THE VIRTUAL UNIVERSITY

Models & Messages | Lessons from Case Studies

Edited by Susan D'Antoni

USQOnline, Australia

James C. Taylor

An evolution of an existing institution

United Nations
Educational, Scientific and
Cultural Organization

International Institute
for Educational Planning

Table of contents

List of abbreviations

BETTER	Building for Enterprise and Teaching through Technology Enhanced Responsiveness
CMC	Computer Mediated Communication
DEC	Distance Education Centre
DETYA	Department of Education Training and Youth Affairs
GOOD	Generic Online Offline Delivery
ICT	Information and Communication Technology
ISO	International Standards Organization
ISPC	Instructional Strategies Planning Committee
IT&T	Information Technology and Telecommunications
NOIE	National Office of the Information Economy
OMMC	Online Marketing Management Committee
USQ	University of Southern Queensland

List of tables

List of figures

1. USQOnline and its context

1.1 International context

Established by the Australian Federal Government in 1967 to provide on-campus higher education opportunities primarily for residents of the Darling Downs region of Southern Queensland, the University of Southern Queensland (USQ) became a dual-mode institution when it initiated distance education delivery in 1977. Twenty-four years later, USQ has a student population of 21,063, with 5,266 students studying on-campus and 15,799 distance education students studying off-campus.

USQ was one of the first Australian universities to establish a significant international education programme that included offshore delivery – in other words, reaching students outside of Australia – in the 1980s. This programme developed steadily during the 1990s, with growth in offshore and postgraduate enrolments contributing to an overall rise in international student enrolments over this period. Graduation levels have also risen over this period, and the performance of international students has remained steady despite pressures created by an increasing number of students studying at a distance in their home countries. These developments reflect well on the range of strategies in place at USQ to support these students. Although the international programme remains reliant on enrolments in traditionally strong markets such as Malaysia, Singapore and Hong Kong, it is continuing to diversify, with over sixty countries being represented in 2000.

The successful transition to dual-mode operations is evident in the current overview of USQ's international students offshore (Table 1). USQ has more international students studying offshore than any other Australian university. Further, international students studying on-campus constitute more than 20 per cent of enrolments.

USQ's focus on international education was given added momentum by the launch of its USQOnline initiative in 1996. This initiative is in line with USQ's mission to be: 'A leader in

Table 1 USQ's international students offshore in 2001

Region/Country	**2001 enrolments**
Singapore	1,165
Malaysia	943
China	340
South Africa	199
Pacific Islands	114
Zimbabwe	93
United Arab Emirates	76
Canada	73
Total (including more than 50 other countries)	**3,981**

Source: USQ internal documents.

flexible educational delivery with an expanding national and international market' (Clarke and Klease, 2001).

1.2 National context

USQ is one of the thirty-seven public universities supported by the Australian Federal Government. Apart from the Australian National University, which is constituted under an act of the federal government, all of Australia's universities are established under State or Territory legislation. USQ was established under a Queensland State Act.

In 2002, there were 794,993 students enrolled in higher education courses in Australia (DEST enrolment numbers, Australian Vice-Chancellor's Committee, 2002). Almost 68 per cent were studying full time, and 77 per cent were enrolled in undergraduate courses. At USQ, 76 per cent of students are studying for an undergraduate degree. USQ is Australia's most multicultural university with students from more than ninety countries.

In 1997, the federal government established the National Office of the Information Economy (NOIE).[1] NOIE is Australia's lead Commonwealth agency for information economy issues. The aim of NOIE is to help Australians create a world-class online economy and society through its work developing, overseeing, and coordinating federal government policy on electronic commerce, online services and the Internet.

Under the auspices of NOIE, widespread consultation within the education sector led to the development of an Education Action Plan, now called Learning for the Knowledge Society.[2] The Plan provides an overview of issues and identifies outcomes that the education sector must achieve if it is to support Australia's response to the challenges and opportunities of the information economy and maintain its place as one of Australia's major export-earning industries.

As part of this initiative, the Higher Education Action Plan, entitled 'The Way Forward', has been circulated to universities by the Australian Vice-Chancellors' Committee.[3] In addition to the Higher Education Information Technology Consultative Forum, other higher education IT bodies addressing matters of relevance to the Action Plan include the Australian Academic Research Network Pty Ltd, the Council of Australian University Directors of Information Technology, and the Higher Education Advisory Group of the Education Network Australia Reference Committee. Moreover, the Committee for Australian University Librarians and the Coalition in Scholarly Communications are considering the provision of digital resources and services to support research offered through university libraries.

The Australian Federal Government considers that a key priority for advancing the Action Plan will be to support cooperation and strategic collaboration within and across all parts of the education and training sector to build on these foundations. A number of federal government and joint federal government, state, and territory strategic initiatives are already under way. These have been categorized under the five Action Areas of the Education and Training Sector Action Plan: people; infrastructure; online content, applications and services; policy and organizational framework; and regulatory framework.

[1] http://www.noie.gov.au/
[2] See http://www.detya.gov.au/edu/edactplan.htm.
[3] See http://www.avcc.edu.au/avcc/itpolicy/actionplan/.

People

In April 1999, agreement was reached by state, territory and federal ministers of education on Australia's National Goals for Schooling in the Twenty-First Century. One of the goals identified is that 'when students leave school they should be confident, creative and productive users of new technologies, particularly information and communication technologies, and understand the impact of those technologies on society.' Flowing from this, the National Education Performance Monitoring Taskforce has been established to promote action relating to the national reporting of comparable educational outcomes, including information technology.

The Commonwealth Quality Teacher Programme, which commenced in 2000, is providing $77.7 million[4] over three years for the renewal of teachers' skills and understanding in the priority areas of information technology, literacy, numeracy, mathematics, science and vocational education in schools. The Programme is focusing on teachers who completed initial teacher education ten or more years ago, teachers re-entering the teaching profession and teachers of disadvantaged students.

The Department of Education Training and Youth Affairs (DETYA) has commissioned work on a project to examine models of teacher professional development for the integration of information and communication technology into classroom practice. The first phase of the project involves a detailed examination of existing models of pre-service education and in-service professional development, both in Australia and overseas, across all key learning areas. Further, under the DETYA Science Lectureship Initiative, a number of projects promoting the future skills required to support the online economy are being funded.

The federal government is also helping industry to establish an Information Technology and Telecommunications (IT&T) Skills Exchange to address the current shortage of IT&T skills by providing initial seed funding of $5 million, with industry contributing matching funding. The purpose of the Exchange is to improve the information on skills in demand, arrange for training programmes to meet those demands, and to promote the take-up of training and careers in IT&T. The Exchange is seeking advice from and working closely with a broad range of industry, education and training providers and other stakeholders in the interests of industry as a whole, with the aim of ensuring that there are enough people with the right skills to fill the jobs being created in the IT&T sector.

Infrastructure

A DETYA study, 'Bandwidth Requirements for the Education and Training Sector' (1999), was commissioned as a contribution to the National Bandwidth Inquiry being conducted through the Department of Communications, Information Technology and the Arts. The report highlighted the fact that the education and training sector is one of the largest users of telecommunications bandwidth in Australia, but needs adequate access to bandwidth at a competitive price if it is to exploit the potential educational benefits of information and communication technologies.[5]

In many parts of the education and training sector, funds are being used for infrastructure to support the information economy. In December 1999, the Federal Minister for Education announced allocations from the higher education Capital Development Pool for 2002. The

[4] All amounts quoted in the case study are in Australian dollars, unless otherwise stated.
[5] See http://www.noie.gov.au/bandtask/submit/submit.htm.

pool supports new campus developments in suburban growth areas and regional centres, and the development of electronic infrastructure for the flexible delivery of education services. The emphasis in current projects is increasingly shifting to the judicious use of Information and Communication Technology (ICT) to expand access and opportunities for learners. Further, additional funding was announced on 20 July 2000 for regional universities in Queensland, Northern Territory and northern New South Wales to upgrade their bandwidth. Allocations for 2001, 2002 and 2003 are approximately $274 million per year.

The Framework for Open Learning Programme is a cross-sectoral DETYA initiative that facilitates and encourages the use of ICT throughout the education and training sector. A project under the programme is exploring innovative approaches to meeting the future requirements of the education and training community for high-speed online communications ('bandwidth'). Stage One is reviewing innovative approaches being used in Canada, the USA and Sweden in order to assess their applicability to Australia. If the overseas approaches are applicable to Australia, Stage Two will provide a more detailed examination of how these approaches (or local variants inspired by them) might be applied in Australia. The project is being managed by a Steering Committee with representatives of the education and training sector through the EdNA Reference Committee and DETYA.

Online content, applications and services

The EdNA Online public website[6] provides access to resources and services for all sectors of the Australian education and training community. EdNA Online is a unique, distributive and collaborative model, which has attracted widespread international interest. The website points to thousands of resources identified and contributed by Australian educators, and its services create communities of educators online, making it a meta-network of Australian education and training practitioners. EdNA Online is managed by education.au limited, a non-profit company owned by state, territory and federal ministers for education and training.

In vocational education and training, the Australian National Training Authority Ministerial Council recently agreed to specific annual national project allocation called the National Project for New Technologies and provides up to $20 million per annum for the next five years. Further, the Authority has funded a range of Toolbox multimedia resources since 1998 to assist the online delivery of training programmes. In 1998, $3.5 million were allocated for the Toolbox development project and twelve toolboxes were developed across a range of Training Packages. A further $5 million was made available in 1999 and another thirteen toolboxes were completed in November 2000. Under Strategy 2000, the development of a further fifteen toolboxes was scheduled.[7]

The EdNA Reference Committee has established a Standards Sub-Committee to address the full range of technical standards issues relating to the use of information and communication technologies for education and training in an integrated and proactive way. Support is also being provided by the Reference Committee for the EdNA Metadata Standard and for Australian participation in the USA-based IMS Global Consortium Inc., of which DETYA is a member, representing the interests of the Australian education and training sector.

[6] http://edna.edu.au/EdNA
[7] See http://flexiblelearning.net.au/productsandservices.

Policy and organizational framework

In February 2000, DETYA released the report 'Real Time – Computers, Change and Schooling', a national sample study of the information technology skills of Australian school students. The study provided a snapshot of the situation in May 1998. This was the first time that students, teachers, principals and school authorities had been surveyed on the acquisition of skills, resourcing and policy related to information technology.[8]

Another research project, 'Participation in IT&T in Education and Training', is currently investigating participation and characteristics of students in IT&T courses and subjects in schools, vocational and educational training, higher education, and through private providers. According to the Australian Department of Communications, Information Technology and the Arts (DCITA, 2000), the report "will identify and analyse barriers to participation in courses and progression to IT&T careers by under-represented student groups."

The project 'Unmet Demand for Places at Education and Training Institutions for Courses in the IT&T Industries' is

> investigating a range of issues including the nature and extent of unmet demand for IT&T courses offered by Australian tertiary education institutions and the extent to which tertiary education institutions work with industry to meet industry skill needs.
>
> Research is also being carried out into levels of access to, and levels of literacy in, ICT for learners in universities and vocational education and training, with the aim of ensuring that the best advantage is being made of the opportunities available by the application of ICT to education and training. (DCITA, 2000)

Regulatory framework

The Copyright Amendment (Digital Agenda) Bill 2000 was signed into law by the Governor-General on 4 September 2000. The education and training sector will continue to provide advice to the Attorney-General's Department about how its members are managing the new regulations. The Taskforce on Copyright Law is currently giving attention to the development of a training and awareness package to inform educators about their rights and obligations under the new legislation.

DETYA is continuing to represent the interests of the education and training sector on issues relating to the framework for the regulation and management of the .au domain space, particularly in relation to the future management of the .edu.au domain space. Further, DETYA is monitoring developments on the Privacy Amendment (Private Sector) Bill 2000 and the implementation of the Electronic Transactions Act 1999.

This focus on regulatory issues led to the functions of the former Office for Government Online being incorporated into NOIE in late 2000. Bringing these Offices together provided a coordinated approach to addressing technical, regulatory and social issues affecting government, business, education and consumers, in the take-up of online services and the development of the information economy.

Despite all this activity to promote the information economy, decisions to move into online learning at the institutional level are left to individual universities, which have the autonomy

[8] See http://www.detya.gov.au/schools/publications/RealTime.pdf.

to determine modes of delivery. It is in this context, that the USQ provides the focus for an interesting case study, with the emphasis on change management at the institutional level.

2. Creation and organization of USQOnline

At USQ the initial transition to dual-mode status in 1977 was stimulated by a move to provide professional upgrading opportunities for teachers. The rapid expansion of dual-mode offerings is reflected in the fact that all five faculties are involved in the offering of 145 degree programmes via the distance education mode. Further, 36 of these programmes are now available online.[9] All students have online access to a range of services that include discussion groups, library services, supplementary instructional resources incorporating links to relevant sites and a variety of student administration functions, including access to personal records of enrolment and academic results. In effect, the 20,000-plus USQ students (whether on- or off-campus) have access to a range of online services, whereas approximately 2,500 of these choose to study primarily online. How did all this begin?

2.1 Creation

The initial impetus for the move to online delivery occurred in 1995 when USQ was the only Australian university to be awarded an AT&T Global Learning Initiative research grant (US$50,000). This research grant funded the development of the online delivery of the University's Graduate Certificate in Open and Distance Learning, the first complete programme to be offered totally online by an Australian university. The success of the initial online programme and the gradual expansion of the development of other online programmes led to a major strategic, organizational development initiative.

The rationale for the development of USQOnline emerged from strategic planning discussions among the USQ senior managers. There was growing concern that USQ's existence could be threatened by the emergence of the Internet as a powerful distribution channel, and the development of purely web-based business models for education services. The rapid rate of technological change and the rapidly growing number of education and training institutions embarking on Internet-based delivery meant that more and more institutions were becoming involved in distance education than at any other time in history. It was believed that as institutions throughout the world increasingly offered courses via the Internet, there would emerge a global lifelong learning economy (Taylor, 1999) in which organizations would face global competition for students, especially those involved in continuing professional education. The emergence of the global lifelong learning economy acted as a catalyst for change at USQ. With the endorsement of the Vice-Chancellor's Committee, a series of University and Faculty Assemblies was called to engender commitment to the USQOnline concept from all members of staff.

In joint presentations made by the Vice-Chancellor and the Director of the Distance Education Centre (DEC), the USQOnline proposal was placed in the context of global developments, and it was argued that the processes of education and training were unlikely to escape the influence of such significant changes, especially as the influence of the Internet continued to increase and the cost of access to information communication technologies continued to decrease. The view was also expressed that the information technology revolution would likely be much more significant than any previous revolution, and that the pace of change would probably be much greater. USQ's vulnerability to increased competition for off-

[9] See http://www.usqonline.com.au.

campus students was contrasted with the university's potential leadership position in online education, given its well-established expertise and strong corporate commitment to distance education.

While continued efforts were made to engage the university's academic and professional community in the debate about the future of the institution, a small group of senior managers worked on the resource implications and associated business model for the proposed new mode of delivery. At one stage, a proposal was developed for the establishment of the Australian Global University Network, a national inter-institutional initiative. This proposal was actually discussed with DETYA and, although it subsequently received in principle support from the Minister of Education with potential seed funding of $5 million, the network did not engender adequate support against competing budgetary initiatives in Cabinet. The decision was then made to investigate the potential for developing a commercial partnership to fund USQOnline.

As this approach did not move the project forward, the USQ senior management executive team, with University Council approval, opted to change the liquidity ratio of university operations in order to commit $3 million dollars to the development of USQOnline. Through the business arm of the university, the USQOnline initiative includes a major investment in a Hong Kong-based company, NextEd Ltd that provides a virtual campus service to USQ and other institutions throughout the world. USQ not only became a foundation shareholder of NextEd Ltd, but also became a major customer of the company. Such a strategy enabled USQ to gain access to more resources and also to a wider range of technical and business expertise. This effective outsourcing of USQ's international virtual campus services demanded the establishment of a new organizational structure within the university for the management of USQOnline.

Key lesson

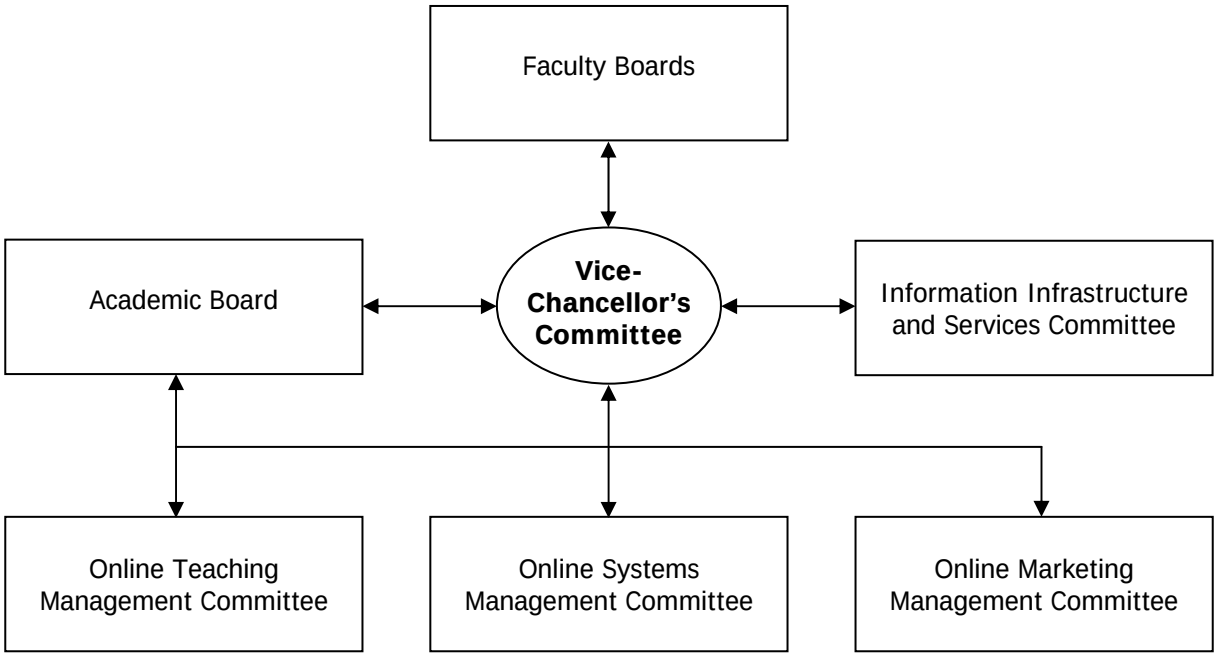
Ensure that the online initiative has the support of the senior executive management team. Sufficient allocation of human and fiscal resources needs to engender a reasonable chance of success for the project.

2.2 Organizational structure

Three new management committees, the Online Teaching Management Committee, the Online Systems Management Committee and the Online Marketing Management Committee respectively, were established (Figure 1).

From an organizational development perspective, the Vice-Chancellor's Committee is responsible for determining the range of courses to be offered online, decisions associated with the allocation of resources, and the establishment of the management structure aimed at implementing the USQOnline initiative. The Online Teaching Management Committee is essentially concerned with implementing the online teaching programmes and ensuring the appropriate professional development of staff. This is coordinated through a series of Faculty Focus Groups, supported by the Staff and Student Support team. This latter team involves staff members from the DEC, the Library, Student Services, the Office of Preparatory and Continuing Studies and Information Technology Services, who were previously involved only in various forms of discrete staff training programmes. Further, under the auspices of the Online Teaching Management Committee, the Research and Evaluation Focus Group is

Figure 1 Management structure of USQ online initiatives



attempting to coordinate investigations into various aspects of the online teaching/learning environment on an institution-wide basis.

The addition of the online mode of delivery of courses previously offered only on-campus and through 'traditional' distance education approaches was managed through the existing multidisciplinary team teaching approach, which was initiated in 1977. It was, of course, not without its pedagogical and logistical challenges, with the standard team approach being supplemented by a series of pedagogically focused workshops offered to each discipline group, and a series of 'hands-on' training sessions to familiarize staff with the features of the delivery platform. While there has been healthy debate of numerous issues, including workloads, download times, evaluation, cost-effectiveness, online pedagogy and marketing, to name but a few, practically no one has questioned the university's strategic commitment to the development of a significant e-learning capacity.

The Online Systems Management Committee focuses primarily on the technical interface between the outsourced virtual campus software and USQ's existing management information systems and the associated review of course regulations. Given course accreditation considerations and the legacy of government legislation and reporting requirements, this task is far from simple. As well as academic and legislative considerations, the work of the committee incorporates the establishment of effective technical interfaces between the outsourced virtual campus platform and existing student record systems, electronic library services and financial systems. The committee works essentially within the existing policy and regulatory structures of the university, but with the ultimate goal of enhancing student choice and flexibility.

The Online Marketing Management Committee (OMMC) – consisting of marketing specialists from the Faculty of Business, the Director of Marketing and Public Affairs, the Marketing Manager of the International Education Centre, the Corporate Relations Manager, and the USQOnline Commercial Planning Officer (a new position) – has challenged the

conventional role of academic staff by involving the teaching staff in decisions about marketing through the establishment of an approach based on product managers. With the guidance of the OMMC, product managers nominated by the faculties began working on the creation of business plans for each online programme. In this task, they were supported by the Commercial Planning Officer and the USQ Account Manager of the commercial partner.

Decisions emanating from the OMMC and endorsed by the Vice-Chancellor's Committee have since led to the establishment of the USQOnline Support Centre, aimed at engendering effective and timely responsiveness to enquiries from prospective students and monitoring the efficacy of particular marketing activities. The involvement of staff in the commercial aspects of the online initiative is further reflected in the endorsement of another OMMC proposal to establish an incentive scheme, with 2 per cent of gross revenue being distributed as follows: 1 per cent to the teaching team at the course level, and 1 per cent into a bonus pool for all members of the USQ staff establishment, irrespective of their specific roles, or even their direct involvement in online activities. Yet another initiative stemming from the activities of the OMMC will provide staff with the opportunity to become part of USQNet, an international network of marketing representatives, who are compensated financially for the recruitment of new students for USQOnline. Such initiatives are a further indication of the more fluid organizational structure and flexible management processes that are emerging to support USQOnline.

The increasingly fluid and flexible nature of USQ is also reflected in the restructuring in January 2000 of the university's marketing function, followed by the rplacement in June 2000 of the OMMC with the Marketing and Media Coordination Committee. The need for a more coordinated corporate approach to marketing was recognized by the OMMC, which generated a proposal (subsequently endorsed by the Vice-Chancellor's Committee) for the establishment of the new Committee, which includes the dean of each faculty. This new initiative is aimed at promoting a corporate approach to the projection of the USQ brand name. The new marketing management structure reflects the university's growing commitment to the strategic importance of e-learning. Further evidence of such a commitment was the establishment (at the behest of the Vice-Chancellor) of a new executive management position: Vice-President (Global Learning Services), in June 2000. This new position, which entails oversight of the DEC, the Library and Information Technology Services, highlights the growing importance of the need to generate an effective synergy between information, pedagogy and technology in the increasingly competitive environment of global higher education.

Key lesson

Establish a formal organizational structure for reporting and managing the project, so that the online initiative becomes an integral part of mainstream university decision-making structures.

2.3 Current programme

Given its long-standing emphasis on distance education and its servicing of the lifelong learning market, it was a natural step for USQ to take an active interest in online learning and USQOnline students are classified in the student record system as off-campus students. To date USQ has loaded 180 single online courses, which gain credit towards 48 of the University's degree programmes. From a baseline of 398 student courses enrolled in USQOnline programmes in the first semester of 1999, enrolments have grown steadily to

Table 2 Nature of USQ's student population, 2001

Age	Off-campus %	On-campus %
Under 20	3.9	43.9
20-24	17.9	30.9
25-29	22.4	8.9
30-34	19.1	5.6
35-39	14.9	4.7
40-49	17.4	4.9
50-59	4.4	0.9
Over 59	0.4	0.2
Total	**100.0**	**100.0**

Source: USQ internal documents.

4,545 student courses in the second semester of 2003. Further, these students are from at least 45 countries, including Botswana, Cambodia, Czech Republic, India, Japan, Kiribati and Puerto Rico.

The current ratio of off-campus to on-campus students expressed as a percentage (75 per cent to 25 per cent) is a manifestation of USQ's mission 'to be a leader in international and distance education'. The emphasis on distance education has had a significant impact on the student profile, with a much smaller percentage of school leavers and a larger group of mature-age students (Table 2) exemplifying the trend towards lifelong learning.

A wide range of programmes is currently available through USQOnline. Thirteen areas of study are offered with more than thirty programmes and fifty-five individual courses.

When the USQOnline initiative on the NextEd Ltd platform was launched in the first semester of 1999, there was a total of 398 students operating solely online, of whom 40 were new students. In the following four semesters, USQOnline attracted new students according to the following pattern, increasing from 40 to 69, to 167, to 293, to 285, to 1,200 in the first semester of 2001. USQOnline enrolments to date have reached a total of 27,024. Further, almost without exception the response of these students to the e-learning experience has been universally positive.

The demand for online programmes offered by each of the five faculties varies considerably. As expected the greatest demand has been in Business and Commerce with 82 per cent and Education with 14 per cent. Nevertheless, the university is optimistic that demand will continue to grow, and is seeking to place more emphasis on the benefits of online study in its marketing efforts.

Key lesson

Adopt a commercial perspective on the project, incorporating market research and the development of a detailed business plan, and do not expect immediate cost-effectiveness, but be prepared to invest in the future.

3. Administrative issues

3.1 Administration

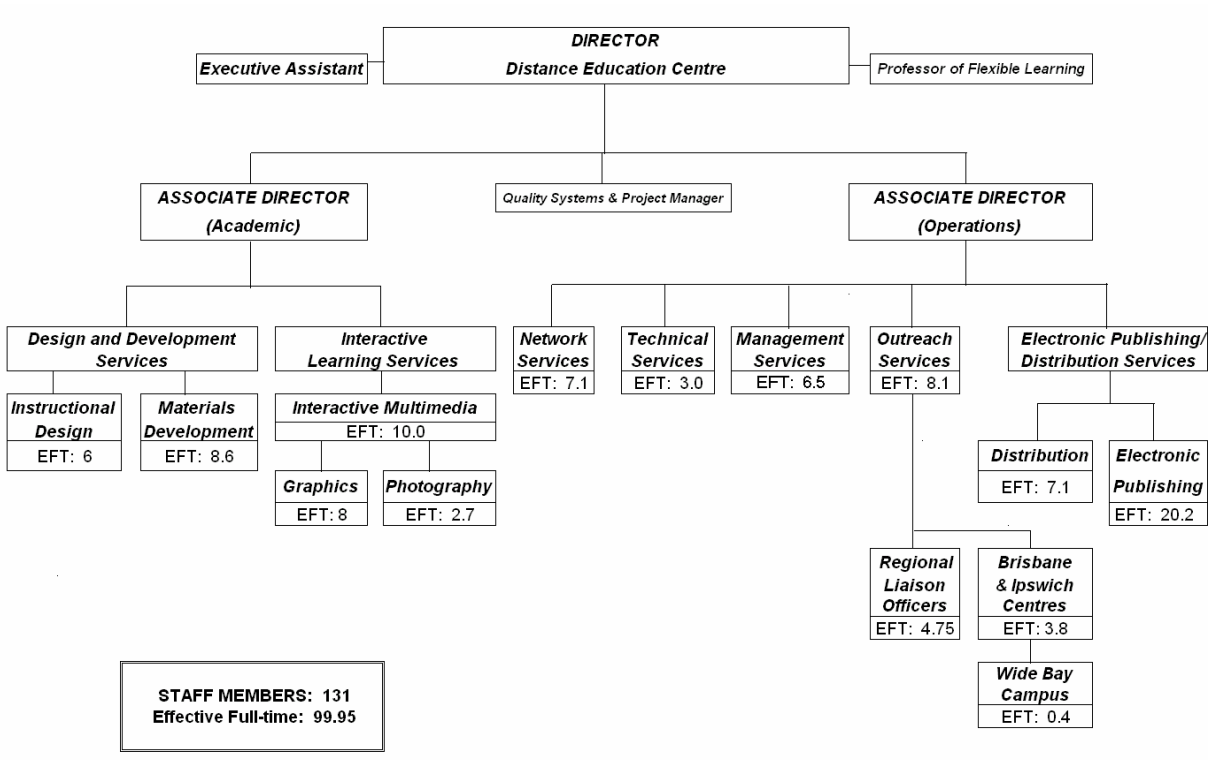
The administration of USQOnline was accommodated with the existing centralized structure for courseware design and development that has existed at USQ since 1977, when distance education delivery was initiated. This infrastructure had grown into a well-resourced and sophisticated multidisciplinary team approach reflected in the staff establishment of the DEC (Figure 2). The liaisons with NextEd Ltd and the faculties is managed by the Head of Course Team Operations with the support of an administration officer.

Members of the course teams for USQOnline have access to the following services provided under the auspices of the DEC.

Design and development services

The instructional design team works with subject-matter specialists to ensure effective teaching and learning strategies are utilized in the distance education packages. Workshops for writers/developers of distance learning and online materials are conducted by the team to familiarize subject-matter specialists with the range of technologies applicable to distance education and the most effective strategies used to achieve learning objectives. Workshops are followed up with individual discussion in the course team, which are more content specific and detailed.

Figure 2 USQOnline Distance Education Centre staffing establishment



Interactive Learning Services

Interactive Learning Services provides multimedia, audiovisual, graphic and photographic support, along with consultation on media design and applications, for the academic programme, research projects and promotional activities of USQ and other clients. The Interactive Multimedia section designs and develops courseware and interactive learning tools delivered using CD-ROM, Intranet/Internet or floppy disk. The Video and Audio sections specialize in designing and producing broadcast-standard educational, training and promotional programmes for distribution on cassette, CD or the Intranet/Internet. The Graphic Design studio provides creative and technical artwork services including graphic, multimedia and web design, animation, illustration and desktop publishing. Photography provides a complete digital and traditional, studio and location, photographic service and consultancy. A duplication service is also provided for audio, video, CD-ROM, floppy disks and video standards conversion.

Electronic Publishing Services

Electronic Publishing Services is responsible for publishing study materials and examinations for external, internal and online students. About 2,500 sets of master files for learning packages are produced each year. Master copies are fully electronic, enabling digital storage and easy file transfer across campus and elsewhere, as well as on-demand printing. This also provides the platform for transformation on to CD-ROM and the Internet.

Outreach Services (student support)

Outreach Services manages an extensive Regional Liaison Officer Network, organizes telephone tutorials and audiographic tutorials, residential schools (on-campus periods that allow the use of on-campus equipment, discussions with staff and physical interaction with fellow students) and provides an efficient and effective study support system. Outreach Services has four studios, which are equipped with teleconference, audiographic and desktop videoconferencing facilities. In addition, Outreach Services manages the USQOnline Support Centre and maintains an electronic notice board, which provides up-to-date information that students can access at any time.

In 1997, under the auspices of the International Standards Organization (ISO), the DEC achieved ISO 9001 quality accreditation for the following processes:

- courseware design and development;
- project management;
- audio and video production;
- photographic services;
- distance learning evaluation;
- examinations preparation and production;
- telecommunications support;
- microcomputer support;
- systems administration;
- courseware production and distribution;
- multimedia development;
- graphics design;
- instructional design research;
- electronic publishing;
- student support systems;
- technical consultation, installation and repairs;

- network design and maintenance;
- organizational management.

The allocation of time and resources to achieve ISO 9001 accreditation is symptomatic of the need for USQ, a relatively small, relatively new, regional university, to differentiate itself from the competition emerging in the global higher education economy, which threatens USQ's distance education market. It was also stimulated by an emerging trend whereby an increasing number of business organizations and government departments require ISO accreditation as a prerequisite to any business partnership. Further, the achievement and maintenance of ISO accreditation reflects USQ's commitment to continuous improvement and organizational development as a corporate management strategy. Fortunately, its size, ethos and history mean that USQ does not face some of the potentially insurmountable challenges to change of some of the long-established traditional universities. Nevertheless, the financing and management of online delivery is still the greatest organizational development challenge facing USQ.

Key lesson

Deploy a multidisciplinary course team approach to courseware design and development to assure the quality of online pedagogy.

3.2 Costs and financing

Providing an accurate breakdown of the costs of the USQOnline activities is not feasible within the context of the present case study (it may never be feasible!), since the online initiatives are inextricably linked to the myriad of mainstream activities involved in the design, development and delivery of distance education courses in general. The situation is further complicated by the 'commercial-in-confidence' nature of the agreement with NextEd Ltd; which is responsible for taking the original courseware files created by USQ and loading them on the delivery platform. The delivery platform is based on a somewhat customized, online learning management system devised by Blackboard. In the agreement with USQ, NextEd Ltd is responsible for the provision of technical support on a 24/7 basis, and has also recently signed a marketing agreement to provide marketing services on a payment-by-results basis. At the same time, USQ undertakes marketing activities for its online courses and provides student support services through the Distance Education Centre's Outreach Services section.

From the aforementioned original allocation of $3 million to support the USQOnline initiative, the university invested $1 million to become a foundation shareholder in the establishment of NextEd Ltd. A sum of $600,000 was distributed equitably among the faculties for their work in supporting the development of online courseware, and the remainder has been used to pay for the loading of courseware for the almost 200 separate courses underpinning the programmes offered via the NextEd Ltd platform.

An analysis undertaken by senior staff of the university's DEC of the fixed costs associated with the development of courseware for online delivery, compared to the fixed costs for the development of more traditional distance education courseware, demonstrated that these costs were more or less the same. This outcome was in direct contrast with some of the more extravagant claims about the cost of mounting online education courses made in the popular press. This outcome, however, should be considered in the context of USQ's considerable

investment in the necessary infrastructure and associated efficiency and effectiveness of USQ's externally accredited, quality assurance system.

Key lesson

Ensure that a senior manager has executive responsibility and associated accountability for the financial management of the project.

3.3 Technological infrastructure

For many years, universities like USQ with a significant commitment to distance and open education institutions have been at the forefront of adopting new technologies to increase access to education and training opportunities. Distance education operations have evolved through the following four generations: first, the Correspondence Model based on print technology; second, the Multimedia Model based on print, audio and video technologies; third, the Telelearning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication; and fourth, the Flexible Learning Model based on online delivery via the Internet. Although many universities are just beginning to implement fourth-generation distance education initiatives, the fifth generation is already emerging based on the further exploitation of new technologies. The fifth generation of distance education is essentially a derivation of the fourth generation, which aims to capitalize on the features of the Internet and the web. To place the fifth-generation Intelligent Flexible Learning Model into a meaningful conceptual framework, it is first worth reviewing briefly certain features of the previous four generations of distance education. Some of the characteristics of the various models of distance education that are relevant to the quality of teaching and learning (Taylor, 1995) are summarized in Table 3, along with an indicator of institutional variable costs (Taylor et al., 1993).

The USQOnline initiative is essentially fourth generation, but is moving rapidly to the implementation of fifth generation technologies.

Over the years the university has developed an extensive technology infrastructure for the support of its distance education operations. As early as 1994, USQ undertook a strategic commitment to develop the University Campus Academic Network project, whereby all staff would have a networked computer on their desk. Through USQFocus (the staff Intranet) all staff, and through USQConnect (the student Intranet) all students have access to a wide range of web-based information services, as follows.

- All USQ students have e-mail addresses and web access.
- USQConnect student Intranet has the following information and services available to all students:
  - access to library catalogues, electronic indexes, journals and articles, and full-text databases;
  - secure access to enrolment details, course assignment and end-of-semester results;
  - faculty information on departments, courses, policies, and staff details;
  - electronic course materials for most courses;
  - Outreach Electronic Noticeboard for external students, including Residential School and telephone tutorial timetables, learning circles and other information;
  - e-mail for communicating with academic and support staff and other students;
  - conferencing and group communication;
  - Internet access to learning resources.

Table 3 Models of distance education – a conceptual framework

Models of distance education and associated delivery technologies	Characteristics of delivery technologies					
	Flexibility			Highly refined materials	Advanced interactive delivery	Institutional variable costs approaching zero
	Time	Place	Pace			
First generation – The Correspondence Model						
▪ Print	Yes	Yes	Yes	Yes	No	No
Second generation – The Multimedia Model						
▪ Print	Yes	Yes	Yes	Yes	No	No
▪ Audiotape	Yes	Yes	Yes	Yes	No	No
▪ Videotape	Yes	Yes	Yes	Yes	No	No
▪ Computer-based learning	Yes	Yes	Yes	Yes	Yes	No
▪ (e.g. CML/CAL/IMM)						
▪ Interactive video (disk and tape)	Yes	Yes	Yes	Yes	Yes	No
Third generation – The Telelearning Model						
▪ Audioteleconferencing	No	No	No	No	Yes	No
▪ Videoconfererencing	No	No	No	No	Yes	No
▪ Audiographic communication	No	No	No	Yes	Yes	No
▪ Broadcast TV/radio and audioteleconferencing	No	No	No	Yes	Yes	No
Fourth generation – The Flexible Learning Model						
▪ Interactive multimedia online	Yes	Yes	Yes	Yes	Yes	Yes
▪ Internet-based access to www resources	Yes	Yes	Yes	Yes	Yes	Yes
▪ Computer-mediated communication	Yes	Yes	Yes	Yes	Yes	No
Fifth generation – The Intelligent Flexible Learning Model						
▪ Interactive multimedia (IMM) online	Yes	Yes	Yes	Yes	Yes	Yes
▪ Internet-based access to www resources	Yes	Yes	Yes	Yes	Yes	Yes
▪ Computer-mediated communication, using automated response system	Yes	Yes	Yes	Yes	Yes	Yes
▪ Campus portal access to institutional processes and resources	Yes	Yes	Yes	Yes	Yes	Yes

Source: Taylor, 1995; Taylor, Kemp and Burgess, 1993.

- The full range of Library services is available to all students through electronic media. For example:
  - the Library is a foundation member of the Local Interlending and Document Delivery Administration consortium, which has developed world-leading document delivery

management software for the improved management of inter-library loans traffic. USQ will also be the first to use the system to manage requesting and delivery of required library materials by external students;
  - the Library is about to take delivery of Virtual, a third-generation, client-server management system that will provide catalogue information, and improve collection management and the use of computing resources.
  - the Library has emphasized access to full-text resources, originally on CD-ROM and now on the Internet, and currently has subscriptions to 151 databases in 17 separate services, including 15 databases that contain full-text articles or data – available to all students on- and off-campus.[10]
  - the Library assists students and staff to develop information literacy through a package entitled 'eGO', which introduces sound principles of information literacy in searching and using resources and evaluating their quality. Library Liaison Officers also locate, evaluate, present and use high-quality websites, which support and enhance teaching resources and learning opportunities.
- A total of 600 PCs and Apple Macs are available to students via fully networked student computer laboratories, with timetabled and non-timetabled labs available twenty-four hours per day at the main campus in Toowoomba, at the Wide Bay campus, and at the Ipswich and Brisbane Study Centres. All labs have access to e-mail, discussion groups and Internet and have latest printing technology, as well as network connection for laptops.
- Dial-up modems are available twenty-four hours per day.
- Help Desk for online students is available twenty-four hours per day, seven days per week, every day of the year.
- An Internet access quota system has been established to encourage responsible Internet use, including free access for study requirements, plus a quota for casual access.
- Trials with Apple and Lucent wireless technologies are currently under way.
- The staff Intranet USQFocus allows all academic staff and associated administrative support staff to:
  - access general and course news groups and log on to USQConnect, the student intranet;
  - add links to ancillary study materials for USQConnect;
  - access Library resources;
  - view details relating to enrolled students;
  - create and view course lists and course materials;
  - download course list information to a microcomputer;
  - look at past examination papers;
  - obtain door combination codes for certain computer labs;
  - submit work requests to ITS;
  - view current undrawn leave balances (vacation time); and
  - add their own links to the USQFocus menu.
- Online application and enrolment is available via USQOnline and USQConnect.
- Students can drop/add courses, change personal details, enrol in tutorial groups and laboratory classes (via the Student Enquiry and Tutorial System), and contact departments and support services electronically.
- Many student services are provided through alternative media, including telephone counselling, the availability of self-paced learning support and careers advice packages,

[10] See http://www.usq.edu.au/library/eservices/datahead.htm.

the use of Internet and web-based chat groups, e-mail counselling and study support provided for rural and remote students.

At USQ the strategic move to the online environment was a natural step based on almost twenty-five years of innovation in flexible delivery of education programmes. The central role of ICT in USQ operations is supported by the development of an organizational culture capable of generating and sustaining innovation as a corporate, rather than individual, ethos. This organizational culture developed as a result of a series of policy and structural initiatives based on USQ's guiding objective: 'To be a leader in flexible learning and the use of information and communication technologies in the tertiary education sector.' This objective generated a significant investment in ICT over many years, which has been enhanced through the university's access to the NextEd Ltd mirror site network.

While this infrastructure is available to other institutions that are the customers of NextEd Ltd, USQ has the valuable legacy of a well-trained workforce with extensive access to online technology, and considerable experience of working in the multidisciplinary team environment necessary to exploit the potential pedagogical efficacy of online learning. In essence, it is worth noting that the technology infrastructure is a necessary, but not sufficient, element of success in the global lifelong learning economy.

Key lesson

Ensure that 24/7 technical support is available for both staff and students.

3.4 Intellectual property

Consistent with the management of all aspects of USQOnline, intellectual property issues are managed under the auspices of extant university policies, there is no special provision made for courseware developed for online delivery. In effect, the university may claim ownership of all intellectual property produced by employees in the course of their employment by the university. While this may seem somewhat draconian, the university also seeks to assist staff members to exploit the commercial potential of intellectual property, based on a formula of 60 per cent to the originator, 20 per cent to the university and 20 per cent to the organizational unit in the university nominated by the originator. This policy is generally well received.

Key lesson

Have a proactive, inclusive approach to policy development and subsequent policy dissemination.

4. Academic issues

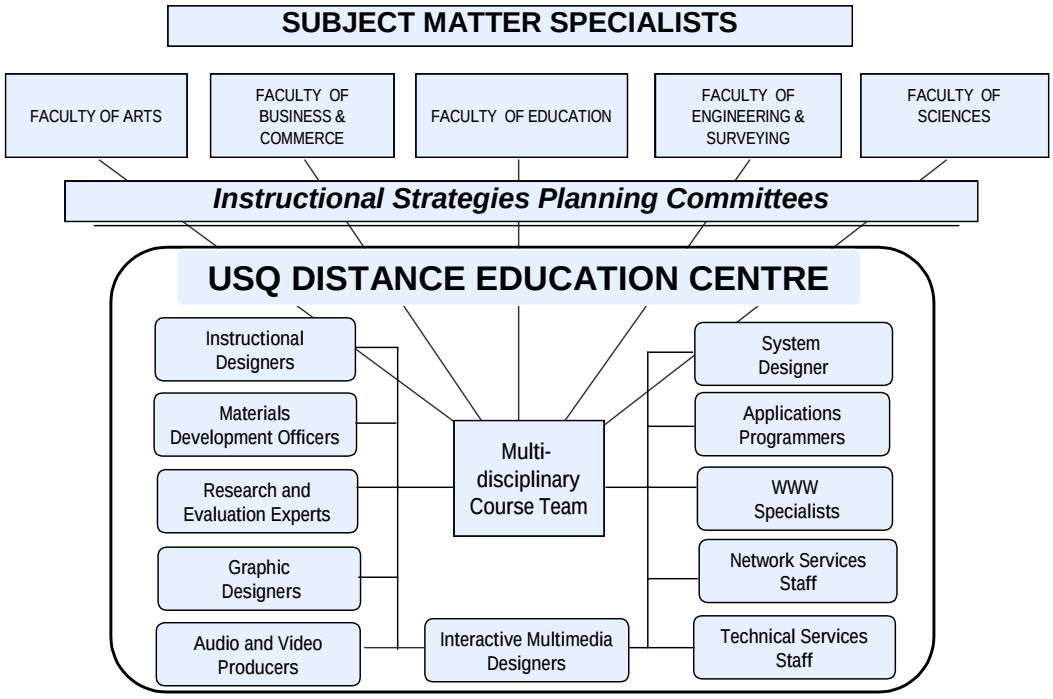
4.1 Programme development

USQ has institutionalized a multidisciplinary course team approach (Figure 3) for developing its distance education programme. For the more than 2,000 courses delivered via the distance education mode each year, the Dean of the relevant faculty is responsible for the academic content of the courses, while the Director of the DEC is responsible for the instructional quality of the learning materials. In practice this means that the dean of the Faculty appoints one or more subject-matter specialists to the team, while the Director of the DEC appoints an instructional designer, a materials development officer, plus specialists in audio, video, graphics and computer-managed learning as required. This same process is applied to the courses that constitute the programmes developed for USQOnline.

Once the course team has prepared an instructional blueprint for the course, it is referred to the relevant faculty's Instructional Strategies Planning Committee (ISPC), which acts as an advisory group and essentially fulfils a quality-control function. Specifically, the ISPCs were established to ensure that:

- staff involved in the development of instructional – including online – materials are adequately prepared for the task;
- limited resources are used in the most cost-effective manner;
- teaching methodologies and academic content are appropriate to achieve the objectives of each course; and
- adequate coordination occurs between the individual courses within a programme or strand of programmes.

Figure 3 USQOnline Distance Education Centre multidisciplinary course team approach



A key aspect of the operation of the ISPCs is the review of the instructional development blueprint generated by each course team prior to the actual preparation of instructional materials. The development of such a blueprint is fundamental to the design phase of material development as outlined in Table 4.

In the design phase of the process, the instructional designer works with the subject-matter expert(s) to formulate a blueprint for instructional development and delivery in much the same way that an architect provides a blueprint for a building, which is subsequently constructed according to required specifications. This design phase entails a systematic, fine-grained analysis of the learning experiences required – in other words, developing the necessary knowledge and cognitive skills – to achieve the desired outcomes of the teaching programme. The amount of time required for this phase will, of course, depend on the complexity of the learning task and on the range of media required. Applying such a systematic instructional design process will determine which media-mix will be required for each project and which other media specialists should be involved in the development phase.

Once the blueprint has been ratified by the ISPC, the development phase is initiated, and specifications and timelines are determined during the design phase. If a range of media is to be used, the development phase can be quite complex, demanding a careful orchestration of a variety of inputs from experts in audiovisual production, scriptwriting, graphic arts, systems design and computer programming. In the first instance, the instructional designer, whose expertise includes matching media with learning requirements, is the best person to act as project leader, though at various stages the audiovisual expert or computer specialist will need

Table 4 Instructional materials design phase

Phase	**Team members**	**Responsibilities**
Design	Instructional Designer + Subject-Matter expert(s) + Materials Development Officer	▪ Generate a detailed instructional development blueprint ▪ Prepare a timeline for the project
Development	Instructional Designer	▪ Train the subject-matter expert(s) to use the blueprint for development ▪ Co-ordinate the production of learning materials
	Materials Development Officer	▪ Format and edit instructional materials ▪ Implement procedures associated with maintenance of databases (course specification, assignment, CMA, mailing), residential school, telephone tutorials, copyright, etc.
	Subject-Matter expert(s)	▪ Produce learning materials (written instruction, self-assessment questions, scripts, CMA, etc.) according to the instructional blueprint
	Media specialist(s): ▪ audiovisual ▪ computing ▪ graphics	▪ Produce learning materials according to prescribed medium and design
Evaluation	Total Development Team	▪ Review and revise learning materials

to assume executive responsibility for certain aspects of instructional materials development. Similarly, the subject-matter expert must have the final say on matters of academic content.

It is worth noting that this multidisciplinary team approach acts as an effective mechanism for staff development, especially for those staff members who have no formal qualifications in education. Almost without exception, subject-matter specialists report that their face-to-face teaching is improved substantially as a result of their involvement in such a systematic instructional design process. Further, the USQ DEC approach has proved sufficiently robust to support a number of open learning initiatives in a wide range of commercial and industrial settings, which suggests that this type of multidisciplinary team approach could well be applied across a wide range of institutional contexts. Indeed, the systemic management of courseware design, development, production and distribution has been incorporated into a quality assurance system, which is potentially transferable to other organizations.

Key lesson

Document programme-development processes explicitly and have a proactive approach to the evaluation and continuous improvement of systems and services.

4.2 Teaching

Within the context of USQOnline, the essential features of a fourth-generation e-learning environment support a learning process that is interactive, non-linear and collaborative. An interactive study chart serves as a basic navigational tool, which sets the broad parameters of the subject-matter content to be investigated, and lists a number of key electronic references that are hot links. In addition, the students are free to surf the Internet for supplementary teaching-learning resources that meet their specific needs. They are also able to upload and download assignments, with those of sufficiently high quality being added to the teaching-learning resources database for reference by future students. The interaction with courseware materials is, however, only one element of the interactivity built into the USQOnline pedagogical approach. Interaction with other students, teaching staff and other experts, who act as mentors, is achieved through the use of Computer Mediated Communication (CMC), primarily through the deployment of asynchronous discussion groups. Students are encouraged, and in many cases required, to communicate through various electronic discussion groups, established for specific content areas as well as for informal social interaction.

Fundamental to USQ's approach to online pedagogy is the effective use of asynchronous CMC for ensuring effective interactivity, which is generally regarded as an essential feature of effective teaching. It is worth noting that there is a qualitative difference between a traditional on-campus tutorial (real-time verbal communication) and computer conferencing (asynchronous written communication), with the reflective and precise nature of the latter being very different from the spontaneous and less structured nature of oral discourse. Computer conferencing is therefore not just another technology, and its capacity to rehumanize distance education represents a qualitative shift that has the potential not only to reshape learning at a distance, but also to pervade conventional education systems. Further, and more important, in the context of fifth-generation distance education technology, CMC provides a rich source of thoughtful interactions, which can be structured, tagged and stored in a database and subsequently exploited for teaching purposes on a recurring basis through the application of automated response systems. It is this judicious use of automated response

systems that has the potential to transform the cost-effectiveness of distance education and, thereby, to meet the growing demand for access to lifelong learning.

The effective use of CMC is presently constrained in an important way. It is still a function of the traditional working practices of universities, wherein the same academic staff member usually does everything, including teaching, providing academic support and assessment for a group of students. In effect, the current applications of fourth-generation Internet-based delivery tend to generate resource-allocation models similar to tutorial-based on-campus teaching. Indeed, it is still a fear of many academics initiating an online teaching programme that they will be overwhelmed by e-mail requesting support from individual students. While such fears can be allayed by the use of 'one-to-many' communication systems such as bulletin boards, mailing lists and threaded discussions, the underlying resource model is not significantly different from conventional on-campus teaching, with a staff member being necessary to manage groups of approximately twenty students to maintain a reasonable quality of interaction and academic support. In contrast, the fifth-generation Intelligent Flexible Learning Model has the potential to deliver major economies of scale in managing teaching and academic support through the exploitation of automated response systems.

In the USQOnline approach, many teaching staff make use of discussion groups, which entail students posting 'reflections' via the asynchronous CMC system. The teaching staff also post comments, which are aimed at engendering student engagement and ensuring that the focus and depth of the online threaded discussions are appropriate to achieve the desired learning outcomes. In the same vein, members of the teaching staff respond to student questions posted to the discussion group. Development of a detailed response to a searching student query naturally takes time. The benefit of the system is that the communication is on a 'one-to-many' basis, so that all students may benefit, not just the one who asked the initial question. Further, experience demonstrates that other students often comment on the issues raised, thereby enriching the depth and quality of the dialogue. Such interactions may take place in conventional classroom settings, but the difference is that they are ephemeral and not documented for detailed reflection as they are in the CMC system. There is no doubt that many of the comments posted to the asynchronous discussion groups are valuable for teaching purposes. Storing such interactions in a relational database is technically straightforward, and provides a rich resource for mining by keyword matching, so that such pedagogical resources can be used to assist new students time and time again through the operation of the automated response system.

The development of online pedagogical systems at USQ has reached the point where prototypic, intelligent-object databases can be searched by prespecified metadata. On receipt of an electronic query from a student, the search engine seeks an appropriate match with a previously asked question, which, if successful, triggers a personalized response to the current question without concurrent human intervention. At this stage of development, a tutor must check the validity of the match between the current question and the answers generated automatically from the database before forwarding them to the students with a single 'click'. Such a quality-control mechanism may become redundant in the future. If no appropriate match is discovered in the database of previously answered questions, the query is automatically routed to the relevant tutor for an appropriate response, which is then added to the database with a single point and click. Depending on the pedagogical design of the course, these responses can be directed to the whole cohort of students, to groups of students, or to individuals. The system has the advantage of providing more or less immediate pedagogical advice to students, a significant increase in institutional responsiveness at minimal variable cost.

Key lesson

Have a proactive approach to staff development and student support.

4.3 Learning

While the pedagogical approach underpinning USQOnline is to engage students in interaction especially through the use of asynchronous discussion groups, and to provide timely feedback to student queries and assessment submissions, students also have access to a well-established student support system managed by Outreach Services in the DEC. The extensive range of support services provided to students can be reviewed on the USQOnline website.

Evaluation surveys have demonstrated that USQOnline students, almost without exception, are very satisfied with the support provided by the university. This outcome is also likely to be a function of the fact that USQOnline is attracting early adopters of the technology, with less than 3 per cent of students describing themselves as novice users of the Internet, while 26 per cent believed they were highly proficient, and the remaining approximately 71 per cent thought of themselves as competent. The largest variation in student perceptions tended to focus on the responsiveness of teaching staff, with some students complaining that some staff members were too responsive and therefore demanding too much of their time. This is not an insignificant issue. One of the university's current research projects is investigating the staff-student engagement ratio in an effort to generate guidelines for optimal patterns of interaction. This will help to define realistic and appropriate standards so that both staff and students can have realistic expectations for participation in online interaction.

Students are making the most of the flexible access to learning opportunities offered via USQOnline, and indications are that the performance of online students is at least as good as that of students using other modes of study. Indeed, many of the online students have produced academic work of the highest quality. A more comprehensive analysis of the performance of students in this mode of study is currently the subject of an internal review.

Key lesson

Have a proactive approach to ensuring student engagement in the asynchronous online discussion groups.

5. Cooperation

The USQOnline project entailed a critical cooperative relationship with NextEd Ltd for the provision of virtual campus services. Since USQ became a foundation shareholder as well as a major customer of NextEd Ltd, the relationship between the university and its commercial partner is complex. It is covered by an extensive legal contract between the parties that contains a non-disclosure clause, which means the agreement must be treated as 'commercial in confidence'. It is therefore not possible to provide a detailed analysis of this relationship here.

In general, however, it is fair to say that some of the general characteristics of the relationship were influenced by the inevitable culture clash between the value sets of a traditional educational institution and a dot.com start-up company. Although these differing perspectives tended to generate a certain 'energy' for the project, both parties adhered to a common risk-taking philosophy and a sense of opportunism with the aim of being among the first entrants into the e-learning market. On a philosophical level there was clear evidence of open-mindedness and synergy, but this was not always translated into operational efficacy due to the relative tardiness of the existing decision-making processes within the university and the inherent complexity of implementing a start-up company. While there was a considerable degree of continuity of key staff within the university, this was not the case with NextEd Ltd, which experienced significant changes in personnel in account management positions. There was, however, sufficient stability in key technical and senior management positions to ensure that USQOnline operations were not seriously disrupted. The relationship has endured, which indicates a successful collaborative venture.

Key lesson

Be flexible and adaptable.

6. Future development and institutional change

6.1 Future development

There will be an ongoing effort to improve the quality of the e-learning pedagogy deployed in USQOnline, and an enhanced effort to generate an empirical research basis for USQOnline activities. However, at this point, the main impact of the USQOnline initiative has been to highlight the potential improvement in services to students and the potential reduction in the variable cost of delivering such services through the judicious deployment of web-based applications. Experience gained through USQOnline has led to the BETTER (Building for Enterprise and Teaching through Technology Enhanced Responsiveness) project. BETTER is an example of USQ's commitment to continuous improvement, and it incorporates the aforementioned fifth-generation distance education model (for more detailed information on the BETTER project, see Section 6.2 on institutional change below). This is at the heart of what is referred to as USQ's e-University project, which has been planned thoroughly and is now in the early phases of implementation. USQ's e-University project was conceptualized in terms of three fundamental foci: the e-information repositories, a variety of e-applications, and the e-interface.

It is important to understand the essence of the e-University project to comprehend fully the impact of USQOnline on the complete transformation of USQ. In mid-1999, USQ selected the PeopleSoft enterprise software to update its existing business systems, which required major updating, both in scale and functionality. With a financial commitment of almost $12 million and a project team of about forty specialists, the university set about creating an Integrated Business Information System based on the PeopleSoft software. This will ultimately lead to the implementation of PeopleSoft Version 8.0, which is totally web based and therefore entirely consistent with USQ's strategic commitment to the e-University project. Until then the existing system will provide an essential source of e-information in conjunction with the e-content management system that is at the heart of the Generic Online Offline Delivery (GOOD) project, which is an application developed locally at USQ.

In essence, the e-content management system incorporated in the GOOD project enables cross-media publishing from a single document source. This means that USQ is able to make courseware available to students in a variety of delivery modes (print, online, CD, DVD, etc.) from a single document source.

While the GOOD system provides a critical foundation for the efficient development and delivery of courseware, it will also provide an integral 'engine' for the provision of a range of e-applications, including e-enrolment, e-learning, e-commerce, e-publishing and, not least, e-administration. While the scope of the present paper does not allow for detailed descriptions of all of these e-applications, a more elaborate view of the approach to e-administration at USQ is warranted, since it has major implications for the use of technology to automate certain aspects of interaction with students.

The USQAssist initiative is deploying tracking and automation tools to manage the interaction between the university and both its existing and prospective students. As USQ already has to provide learning services to students in more than sixty countries, the university has to face the challenge of being responsive to client needs twenty-four hours per day, seven days per

week. The most efficient, cost–effective way to manage the 24/7 challenge is to deploy effective automation tools, as opposed to running three shift student service desks or employing online tutors on different continents (although USQ already does the latter). The aim of such a system is to provide effective and efficient service to existing and prospective students at minimal variable cost.

When the project was initiated in late 1999, there were thirteen toll-free telephone numbers and numerous help-desk facilities offered by various sections of the university. Each of these provided a valuable service and collected some useful information, but there was no systematic recording and processing of enquiries that would enable USQ to be more responsive to satisfying student needs. The deployment of e-customer relations management software, also known as e-care or e-service, will ultimately make possible the use of a single toll-free number integrated with an e-mail-based enquiry tracking system that will exploit the fundamental strengths of the Internet in enhancing communication and managing information. Using structured, intelligent databases, the knowledge generated by solving student problems or enquiries is being progressively stored and made available so that, wherever possible, students with equivalent or similar problems can have their enquiries dealt with immediately through the self-help, automated response capacity of the USQAssist system, thereby facilitating effective resolution at first contact.

As the intelligent-object databases become more comprehensive, enabling personalized, immediate responsiveness to an increasing number of student queries, the institutional variable costs for the provision of effective student support will decrease. The effective use of such technology not only improves the responsiveness of the institution, but also frees up student support personnel to provide personal assistance via e-mail dialogue or telephone as necessary. Further, every interaction is tracked from initiation to resolution, including flexible routing of enquiries using explicit rules-based escalation protocols to ensure timely and successful responsiveness, and subsequent statistical reporting of system performance. Tracking interactions with prospective students enables the collation of the effectiveness of institutional marketing strategies, an increasingly important strategic issue for universities in the emerging global learning economy, which demands a highly effective public e-interface with the university.

A central feature of the fifth-generation distance education model is the development of a customizable e-interface, a campus portal through which students, staff and other stakeholders can engage with the university in a highly interactive and compelling manner. If well designed, this will enable universities to provide efficient service to students, and build effective, enduring relationships that could last a lifetime. However, to be successful in the emerging global lifelong learning market, a university needs to create a campus portal that will achieve a degree of interactivity, user friendliness and personalization that does not exist in the vast majority of campus websites today.

6.2 Institutional change

Apart from creating a new senior management portfolio, a Vice-President (Global Learning Services) to provide institution-wide leadership of USQOnline and the e-University project, USQ also allocated resources to create a small team of specialists to facilitate the integration of the aforementioned e-systems through the design and development of the e-interface, the campus portal, which is being managed under the auspices of what is known locally as the BETTER project.

The goal of the BETTER project is the functional integration and interoperability of the constituent components of the e-University project, including PeopleSoft, GOOD, USQAssist, USQ's existing Intranet systems (USQConnect and USQFocus) and the university's commercial initiative with NextEd Ltd, USQOnline. This integration is to be achieved through the development of an e-interface, entailing a complete reconceptualization of the USQ website. It is hoped that the benefits will be better service to students and more efficient workflows within the university. The public face of the university experienced through this campus portal will be a sophisticated e-interface that will provide a gateway to all USQ's information and services and respond in a personalized way to user profiles and individual needs.

The BETTER team was created by seconding the University Librarian to lead the project, with the support of her Executive Assistant, an e-Policy Development Officer (a new part-time appointee, who works three days per week), and the e-Systems Designer, the key local expert, who formerly managed the USQ Distance Education Centre's Network Services. Although relatively few in number, this core team has extensive expertise and has considerable access to the various teams managing the constituent projects. Apart from the staffing budget for the BETTER team, the e-University project has access to $2.5 million over the 2001–2005 period from the university's capital development funds, which can be expended not only on bricks and mortar, but also on technology – clicks and mortar.

While the major focus of the BETTER team is the redesign of the USQ website to enable a single gateway to the seamless integration of the underlying e-infrastructure and component projects, it is also the key focus for associated e-policy development, interoperability considerations, metadata and related standards issues, as well as for the development and implementation of a communications strategy to keep all staff members up to date with developments. The pathway of the BETTER project to the formal institutional decision-making structure of the university, including the Vice-Chancellor's Consultative Committee and the Academic Board, is through the Information Infrastructure and Services Committee. The comprehensive support for USQOnline within the broader context of the e-University project is clearly central to USQ's strategic planning, with the associated commitment of human and financial resources to sustain the necessary proactive approach to change management aimed at facilitating institutional transformation on a corporate scale.

7. The policy development, planning and management of USQOnline: lessons learned and recommendations

It is important to consider that the lessons learned and associated recommendations are a function of the context in which the USQOnline initiative emerged. It is worth keeping in mind that USQ is a dual-mode institution with almost 75 per cent of its students off-campus, including 20 per cent offshore. The emerging threat of the burgeoning interest in online delivery and the development of the lifelong learning economy to the USQ market is a major issue on the strategic planning agenda of the university. The USQ reaction is unashamedly proactive; rather than keeping the Internet at arm's length through simply developing an attractive website, USQ has fully embraced the new technology, and is attempting a fundamental rethinking and rewiring of its structure and infrastructure as it strives to become an e-university for the rapidly emerging e-world.

In many universities developments in online initiatives are not systemic, but are often 'random acts of innovation' initiated by risk-taking individuals. In contrast, the implementation of web-based applications at USQ is strategically planned, systematically integrated and institutionally comprehensive. This essentially corporate organizational culture evolved over many years and is essentially a reflection of USQ's guiding objectives.

While the USQ approach is clearly a function of the specific institutional characteristics and unique personalities that contribute to the ethos of a particular institution, as an exemplary case study it is primarily significant in highlighting the fact that to effect qualitative change in the teaching-learning process, it is necessary to generate qualitatively different teaching-learning environments, pedagogical practices and organizational infrastructures. The USQ case study demonstrates that technology alone is not sufficient to engender much-needed organizational development. The following guidelines may be of benefit to other organizations contemplating a move into the online learning market.

7.1 Policy development

- Ensure that the online initiative has the support of the senior executive management team.
- Ensure that sufficient human and fiscal resources are allocated to the project.
- Have a proactive, inclusive approach to policy development and subsequent policy dissemination.
- Take the opportunity to question existing policies, regulations and procedures with a view to improving service to both students and staff, and to enhancing efficiency and cost-effectiveness.
- Avoid potentially debilitating administrative complexity by making every effort to retain a single set of regulations for all students of the institution.

7.2 Planning

- Implement a communications strategy, with direct involvement by the senior executive management team, to engender ownership of the online initiative among the university community.

- Establish a formal organizational structure for reporting and managing the project, so that the online initiative becomes an integral part of mainstream university decision-making structures.
- Adopt a commercial perspective on the project and develop a detailed business plan.
- Ensure that a senior manager has executive responsibility and associated accountability for the financial management of the project.
- Do not expect immediate cost-effectiveness, but be prepared to invest in the future.
- Undertake market research and select programmes that appear to have market potential.
- Avoid discipline areas that demand major broadband capacity.

7.3 Management

- Ensure that a senior manager has executive responsibility and associated accountability for the project.
- Create new positions (e.g. project management, administration, marketing support) to support the project where necessary.
- Have a proactive approach to communication about the project within the university community.
- Have a proactive approach to staff development and student support.
- Deploy a multidisciplinary course team approach to courseware design and development to assure the quality of online pedagogy.
- Ensure 24/7 technical support for both staff and students.
- Document development processes explicitly.
- Have a proactive approach to ensuring student engagement in the asynchronous online discussion groups.
- Have a proactive approach to evaluation and the continuous improvement of systems and services.
- Engender an organizational culture which aims to become fast, flexible and fluid.
- Be flexible and adaptable in developing cooperative arrangements with organizations outside the university.

The USQOnline case study makes it clear that technology alone is not sufficient to foster and sustain much-needed improvement in the quality of service, teaching and learning, and interaction with students. If the power and sophistication of the increasing array of new technologies are to be exploited in higher education, an appropriate organizational development strategy capable of generating necessary restructuring is required. Such restructuring is difficult; learning to use technology effectively is difficult; both take time; both require sustained human intervention. Therein lies the challenge to the leaders and managers of higher education institutions in the twenty-first century.

References

Australian Federal Government. 1999a. The way forward: higher education action plan for the information economy. http://www.avcc.edu.au/avcc/itpolicy/actionplan.

Australian Federal Government. 1999b. Bandwidth requirements for the education and training sector. http://www.noie.gov.au/bandtask/submit/submit.htm.

Australian Federal Government. 1999c. Real Time – computers, change and schooling. http://www.detya.gov.au/schools/publications/RealTime.pdf.

Australian Federal Government. 2000. Learning for the knowledge society: an education and training action plan for the information economy. http://www.detya.gov.au/edu/edactplan.htm.

Australian Federal Government. n.d. EdNA Online public website. http://edna.edu.au/EdNA.

Australian National Training Authority. 2000. Strategy 2000. http://www.flexiblelearning.net.au/product/index.html.

Australian Vice Chancellor's Committee and Commonwealth Department of Education, Science and Training. 2002. Internal statistical documents.

DCITA. 2000 (May). Strategic framework for the information economy. Second progress report, strategic priority 2. http://www.dcita.gov.au/ie/publications/2000/may/strategic_framework_for_the_information_economy_-_second_progress_report.

Clarke, J. and Klease, S. 2001. *USQIndex: an overview of institutional status and performance*. Toowoomba, University of Southern Queensland, Office of the Vice-Chancellor.

Taylor, J. C. 1995. Distance education technologies: the fourth generation. *Australian Journal of Educational Technology*, Vol. 11, No. 2, pp. 1–7.

Taylor, J. C. 1999. Coach education in the 21st century: challenges and opportunities. Plenary address presented at the International Coach Education Conference, University of New South Wales, Sydney.

Taylor, J. C., Kemp, J. E. and Burgess, J. V. 1993. Mixed-mode approaches to industry training: staff attitudes and cost effectiveness. Report produced for the Department of Employment, Education and Training's Evaluations and Investigations Programme, Canberra.