction, whether it will lead to formal credentials or not, universities also need to develop the capacity to add flexibility to their structures. The danger of universities being marginalized as providers of lifelong learning opportunities will depend on their meeting these needs.

The penultimate chapter of Part 1 deals with flexible learning and university change and expands on the flexibility issues raised briefly in the previous chapter. Louise Moran and Brittmarie Myringer discuss the changes necessary in order for the university to move towards a more flexible learning environment. These authors are of the opinion that the days of distance education, whose "quest for legitimacy also sprang from the desire to distinguish distance education from its predecessor, correspondence study", are numbered and that what is currently occurring is far more than a "simple evolution" (p. 57). According to them an "unsteady, problematic, profound process of change is under way" (p. 57). The authors state that the convergence of distance education methods and systems with those of traditional or face-to-face teaching is "strongly influenced by new electronic technologies" (p. 57). Flexibility, student-centeredness, networked learning, quality and efficiency are today assisted by "triggers for change" (p. 58) such as declining funds, advancing technology and the demography of students. These changes will force a paradigm shift in universities and other providers of higher education. The authors use a brief case study of Mid Sweden University to illustrate the changes brought about by acceptance of flexible learning as a means of achieving the ultimate goal of quality education. The chapter also deals with the role of the academic teacher, learning materials production, real and virtual campuses, and collaboration as issues of flexible learning and university change. These authors provide a fresh and interesting insight into dealing with matters that are of both global and national interest to institutions in the process of change.

Part 1 of the book concludes with a relevant and much discussed general topic, the costs of distance education, comprehensively dealt with by Thomas Hülsmann. The rising demand for education worldwide normally oversubscribes the budgets allocated to provision of services to students. Hülsmann analyses costs and effects in distance education in order to provide some guidance for managing distance education. He draws attention to structural features of distance education, case study evidence and a framework for cost-effective media choice. Dealing with costing issues, institutional costs and the costing of media, and using the student-learning hour as a basis for calculation and comparison, he

provides guidelines for calculating costs. The four main conclusions drawn from his argument are: (a) text is important, (b) text can be presented either in print or on screen, (c) teaching by networked computers has a substantial effect on the cost structure and development costs, and (d) more advanced technology tends to increase reception costs which are passed on to the learner.

## Part 2 – Regions

Through a number of case studies, the second part of this book gives insight into and information about aspects of open and distance learning in different regions of the world.

In a contribution from Southern Africa, Tony Dodds, Evelyn Nonyongo and Jenny Glennie deal with issues of whether cooperation, competition or dominance will prevail in the Southern African region. Attention is first given to the development of tertiary education in the smaller states, Botswana, Lesotho, Namibia and Swaziland with special reference to the development of distance education under its "former guise of correspondence education" (p. 96). The authors discuss certain issues and challenges for the future in the region, highlighting two major challenges: cost effectiveness and quality. A discussion on South Africa sketches the policy environment and development with special attention given to the post-apartheid era. The history of the development of tertiary (higher) distance education is briefly given and some attention is given to issues and challenges for the future. As cooperation between institutions of higher education is very much in evidence in South Africa, the authors give a fairly comprehensive overview of collaborative activities in this sector.

Geoffrey Mmari provides an interesting description of developments preceding the establishment of the Open University of Tanzania and goes into a fairly detailed description and analysis of the organisational structure and management of the university.

The section on the Americas deals with the West Indies, Latin America and Canada. A case study on the University of the West Indies is authored by Ed Brandon and gives an outline of the regional context and the structure of the University. Fabio Chacón discusses the growth and maturity of distance education in Latin America by providing the reader with a historic view on the development and current situation of distance education in Latin America. Attention is also given to a definition of "the new educational paradigm" (p. 142) under the two headings – new methods and new principles. In "University Distance Education in Canada", Douglas Shale gives an overview of the Canadian scene by looking at the political framework, communications network and the impact of technology on Canadian distance education. He also gives a brief overview of contemporary Canadian university education.

The fact that there are and have been significant distance education endeavours in the United States of America merely gets attention in the introduction to the contributions of this region. The reader is simply referred to the "American Journal of Distance Education" as a source of information about issues of open and distance learning in the United States (p. 124). This is perhaps the biggest shortcoming of this book

In the introduction to the Asian region is the statement that "the largest growth area of single-mode open universities during the 1970s and 1980s was Asia" (p. 162). Greville Rumble gives a very good case study of the Bangladesh Open University and David Murphy and Yvonne Fung discuss the Open University of Hong Kong in the same vein. Xingfu Ding provides a discussion of distance education in China. This discussion deals more with issues and the political framework in general than with specific institutions. A similar contribution is made by Hung-Ju Chung in the discussion of contemporary distance education in Taiwan. By looking from the viewpoint of developments, networking and convergence in India, Santosh Panda draws a picture of distance education in a country where open and distance learning institutions have developed at a very fast rate since the 1970s. Moving from a previous elitist higher education system to a mass education system has given impetus to this growth.

The disappearance of the Soviet Bloc has lead to a tremendous increase in the demand for European distance education. Europe has well-established open universities in Germany, the Netherlands, Portugal, Spain and the United Kingdom. This section of the book divides Europe into Central and Eastern Europe, and Western Europe. In their contribution, "Distance Education in Central and Eastern Europe", Andras Szücs and Janet Jenkins provide the reader with well-structured information on the influences that political and economic change have had on educational development in the region. Hungary and PHARE (a multi-sector distance education programme sponsored by the European Union) are given as examples. The role and impact of Western assistance in the development of higher education is also highlighted with some attention given to the possibility of using new technologies to improve distance education. Hans-Peter Baumeister addresses the issues of distance education in the European Union while Corinne Hermant-de-Callatay looks at open and distance learning sponsored by the European Commission.

In a final section dealing with different regions, Oceania is represented by Australia and the South Pacific. In his discussion of Australia, Bruce King focuses on reforms by John Dawkins, the Australian Labor Party Minister for Employment, Education and Training who brought about major changes in the sector in 1988. In their discussion of the South Pacific, Claire Matthewson and Ruby Va'a give an overview of specific developments there by referring to changes in institutional structures and audiences.

The publication is aptly rounded off by an afterword written in the usual reflective style of John Daniel. In his contribution titled "Open learning and/or

distance education," Daniel reflects on the rich variety of activity that goes under the name of open and distance learning, such as that described in this publication. By asking "What else is left to say?" he indicates that there is an inherent "conceptual fuzziness that is endemic in open and distance learning" (p. 292). He then succeeds in clarifying some issues in a satisfactory way, ending a well put together publication beautifully.

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