



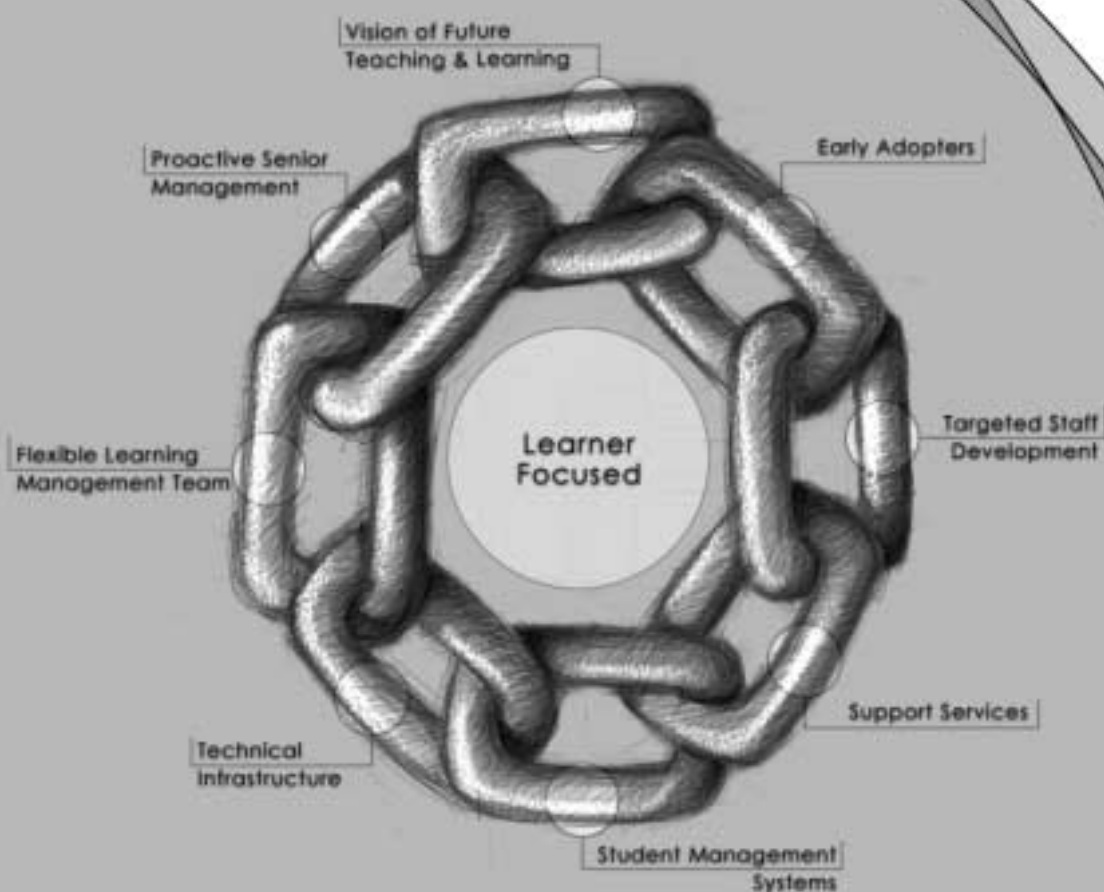
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Implementing Online Delivery: A Study of Change Management

Iain McAlpine & Jennifer Jackson



Implementing Online Delivery: A Study of Change Management

**A report for the Australian National training
Authority**

**Jointly funded by the ANTA Flexible Learning
Fellowship Program and the Institute of Land and
Food Resources, University of Melbourne**

Iain McAlpine and Jennifer Jackson

August 2000

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First published 2000

ISBN 0 7340 0878 3

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Published by:

Australian National Training Authority

AMP Place, 10 Eagle Street, Brisbane 4000

G.P.O. Box 3120 Brisbane 4001

Telephone 07 3246 2300 Facsimile 07 324 62490

<http://www.anta.gov.au>

Cover Design: Rebecca Veitch

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Acknowledgments

The authors gratefully acknowledge and thank the following people for their invaluable assistance in the planning, research and compilation of this joint ANTA Flexible Learning Fellowship report:

- Phoebe Palmieri, Fellowship workshop leader, facilitator and editor.
- Val Pollard, Deputy Dean and Director of TAFE for his encouragement and support on behalf of the Institute of Land and Food Resources, University of Melbourne. Also our thanks to our fellow academic and administrative staff based at a range of campuses, in particular – Rob Graham, Wayne Binney, Mary Walder, Ken Dodds and Terry Clift.
- Sandra Lerch and Nick Pearl at the Australian National Training Authority office in Brisbane for their involvement and guidance in the project and at the 2000 ANTA National Skills and Learning in the New Millenium Conference held in Melbourne in July 2000.
- To the other joint Flexible Learning fellows, Anne Gooley and Stephen Towers of the Queensland Open Learning Network, our thanks for some interesting discussions and shared times.
- Finally, our grateful thanks to the staff and institutions visited in Australia, Canada and America as part of our research into organisational change management:

Margaret Aspin, Northern Metropolitan Institute of TAFE, Melbourne, Australia

Gordon Dobson, Queensland Institute of TAFE, Brisbane, Australia

Tony Bates, Maureen Garland, Mark Bullen, and Cindy Underhill at the University of British Columbia, Vancouver, Canada

Timothy Busch, Martin Husch, Gail Crawford, Judith van Duren, Christine Nelson, Judith Hughes, Athabasca University, Alberta, Canada

Matt Hightower, Heather Ostash, Patrica Knapik, Cerro Coso Community College, California, USA

Susan Roig, Andrew Howard, Rio Hondo Community College, Los Angeles, USA.

Iain McAlpine
Manager, New Learning Technology
Institute of Land and Food Resources

Jennifer Jackson
Flexible Learning Coordinator
Institute of Land and Food Resources

August
2000

Executive Summary

Online technologies associated with computer networks and the Internet have the potential to enable a dynamic and far reaching form of delivery of training activities. This potential is widely recognised among VET providers. Implementation of online delivery, however, is still very much at an experimental or preliminary trial stage of development. Many uncertainties relating to the market for this form of delivery, design and development of online courseware, staff development, and support systems for staff and students to enable them to use online technologies effectively still remain as an impediment to wider implementation. It is important for people who are responsible for flexible delivery of training to be aware of current developments in online delivery, and to be able to apply some of the findings from research and practice in their own developments.

This project has three main goals:

1. To investigate a means of providing management training to farmers and rural small business managers, as a case study in the development of flexible delivery to a niche market that has high level needs for training but has been difficult to reach.
2. To enhance skills in flexible delivery design, development and implementation within the Institute. This will include the development and implementation of online modules and an evaluation of their effectiveness.
3. To develop and implement a change management strategy for VET flexible delivery for the Institute.

The first goal arose from an identified need for training among farmers and managers of rural small businesses. Several difficulties were encountered in relation to this goal which are detailed in the report. The investigation did, however, suggest avenues for further action. This action is ongoing at the time of writing.

The second goal was addressed by examining the literature, developments in other TAFE colleges and universities, and by action taken within the Authors' institute, in relation to the design, development and evaluation of online course materials, staff development, and student induction and support. As a result of investigation and action research, specific recommendations are made. These relate to approaches to instructional design and evaluation, the most effective forms of staff development, and the induction and

support systems needed for students if online delivery methods are to be effective.

The third goal was addressed by examining management and operational structures and processes within the Institute of Land and Food Resources (ILFR) at the University of Melbourne. This institute, with eight campuses across Victoria, has many staff members who are interested in online delivery of VET units of competency and other training programs. The institutional structures and processes are examined from a change management perspective to consider the sources of obstacles, processes that have been implemented to address these such as new staff appointments, and further actions that need to be taken to achieve an effective implementation of online delivery. These investigations lead to an action plan for ILFR, and recommendations for the wider VET sector.

Chapter 1 Introduction

The transition to a new mode of instructional delivery represents a major challenge for an educational institution. This project presents a strategy for change, and the management of change, within a large institution. Many VET institutions need to adapt to the challenge and opportunity provided by the emergence of technology that enables online delivery. This project report should provide many useful ideas and guidelines that will aid this transition for teachers, developers and managers.

The original objectives of this project were threefold:

1. To investigate a means of providing management training to farmers and rural small business managers, as a case study in the development of flexible delivery to a niche market that has high level needs for training but has been difficult to reach.
2. To enhance skills in flexible delivery design, development and implementation within the Institute. This will include the development and implementation of online modules and an evaluation of their effectiveness.
3. To develop and implement a change management strategy for VET flexible delivery for the Institute.

Some difficulties were encountered with the first of these objectives: the particular audience proved to be more difficult to reach than first anticipated, and more needs to be done to achieve this goal. The second and third objectives are being addressed within our Institute. The strategies that are being developed and the actions that have already been taken are outlined in this report.

To place the study in context it is necessary to consider the nature of our Institute. The Institute of Land and Food Resources, an Institute of the University of Melbourne, was formed on 1 July 1997 following an amalgamation of the University with the Victorian College of Agriculture and Horticulture (VCAH). The Institute's annual budget is approximately \$35 million and it employs 400 staff. It is now the largest institution in Australia providing education, research and outreach for the agriculture, forestry, horticulture, natural resource management and food industries and operates from eight urban and regional campuses across Victoria.

The Institute has 1,300 higher education students and approximately 10,000 TAFE students. It also offers a range of non-award courses, and has an extensive program of research and outreach activities.

The Institute sees a significant future in agricultural, forestry, food and horticultural education from both commercial and environmental perspectives. Attracting a strong field of applicants for all courses is a challenge for many institutions around Australia, and the Institute wants to build on its leading position in the marketplace. Maintaining close links with industry remains a high priority of the Institute.



Figure 1. Institute of Land and Food Resources campus locations

The genesis of this project was a desire to reach a particular target group – farmers and managers of rural small businesses. This particular group of people face many challenges due to the changing economic environment. The pressures of globalisation and the need to increase productivity are placing increasing stress on the management skills of members of the target group. It was decided that this group should be targeted as being in need of training in the competencies associated with Rural Business Management.

There is clear evidence of a need for education and training among this group. At the regional Australia Summit held in Canberra in October 1999, several speakers stressed the importance of education, training, and lifelong learning to maintain the viability of regional Australia. Regional areas have been identified as falling behind in their capacity to attract business investment due to a shortage of skilled people, yet there is evidence of a strong market for skilled people in regional areas (Chudleigh, 1999). A study of Australian farmers found that ‘more profitable farm businesses participate in more training than other farm businesses’, and that ‘large and small farm businesses managed by formal, accredited agricultural education are more profitable than other farm businesses of similar asset value’ (Kilpatrick, 1998, p. 1).

Agriculture education is a major part of the business of ILFR, and many flexible delivery programs are ongoing in these areas. For this project, it was decided that management skills for rural small business would be targeted. One of the problems that exist in rural and regional Australia is a lower participation rate in formal education and training than is found in cities. Thus, while the need for people with skills is high, and a major factor in profitability, there are obstacles that need to be overcome to make education and training more relevant and attractive to people in regional Australia.

Despite considerable improvement in educational opportunities such as distance education, block release and an expansion of local TAFE access, there has been no significant improvement in overall participation rates in rural and regional areas in the last ten years (Chudleigh, 1999). Some factors contributing to low participation include:

- Small, scattered rural and remote businesses lack bargaining power when procuring training from providers in today's 'training market'.
- The cost of delivering and accessing education and training (including assessment) in rural and remote Australia is greater than in Metropolitan areas.
- The growth of information and communications technology and advanced technology (IT & AT) is increasing access to education and training for people in non-metropolitan Australia. IT & AT has its own set of barriers which relate to cost and physical provision of equipment and infrastructure and issues of individual learning styles. Many individuals have low self confidence as learners. This relates to previous negative experiences of schooling and low education levels. (Falk & Kilpatrick, 1999).

These findings identify many of the problems experienced by the target group. They also identify the potential for online delivery to increase access. This possibility, however, has its own set of barriers that have to be overcome for this to be an effective means of reaching people in rural businesses.

It is in this context of a clear need for increased participation in education and training in regional Australia that this project was developed. A focus on rural business skills was selected to provide a specific and manageable project basis, with the intention for this to become a case study model for future projects. Rural Business Management skills are seen to be a major priority among farmers and managers of rural small business. As some work on the development of online modules had already started in this area, this seemed to be an effective starting point for an investigation of the potential for online delivery.

Need for change management

The potential for using online technologies for flexible delivery programs has been seen by staff members of the Institute for several years. The authors have been involved with the development of projects that make use of online conferencing as an integral part of teaching and learning. One of the authors participated in a strategic planning process organised by the Victorian Office of TAFE, and a strategic planning exercise was carried out in collaboration with members of the Vocational Education and Training Committee. This strategic plan identified several areas in which TAFE modules would be developed for online delivery.

The combination of the complex structure of the Institute and changes to the external environment proved to be an impediment to implementing the strategic plan. The Institute's matrix management structure meant that the plan was developed through consultation with the Institute's VET committee, but no one individual was given the responsibility and authority to ensure that the actual development of the online modules happened. Additionally, a change in the way that TAFE programs were structured, from modules to competencies, meant that the whole TAFE program needed to be restructured. This created an impediment to delivery as all existing online materials were no longer relevant and this reduced the range of units on offer.

At present the eight campuses of the Institute have different ways of identifying flexible learning student enrolment, and this makes it difficult to assign an enrolment category for online delivery. This issue is compounded as online technologies may be used as an optional supplement to existing programs or an entirely new mode of delivery.

These issues have led to a situation in which a number of groups of staff have indicated that they wish to develop materials for online delivery, and some have started work on these developments. The organisational structure does not at present provide encouragement to teaching staff to enable them to divert time from other tasks in order to develop materials for a new mode of delivery. It is not clear to everyone in the Institute that there is a significant market for online delivery. The market, however, cannot be tested until a wider range of competencies have been developed and offered. The Institute has allocated a budget that can be used to produce online courseware. The greatest difficulty is obtaining a sufficient commitment of staff time. This is a major issue for change management within the Institute.

The change management needed within the Institute is to enable the cross department, cross campus coordination that is required to develop a program of online delivery, or online support to existing delivery systems. Administrative, technical, and academic management are all required

A major issue for the Institute is finding a sufficient commitment of staff time to develop online teaching materials.

for this transition. There is a high level of interest in the use of online technologies among teaching and support staff. The difficulties arise from the competing priorities for staff time.

Investigative framework

The Institute of Land and Food Resources, like most other VET institutions, is taking action to deal with the issues relating to the use of online technologies for flexible delivery. This report deals with many of these actions, by examining the conceptual basis for the action, and reflecting on these actions within the framework of implementing change. By using this action research model, a range of activities relating to the design, development, delivery and management of online technologies are considered. These include reaching the target group, instructional design, development and evaluation, staff development, student support services, and management processes.

Specific actions include outreach activities, developing competency modules, implementing staff development, visits to other institutions that make a substantial use of online technologies, and analysing and taking steps to influence management practices that have a bearing on online delivery. The actions have effects that are the subject of analysis within the conceptual framework of their specific knowledge area, and within the framework of the overall project.

The universities and colleges visited were selected based on criteria relating to a large scale online delivery operation, a framework and rationale for online delivery based on educational theory, and a substantial rural target group for online delivery. Unfortunately, no college was identified that had a substantial program of online delivery of agricultural training to rural learners.

The report is organised into chapters to enable readers to consider all of the actions relating to a specific aspect of development, such as staff development or student support services, in one place. Each chapter may, therefore, deal with several stages in the action research, and specific actions, such as the visits to other institutions, are described in several different chapters, as these relate to several different topics or stages in development. Action research, by its nature, involves a series of actions that do not always have predictable outcomes, which is certainly the case with this project. The authors have endeavoured to present these actions in a way that will enable readers to understand the context and the consequences, and to understand the issue in a way that will hopefully lead to effective outcomes for other groups who need to deal with similar issues.

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Chapter 2 The Target Group

Introduction

The target audience selected for the Fellowship Project is located in the western region of rural Victoria, Australia. The reasons for this focus are two fold. Firstly delivering agricultural, equine, horticultural and rural business courses is core business for the Institute of Land and Food Resources. Secondly, the action research project was designed to test the hypothesis that online delivery may be a way in which to reach formerly hard to reach farmers and rural business owners and operators. For a variety of reasons, this proved to be a challenging task.

The Rural Audience

An Online Education Report (White, 1999) on Australian Internet usage indicates that 17% of rural households have Internet access and that only 1% of current TAFE students in the survey state that they regularly used the Internet. These facts have important implications for this project and the wide-scale implementation of online learning for students in a rural setting. These findings compare to the ABS statistics, which indicate that in February 2000, 19% of Australian farmers have ready Internet access.

The two geographic areas selected to trial the online delivery of Diploma of Agriculture (Rural Business Management) units of competency were dairy farmers in the south western region of Victoria and farmers and rural business people located in the north west Wimmera region. However, at the Institute of Land and Food Resources, we have experienced a certain reluctance in our rural students to enrol in online VET courses, particularly in the area of Rural Business Management units of competency, many of which involve large numbers of points. Several of our outreach and extension staff (Walder & Dodds, 2000) report that in their experience, many rural students and farmers were more comfortable and willing to enrol, at this stage, in face to face introductory computer and Internet workshops. This experience indicates that they may have not yet come to terms with the idea of individualised studying at a distance via the Internet. The finding was endorsed by the co-ordinator of training in the large national online Farmwide project.

It may be that the farmers you are targeting are not very comfortable with online training. It seems a lot of the people we have on our different trials may not necessarily be typical of farmers in general. Our participants have identified online services as something they should at least be trying, in their words, 'so they don't get left behind. (Johnson, 2000)

It seems, then, that many farmers are in still in the process of coming to terms with new technology and accessing information and services via the Internet. Moira Scollay (2000) goes further and states that 'one in four Australians are too scared of new technology to take up learning.' However, as Scollay says in relation to developing a marketing strategy to overcome this reluctance, there is a lead time required 'between the various stages of indifference, to early awareness, (in this case, an introduction to computers and skills development) leading to readiness (the acquisition of advanced Internet skills) and actually doing it' (independent, self paced learning online).

This staged marketing strategy applies to flexible, lifelong learning in all its various delivery modes, but in particular, it applies to online delivery. The instructional design tool of 'user analysis' guides us in our selection of a delivery mode. The user analysis at this stage is showing that while there is considerable interest in the Internet, we need to lead gently and provide greater incentives towards training in a broad spectrum of introductory and bridging computer skills prior to wide scale on line enrolments.

The primary point of access for 94% of students is at home with the educational institution an important secondary source

In discussing the target group selected for this project, it is important to also understand some of the background information about Internet usage patterns and availability in Australia.

White's 1999 Online Education Report states, in summary, that in 'Australia, 1.5 million people (22% of all households) have home Internet access (May 99), of these, 26% were capital city households compared to 17% rural households. Of the 1.7 million regular users (defined as accessing the Internet at least once per week) 222,700 were full time students. The number of TAFE students accessing the Internet remains at a low 1% and shows no increase from February 1998 – 1999.

The primary point of access for 94% of students is at home with the educational institution an important secondary source. Email, entertainment and word processing are the most popular uses of the Internet The most popular time of access is between 6.00 PM and midnight on weekdays and on weekends with the cost of access being a major concern. Most students choose their ISP based on costs, with Alta Vista and Yahoo the most popular search engines. Windows 95 and 98 and Internet Explorer were most used by TAFE students.' (White, 1999) In rural areas, frustrations over bandwidth limitations with files slow to download and expensive and unreliable Internet

Service Providers (ISP) are commonly reported problems. (Groves, 1999 & 1999a)

ILFR Marketing Strategy

The marketing strategy employed in this project sits within a much broader faculty marketing plan which involves higher education and TAFE courses delivered across eight different campuses. However, for this project, the marketing strategy utilised a multifaceted approach similar to that used to promote outreach short courses and extension activities in rural areas and is based on over ten years of successful experience in conducting courses which meet the needs of students in rural areas.

A printed brochure was developed and distributed to the two selected rural locations. The database utilised in the western district was provided by the WestVic Dairy group and a copy of the printed brochure was distributed with a WestVic Dairy Newsletter and the monthly factory statement to the dairies of three thousand, five hundred farmers in the Western district in April 2000. In the Wimmera region, the database for distribution consisted of people who had already undertaken introductory computer and beginner and advanced Internet skill workshops.

One hundred and ten brochures were distributed in May 2000. Multiple copies of the brochure were also distributed at a range of farming seminars and field days as well as to course co-ordinators and other outreach staff for distribution at other sites. A publicity item was also included in a newsletter, which is distributed by post to over five hundred existing distance education and flexible learning students.

A media campaign of newspaper advertisements promoting the new online units of competency was conducted in local regional and statewide newspapers (*The Warrnambool Standard, The Weekly Times, The Geelong Independent, The Ballarat Courier, Western District Newspapers and the Western District Farmer and Holiday News*) staggered over a four month period. Any potential students enquiring (from any source) regarding rural business management were sent an online brochure as well as flexible delivery course brochures, handbooks and welcome letters. Editorial articles regarding the online courses also appeared in *The Warrnambool Standard* and *The Geelong Independent*.

A web-based brochure was designed which included an expression of interest email direct to the Distance Education Co-ordinator. The homepage was linked to the Institute TAFE web site at <http://128.250.170.208/ilfrvc/Agribus/Agribus.htm>



Figure 2. Agribusiness Online Website

The ILFR Experience

Of the three thousand six hundred and ten brochures distributed, only two responses were received and the newspaper advertisements, resulted in three enquiries, none of which were for online delivery. This lack of response was surprising and unexpected and has led to the investigation of alternative methods of attracting potential online learners. In accepting that in the case of new online Rural Business Management units of competency, our offerings may be temporarily ahead of their time and lacking in market appeal, our action plan for wide scale implementation has been revised.

It is important to note that during this same time period (February – June 2000) and in the same two targeted geographic regions, over one hundred students selected to study rural business management through a combination of face-to-face computer and Internet skill workshops and print based flexible learning materials. In fact, the unprecedented demand for face-to-face workshops in computer and Internet skills in the Wimmera area was rated by one outreach worker as,

... the heaviest I have seen in the nine years I have been working. However, currently the emphasis is to gain basic computer skills followed by financial software skills to cope with the GST (new Goods and Services Tax)....

Mary Walder goes on to state that in her experience, a number of rural students are wary of the technology and are not sure of 'what the Internet means, how it operates and what would be involved in online learning.'

Most of the people I come across seem to enrol in CROP or RBM (Cert. 11 or 111, Agriculture, Rural Business Management) as a starting point to begin to get a handle on their farm management and are only beginning with computers and not yet connected to the Internet. (Walder, 2000)

Clearly, there is a need for more introductory information and hands on skills workshops.

In our analysis of the low level of response to our online offerings, there are a number of issues, as well as the important one of user readiness, that need to be raised. The first one, and this comment has been raised in many different forums by students and staff alike, is that the units of competency in the new Diploma of Agriculture (Rural Business Management) at an average of one hundred hours, are too large and too costly (average AUD\$122-150). In the past, stronger student interest was shown in smaller, manageable 'chunks' or modules that cost considerably less (average AUD\$30-40) and more importantly, involved less time commitment and were therefore less daunting to take on. This is particularly the case where mature age students, often rural women, are returning to study and wish to progress in a step by step process as they gain in confidence and skill. The costs of equipment and tuition fees and time and travel commitments are important considerations for this group when considering undertaking lifelong learning opportunities. (Jackson, 1994)

Extensive publicity efforts failed to attract a strong response for online delivery, but there was unprecedented demand for face to face computer and Internet training.

Problems for online take-up include user readiness and the length and cost of modules.

The environmental context is another important area of consideration and this variable is of particular relevance to the dairy farming group in Western Victoria. In the first half of 2000, for this potential cohort of students, the deregulation of the dairy industry has been a major area of concern and focus. Survival in an industry undergoing massive change is a priority and at this time, online learning is not seen as a means of dealing with it. Rather, there are a great number of formal and informal industry meetings and seminars being conducted in the dairying regions as farmers attempt to come to grips with the change.

However, a potential market opportunity arises from this difficult industry environment because to be eligible for the dairy deregulation package, farmers need to have completed a business plan. There is now a high priority on the development of an online unit of competency 'Develop a Business Plan.' A strong financial incentive may assist with the cultural shift required to see learning as a way of dealing with

change and as a means of accessing the necessary skills to survive and manage better in the future. Similarly, the recent introduction of the Goods and Services Tax (GST) in Australia has meant that many rural small business operators are heavily focused on just-in-time compliance with the new tax system and have little time or interest at this stage in undertaking further formal study.

A strong financial incentive may assist with the cultural shift required to see learning as a way of dealing with change.

The necessity to develop programs which respond quickly to industry needs is paramount. Having the right online unit ready at the right time is obvious in theory, but difficult to achieve in reality given the lead time and staff release needed to develop an online unit successfully. The ANTA toolboxes give some assistance, and the delay on the 'Develop a Business Plan' has recently (June 2000) been overcome.

Change Management for ILFR

The Match between Student Needs and Delivery

The understanding that in lifelong learning 'one size does not fit all' (Scollay, 2000) highlights the need for flexible learning educators to ensure there is a match between the student's level of skill and access to the technology with the mode of delivery. As Scollay says, we need to make sure that 'the customer is centre stage'.

In the light of the experience gained as part of the Fellowship, a revised approach to targeting Australian rural farmers has been developed which involves a number of actions.

1. Further investigation into alternative ways of promoting the online programs and links to the databases of other agribusiness organisations who deliver online services or who are involved in online research with farmers is being pursued. (Action: National Farmwide database of 2500 online farmers has been contacted and agreed to promote our Agribusiness online offerings, result after four days has been ten enquiries.)
2. The Institute will develop further units of competency as rapidly as possible to broaden the range of learning materials available on line to widen the market appeal to our target audience. The breadth and type of online courseware that ILFR has developed is not currently at sufficient levels to meet potential industry needs. (Action: A multimedia priming grant to develop an online version of the unit 'Develop a Business Plan' was approved in July 2000.)

3. The Institute will continue to develop flexible learning materials using a range of media including online and email components but also print, floppy disc, video, CD ROM etc. (Action: learning materials to support new units of competency are also being developed in a print base format to cater for those students who select this as a preference. Financial software based case studies are provided in low-end floppy disc format)
4. The Institute will conduct further publicity campaigns. (Action: an advertisement in *The Weekly Times* in early July generated another six enquiries for online units to date. Further editorial and advertisements to be placed in rural industry and co-operative newsletters e.g. Dairy News & Warrnambool Cheese and Butter factory newsletter.)
5. The Institute will continue to conduct face to face introductory computer and Internet skill workshops in a range of rural locations as part of a deliberate seeding program. (Action: outreach staff to continue conducting introductory computer workshops in the second half of 2000, personal contact to be made with these students prior to completion to promote further online offerings.)
6. Induction programs will be paced at the level of user comfort and readiness. (Action: have a user friendly induction program in place ready for the first intake of online students. Develop a self-paced 'Are you ready for online' module and a 'How to be a successful online student' module.) (See also Chapter 5.)

The Target Group at other Institutions

Several interesting findings came to light in our investigation of the target group at some of the overseas institutions visited as part of the Fellowship. The most striking and relevant finding was that the bulk of the online students were younger in age group and differed in motivation from the proposed targeted rural cohort at the Institute of Land and Food Resources. For instance, at the University of Athabasca in Alberta, Canada and at the University of British Columbia in Vancouver, and the Rio Hondo Community College in California, the bulk of the online and distance learning students (50- 80%) were current, full time undergraduates aged 18-21 years, enrolled either on the campus or in a range of different courses at other institutions. Students studying via an online mode of delivery constituted approximately 14%-20% of the total flexible and distance education student enrolments.

For on-campus students, online learning is convenient and seen as a means of avoiding timetable

<p>Online students at institutions visited were mostly younger in age group and different in motivation from students at ILFR.</p>

clashes, keeping a part-time day job or picking up electives from other faculties. In other words, flexibility is a major factor in the selection of the online delivery mode, a motivation which young students share in common with older part-time learners trying to juggle professional work and/or farm, family and voluntary community commitments. For the institutions at British Columbia and Rio Hondo it is also seen as a means of reducing pressure on classroom facilities.

As in Australia, overseas institutions are seeing an increasing demand for part-time flexible courses for mature age professionals such as nurses, teachers and information technology programmers or developers who wish to upgrade or change careers. It is in this post-graduate and professional upgrade area that the growth in online delivery to rural areas was most evident. This cohort has access to the funds to purchase the equipment and finds that the flexibility and the opportunity to discuss issues online with fellow professionals appealing.

Another interesting finding was that the majority of flexible learning students, were female, up to 64% at Athabasca. This may be for two reasons, firstly that flexible, off campus learning suits women who may be juggling paid work and family commitments as well as study. Secondly, if there was substantial interest in nursing and teaching courses, then these areas have a majority of women employed in that sector. At Athabasca, the target group may be completing high school or degree subjects, upgrading career or employment opportunities or pursuing a personal interest. At Cerro Coso Community College, online enrolments now account for 14% of the total student body.

Conclusion

Sue Kilpatrick (2000) argues that rural Australians who already have some experience in post-secondary education are those most likely to undertake further formal learning and this finding is supported by the overseas experience of growth in post-graduate online courses for nurses and teachers, many of whom were rurally based.

The visits to the overseas institutions indicated that the majority of other mature age rural students and farmers tend to select modes of delivery other than online for formal and informal learning. Their preference is for either face to face classes or seminars or more traditional print based forms of distance education. This finding supports the Australian

Overseas and Australian experience indicates that the readiness of mature age rural students for studying via the Internet is still in the very early stages. Introductory computer skills and beginner and advanced Internet skills and workshops will continue to be necessary for some time.

experience that user readiness for studying via the Internet, particularly at the TAFE level, by mature age rural students is still in the very early stages.

In the Australian context, what we now need to do is to encourage a broader range of students, including those in the TAFE sector in rural areas, to see the relevance and advantage of getting involved in lifelong learning delivered via a variety of modes including, eventually, online delivery.

With a rapidly improving telecommunications infrastructure and an increasingly aware general population, farmer readiness for Internet courseware with all its linked services and resources will continue to grow. But without a fixed learner focus, and without appropriate alternative delivery modes and a willingness to pace the induction programs at the learner's level, we will experience a mismatch between the provider intention and the learner outcome. At this stage of the online evolutionary process, we need to be aware that introductory computer skills and beginner and advanced Internet skills and workshops will be a necessary forerunner for some time before there is a flow-on to large numbers of online enrolments in rural areas. For those students who do enrol in online units, we need to ensure there are appropriately paced induction programs conducted both via face to face workshops and online.

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Chapter 3 Implementing Online Delivery

Introduction

When a commitment is made to online delivery, this generates a need for design and development of effective courseware. In the current situation, increasing interest in and use of online technology coincides with a move towards a competency or skill basis, rather than a content basis, for competency module specification. The use of instructional technology is increasing as an aid to learning by the design and development of courseware to facilitate student-centred outcomes-based learning (Oliver & Omari, 1999). Online delivery has been identified as having the potential to increase access to education, promote improved learning, and to achieve this while containing, rather than increasing, the cost of education (Owston, 1997). The desired outcome of instructional design and courseware development is materials that promote effective learning.

The transition to an outcomes-based curriculum has led to a focus on generic skills in addition to specific vocational competencies. These are considered to be key skills, or lifeskills, that are of great value regardless of the learner's vocational area. Online learning has been identified as a useful mode for developing key skills. These skills include:

4. Making reasoned decisions in problematic situations.
5. Adapting to change.
6. Reasoning and thinking critically.
7. Collaborating productively in groups or teams.
8. Self-directed learning, and
9. Understanding issues from multiple perspectives.

(Candy & Crebert, cited in Oliver & McLoughlin, 1999).

In many cases, such skills are developed in parallel with curriculum content. By using online technology an environment can be established in which learning can be situated in meaningful contexts, so that students learn key skills in the context of developing vocational competencies (Herrington & Oliver, 1998). Effective instructional

Effective instructional design can promote self-directed learning and the learning of key skills through the structure of learning tasks, resources and communication channels.

design can ensure that the technology enables self-directed learning and the development of key skills through the structure of learning tasks, access to resources, and the use of structured communication channels. Development of some key skills may be considered to be incidental. They have, however, been found to be more readily achieved when courses are deliberately planned to achieve these as an outcome (Brunetto, Wharton, Oliver, Skippington, & Towers, 1999).

One of the principal reasons for using online technology is to achieve higher quality learning outcomes than are being achieved through current means (Bates, 2000).

One of the principal reasons for using online technology is to achieve higher quality learning outcomes than are being achieved through current means (Bates, 2000). To achieve these outcomes, a number of design models have been developed to provide a structure and guidelines for online courseware. The next section considers some of these models and their applications.

Design approaches for online courseware

Approaches to instructional design for online learning vary in relation to the perspective of online learning adopted by the developers of any particular project. The different educational approaches referred to above can be perceived in different design models. Instructional design in this sense refers to the complete process of organising the learning process by focusing first on the activities that the learner needs to engage in to reach the required level of skill, and then developing the instructional strategies, course materials (courseware), assessment activities, and implementation strategies that are optimal to attain the desired outcome. A wide array of design approaches can be observed in current practice, depending upon the educational perspective brought to the project.

An early trend arose from excitement, usually among IT literate teachers, at being able to place pages on the Web. This led to many pages of text being placed on the Web, with no particular investigation of the educational effectiveness of the material (Slay, 1999). As many shortcomings of the 'notes on the web' approach could be seen, developers began to focus beyond the possibilities of hypertext, concentrating on the educational possibilities and issues relating to the use of online technology. Technical aspects of the Web, such as communication tools, have been applied to good effect for both individual and group learning tasks (Kersley, 1997).

The use of communication tools in instructional design can be focused on engaging students in a dialogue related to the learning task, or more specifically used to develop competencies in areas such as communication and teamwork (Oliver & McLoughlin, 1999). For

courseware using these techniques, instructional design needs to be applied to the development of learning activities that foster the required interaction, by incorporating appropriate topics into the instructional materials and providing guidelines for online conferencing (McLoughlin & Luca, 1999).

Online technologies may be used in different ways. A subject may have an online component, yet not be considered to be an online subject as the students may spend the largest part of their learning time focused on tasks that do not involve online delivery. There is some debate as to whether a course is described as online, if the online materials are a supplement to the course, rather than the main focus of it. Mason (1998) describes three models in current use as:

- 1. Content + support model.** In this model, the course content, either in print or web-delivered form, is separate from tutorial support, which may be by email or computer conferencing. In this model the online elements are an add-on to a conventionally structured course, representing no more than 20% of students' time.
- 2. Wrap around model.** In this model, designed online course materials 'wrap around' existing materials such as text books or CD-ROM resources. This is categorised as a 50/50 model because actions and interactions relating to the online technology take up about 50% of students' time.
- 3. Integrated Model.** In this model, 'the course consists of collaborative activities, learning resources and joint assignments. The heart of the course takes place online through discussion, accessing and processing information and carrying out tasks' (Mason, 1998, pp. 4-5).

Slay (1999) categorises online courseware in a similar way, as supplementary usage, complementary usage, and whole course usage.

These models can be seen to represent a transition from experimental use of online materials, such as supplementing a course module with computer conferencing, towards forms of online courseware development in which the characteristics of the technology enable more innovative educational models to be applied. The major issue is what the use of online technology is designed to achieve.

Online technologies enable a range of activities, such as accessing data and manipulating it, conferencing and collaboration. The potential activities need to be considered in relation to the range of activities the students needs to carry out for the most effective learning to occur, and the particular constraints, such as difficulties of access or limitations of skill, that may affect the student. The best fit in terms of activities and delivery technologies can then be determined and developed.

Some teaching/learning models that use the capabilities of online technologies in innovative ways, with the goal of enhancing skill development and other learning outcomes, will be considered in the next section.

Enhanced skill development

A goal that has been driving the transition towards more integrated models of online courseware has been the attainment of higher levels of skill. This applies to skill in the competencies associated with the course content as well as to key skills mentioned above, such as communication, problem solving and teamwork.

Several models of teaching and learning that were originally developed as innovations to achieve specific skill development have subsequently become widely accepted and used. These approaches have been extensively tested and used with students in conventional instructional settings. As a result of their effectiveness as methods of instruction, they are being used as a basis for the design of online courseware.

Online technologies are able to facilitate many of the transactions and interactions necessary for these approaches. They can present realistic situations (using audiovisual technology for example), organise and provide access to information, provide interactive tutorials, enable storage of information in searchable databases, and enable data manipulation and testing in spreadsheets and simulations. They can also enable the student to experience activities that may be too remote or dangerous for them to experience in reality.

...online technologies can support approaches to teaching and learning that are engaging and challenging to the student, require active responses, and lead to deeper understanding of the material to be learned (Jonassen, Myers, & McKillop, 1996).

These capabilities mean that online technologies can support approaches to teaching and learning that are engaging and challenging to the student, require active responses, and lead to deeper understanding of the material to be learned (Jonassen, Myers, & McKillop, 1996). Models include:

1. Collaborative Learning. Students are organised to work together on learning projects and in regular discussions. This approach aims to enhance communication skills, teamwork, negotiation skills and an appreciation for multiple points of view. Students are required to produce a product as a group (Milter & Stinson, 1995).

Computer conferencing, with the ability to attach files for rapid distribution, enables students to work in collaborative groups. Course materials that are designed to support the collaborative learning model make extensive use of communication tools. These include synchronous and asynchronous conferencing, electronic whiteboards and bulletin boards.

Competency modules may be organised with a range of course content materials and weekly discussion topics, group tasks, with either lecturer or student moderation of discussion topics. The courseware

needs to be structured with separate online conferences and databases for different tasks such as content, FAQs, ongoing discussion of topics, questions for the tutor, online support and administration, and separate discussions, with restricted access, for each collaborative group (McLoughlin & Luca, 1999; Oliver, Asmari, & Knibb, 1999; McAlpine, 2000).

2. Situated Learning. Students interact with a complex environment to deal with learning tasks. Initially, guidance and support, described as scaffolding, is provided. This is progressively removed as the student learns the knowledge and skills necessary to find solutions. The complex environment may be created for the learning task, such as a simulation, or it may be the student's own workplace (Choi & Hannafin, 1995).

3. Problem based learning. In this model, which may contain elements of the previous two models, students learn by being presented with complex problems that represent exemplars of the real situations that the students will encounter after they have completed the course. Learning activities are structured to provide the knowledge and skill necessary to function effectively and to solve these complex problems.

Students are more motivated to learn when they perceive that they are dealing with realistic situations and they learn to come to terms with the complexity and ambiguity that often exists in the work environment. Group work on collaborative tasks is frequently applied in problem based learning. This helps to build key skills as well as subject knowledge (Oliver & McLoughlin, 1999).

Using a problem based learning model means using the online technologies to carry out a wide range of functions. Subject modules need to be arranged to present realistic scenarios for problems, possibly on a weekly problem basis. Audiovisual presentation of scenarios can be used to add realism. Following the presentation of the problem, students need access to resources. Online technologies can be used to provide access to articles, databases and spreadsheets, Internet links, and access to interactive devices such as simulators designed to enable students to work with the problem. Communication tools, as described above, can be used to enable group work on problem solving if students are not in a campus environment. These resources, appropriately designed and organised, can enable the students to work with complex problems and to present solutions (Milter & Stinson, 1995; Oliver & Omari, 1999).

Evaluation

At this time, knowledge of student learning outcomes from online delivery is relatively scarce as there are few published studies of evaluations from online delivery. A recent evaluation of the Victorian Online Learning Networks found that about half of the students in the

online learning trial groups lacked the skills for independent learning in this mode. As a result, many of the groups that used the online technologies did so in combination with face to face classes. There is, however, evidence from survey respondents to indicate that a majority of those who responded to the survey saw this mode of learning positively, as illustrated in Table 1.

Response	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Total responses
Learning on the Internet is as effective as learning in a classroom.	14	27	22	27	9	95
Training provided by the Learning Network is of a high quality	18	46	20	10	5	99
I am satisfied with the quality of the learning experience	17	47	16	14	5	98
I would like to continue to learn through the Internet.	28	43	17	6	5	95
I would recommend training through Learning Networks to other students.	19	44	24	8	4	98

(Phillips, 2000, p. 42)

Table 1. Student feedback on the effectiveness of online learning.

Evaluation of online delivery is interrelated with the program goals. Evaluation of the effectiveness of a whole course, or a range of modules all using the same method, will be different from an evaluation designed to assess the effectiveness of an individual module. Mason (1992) suggests three main foci for evaluations:

1. to show levels and spread of use;
2. to assess the value of the investment and the acceptance of it, and
3. to analyse the quality of learning and the nature of the educational interactions.

She suggests a range of evaluation techniques, including:

- survey questionnaires
- open ended questionnaires (these first two may be combined in the one questionnaire)
- user interviews
- focus groups
- empirical experiments
- case studies
- computer-generated statistical manipulations
- participant journals
- content analysis

(Mason, 1992).

If the design goal is simply to use particular aspects of online technology, such as a website or a computer conference, then the more

rapid and easily implemented forms of evaluation, such as survey questionnaires or computer logs of access to specific pages are sufficient to verify levels of use. These forms of evaluation are effective for the first goal of illustrating levels of use as they are economical to administer and relatively easy to analyse. It is important to remember, however, that activity does not equate to learning and interaction does not indicate collaboration. So long as the goal of using these evaluation techniques is appropriate to the level of data they can provide, then there should not be any difficulty attached to their use.

For an evaluation with the second goal, to assess the value of an investment and its acceptance, a wider range of evaluation methods is required. The Evaluation of the Victorian TAFE Online Learning Networks used student questionnaires, and interviews with students, teachers, network managers and community providers to create case studies of each learning network, as well as to provide comparative data between them. By using these techniques, the study was able to build a comprehensive picture of the operation of the Learning Networks. The report recommended continued funding of the networks, but it also indicated some difficulties with the Virtual Campus software. This software has subsequently been revised.

The evaluation of the ANTA Toolbox Initiative used a similar range of techniques. This study examined the process of development of the toolboxes, by producing checklists for the toolbox development teams, checklists for mentors, making site visits to gather data on progress, interviewing the development teams, and building case studies from the data. By using this approach, the evaluation team were able to make recommendations during the project, including a major improvement in the instructional design assumptions and approach between the first and second groups of toolboxes, rather than critically reporting on them at the end (Brunetto, Wharton, Oliver, Skippington, & Towers, 1999).

If the goal of an evaluation is to determine the quality of learning outcomes, a comprehensive approach to evaluation is required. The overview of instructional design models identified several that were developed to enhance skill levels as an outcome of learning, including key skills. These models use online technologies to improve the quality of learning. To assess the level of attainment of the learning outcomes that are intrinsic to these models a single measure, such as a questionnaire, is usually inadequate (Alexander & Hedberg, 1994).

To evaluate complex learning outcomes such as teamwork and problem-solving ability a number of indicators of learning outcomes need to be considered together. These include assessment of problem-solving tasks, interviews, participant observation, and questionnaires (Wills & McNaught, 1996). By comparing performance indicators with qualitative and quantitative student feedback, a more comprehensive indication of whether students have attained these learning goals can be achieved.

Evaluation studies at both the formative and summative level have the potential to provide data that can inform all stages of online courseware development. The appropriate level of data needs to be gathered to ensure that an effective level of understanding of the processes is attained.

Visits to other institutions

The visits to other institutions revealed information on design and evaluation of courseware. In these institutions a range of online course models from online support to existing classroom or print based distance education programs was observed. In general, colleges that did not have a pre-existing distance education program used fully online delivery, while those with pre-existing programs used the online materials as an adjunct to existing programs. Each college, however has a wide range of online delivery projects, and was grappling with the issues related to design and development of online delivery in its own way. Table 2 summarises these approaches.

Institution	Online Supplementation	Online Delivery	Design Model(s)	Delivery systems	Instructional Design Support	Evaluation
Alberta North	Yes	Yes	No specific models	WebCT, Lotus Learning Space	Editors are available to help course writers	No
Athabasca	Yes	Yes	Varies between faculties	Lotus Notes	Yes	Minimal - paper based forms
Cerro Coso	No	Yes	Use design template	FrontPage	No	Minimal formal evaluation - mostly informal
NMIT	No	Yes	No specific models	FirstClass	No	
Qld TAFE Online	No	Yes	No	VETWEB	No	
Rio Hondo	No	Yes	No	WebCT	No	No
UBC	Yes	Yes	No	WebCT	Yes	Yes - paper based system

Table 2. Instructional design and evaluation at the colleges visited

Generally, the colleges visited did not apply any specific instructional design model to courseware development, although one college approached this with the use of a template. Rather, the colleges showed a range of approaches to the issues associated with the use of online technologies.

Athabasca, for example, had a large scale print based distance education program in place before online technologies became available. In most cases, the online technologies are used as an adjunct to the existing materials, with some notable exceptions. Athabasca operates on a principle that undergraduate students can commence study at any time rather than having two specific starting points per year. A student is mailed a study package within a few weeks of enrolment, and works towards the next appropriate examination deadline. While study materials are available to the students online, this arrangement limits the effectiveness of online conferencing, one of the more powerful aspects of online delivery, as the students in any subject are all at different points in the study program.

The Faculty of Commerce and Administration Studies supplements this program with two e-classes each year. These groups work in a paced way so that they can use online conferences as an integral part of the study program. The instructors in these programs customise the online content to enable the students to work collaboratively while studying. The students can choose which approach they prefer. Athabasca also offers a masters program that is mostly by online delivery.

The University of British Columbia (UBC) also had a pre-existing distance education program. A significant difference is that the instructional designers at UBC have adopted online delivery as a more effective way to implement distance education delivery. Consequently, most of the proposals to develop a subject for flexible delivery now involve the development of full online delivery of course materials. A clear transition can be seen from one form of delivery to another. Mostly these modules are developed without a specific instructional model. One faculty however, is using problem based learning as a framework for all subjects and the External Study Unit has identified this approach as being a valid model for flexible delivery.

Cerro Coso and Rio Hondo colleges provide an interesting comparison. These colleges did not have a pre-existing distance education program, and consequently adopted full online delivery as their only method of flexible delivery. Cerro Coso is implementing a program that will make nearly all of their courses available by online delivery, with a significant number of subjects being added each year. They do not use a specific instructional model for course module design, however the college has developed a template that all course modules use. This template provides a means of navigation to different segments of course module content and resources. This separates the materials into major sections, the Homepage, content materials, discussion, testing and student information. Within each of these major divisions there may be additional navigation into separate sections. This template can be seen at <http://www.cc.ca.us/ccolsamp/ClassHome.html>. The way in which the content materials are arranged within this template is at the discretion of the course module teacher. The tutors are provided with a staff development program in online delivery approaches (see the Chapter 4 on staff development for more information). Rio Hondo also provides staff development for teachers who are developing an

online course module. This college uses WebCT as its delivery platform and uses the structures within the WebCT program as templates. From that point, the arrangement of materials is up to the teacher.

Evaluation was not seen as a major priority at any of the colleges. Both UBC and Athabasca have paper based evaluations. These, however, were not a major part of their design and development process. UBC find they have a very low response rate to evaluation questionnaires. They are currently reviewing their evaluation methods, to see if they can get higher response rates using online evaluation. For some colleges, the concept of course module evaluation is opposed by the staff union. This opposition is to the idea of evaluations being used as a form of staff appraisal. This has led to opposition to the establishment of an institutional system of evaluation. Some teachers, however, may implement forms of evaluation for their own feedback.

ILFR changes

Interest in implementation of online technologies has led to two significant developments within ILFR. These are a decision to provide IT supplementation for all TAFE competency modules at Certificate 4 or higher, and to become involved in the development of an Online Content module for use on the Victorian Virtual Campus. These developments have led to a significant focus on the role of online technologies in course delivery. The two developments highlight contrasting aspects of development for online technologies: online supplementation of existing course materials or technologies compared with courseware that is designed for full online delivery. Each approach will have a role to play in the implementation of online technologies.

IT supplementation

The decision of the Institute of Land and Food Resources to provide 'IT supplementation' to all TAFE competency modules at Certificate 4 or higher by December 2001 has interesting implications for design and development. The decision demonstrates a major commitment to the use of online technologies for TAFE courses. The decision was taken, however, with no specific definition of what IT supplementation means, or a strategy for attaining this target.

To develop a strategy for reaching the target the following will be required:

1. Definition. The terminology 'IT supplementation' is undefined. It is likely to mean that all competency modules will have an online component to supplement the existing predominantly print-based

materials, but this is not clear. The first step will be to clarify what will qualify as IT supplementation, and the purposes to be achieved by doing this. This will involve a consideration of:

- Why all competency modules should use online technologies?
- How will this improve the educational goals and outcomes?
- Will it be compulsory for all students to access online materials?
- What formats for online delivery materials will be effective?
- What evidence do we have of what students and teachers want in relation to online technologies?

Currently, online materials are developed at the request of individual teachers, or a course coordinator who wishes a group of competency modules to be available. To implement this measure will mean that all of these questions need to be addressed at the institutional level, to be clear that the measure is justified.

2. Design. There will be different levels of support required for different types of competency module. A range of models of online support will be required, to facilitate this development on a large scale. These models need to be developed to suit the needs of courses or subject groups. When a model has been developed to meet particular needs, then it is easier for many teachers to develop materials to fit the model.

3. Cost/Benefit analysis. When the extent and nature of the requirement is clear, it will be possible to estimate the cost of implementation. This will involve:

- Estimating the cost to develop online supplementation for large numbers of competency modules; and
- Considering a range of funding models, such as for costs to be absorbed within normal budgeting processes for offering courses, or additional centrally allocated funding for major projects or additional resources.

4. Development and production. When the above points have been clarified, it will be possible to plan a systematic implementation strategy that will enable the development of supplementation of large numbers of competency modules to proceed. Resource allocation, schedules, staff development, support systems can all be implemented to support this major transition.

Online content module

The development of a fully online module for Victorian TAFE providers has been a major project completed this year. This module, on Soil Characteristics and Survey Techniques, is one of a range of online content modules commissioned by the Victorian Office of Post Compulsory Education, Training and Employment (PETE). These

competency modules are available to any Victorian TAFE provider to adapt and use for online delivery. This development has been a major project involving a significant commitment of staff time and resources.

The module was developed using the problem based learning model described above. In this project, the problems faced by two growers in the process of setting up a horticulture enterprise are used to provide the students with a range of problem solving tasks. The students learn how to take samples, how to analyse the physical and chemical characteristics of soil, and how to interpret a laboratory soil analysis using actual soil laboratory reports.

The scenario faced by the growers in the program is genuine. Interviews with the growers and a comprehensive analysis of the soil based on digging a pit and conducting a scientific analysis are all presented to the students in an audiovisual format to create a sense of immediacy and reality. The students are asked either to devise a suitable solution to the problem being faced, such as how to sample, or to conduct an analysis similar to the one being shown and reported, on their own property or workplace.

A range of learning resources, such as information sheets and online tutorials, is provided for each problem. In this way, the students are required to solve real, complex problems for which they need the kind of skills required of a fully qualified person. The tasks and the learning resources are designed to facilitate development of these skills.

An important part of the problem based learning model is the use of an ongoing support framework provided by the teacher using online discussion. The problem based learning model is based on discussion and group activity to enhance learning. Students are encouraged to present their findings to other students and to discuss the issues and problems included in the module.

While this can be done face to face if the students are able to do this, online discussions can be carried out using the module and the supporting Virtual Campus software for external students who are studying the module entirely online. The competency module is designed to be flexible in the way that it is used.

Conclusions

The range of design models identified in the literature and in the approaches taken by the colleges indicate different goals for the use of online technologies. These can be seen generally to be either as an adjunct to existing technologies, or as a new medium for delivery. The implementation of online technologies is carried out to achieve educational goals, such as reaching more students or improving the quality of learning. Design models are based on a range of criteria, relating to creating course materials with clear objectives that are accessible and interesting to students. Online technologies have the

potential to achieve higher level learning goals and greater levels of skill if they are based on a model of teaching and learning that is designed to attain high level outcomes.

Recommendations

The use of online learning technologies should not be seen as an end in itself. Implementation of online technologies needs to be based on instructional design that is linked to key learning outcomes.

Evaluation techniques for online courseware should clarify the level of attainment of instructional goals, and be used to identify improvements required in future iterations of courseware.

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Chapter 4 Staff Development

Introduction

Teaching staff need to have a working knowledge of the range of appropriate models for teaching and learning using online technologies, and how to apply these to teaching in a practical way. Staff in management and support roles also need to be aware of the implications and requirements of using new technologies. An active staff development program is an essential element in the process of implementing this new mode of teaching.

When new technologies or new modes of operating emerge then it is usual for a number of enthusiastic early adopters to emerge, who pioneer the new way of operation. While the early adopters play a vital part, the expertise and enthusiasm of a few individuals cannot provide the impetus and skill development needed to enable new developments to be applied throughout the organisation.

While the early adopters [of online delivery] play a vital part, the expertise and enthusiasm of a few individuals cannot provide the impetus and skill development needed to enable new developments to be applied throughout the organisation.

It is only by implementing a systematic program of staff development that the most effective approaches and methods can be disseminated to teaching staff. Staff development can also be structured to provide a framework for the development of new projects using online delivery methods, by a structured program of workshops or instructional design support.

Pedagogical Issues

An important issue relating to staff development is the relative emphasis given to teaching and learning, and the approaches to teaching and learning included in the staff development program, compared with the emphasis given to other issues such as the use of software packages or the implementation of standardised systems. Bates (2000) identifies the most common form of training as showing

interested staff how to use the technology. This, he argues, is starting in the wrong place as instructors need to:

1. know why it is important to use technologies for teaching;
2. understand the teaching and learning process, and the goals different approaches to teaching seek to achieve;
3. understand the different roles technology plays in teaching, and how these may change the approach to teaching.

Only then, he argues, is it appropriate to train instructors in the use of a particular piece of technology (Bates, 2000, p. 102).

Many other groups also take the view that teaching and learning strategies for online delivery are necessary before any hands on training in the use of technology takes place (such as Bennet et al., 1999; Gunn et al., 1999). Even when hands-on training is considered necessary, this is likely to be at the low technology end of the spectrum. A survey of many Australian universities found that the topics that were in highest demand by staff were firstly 'pedagogical issues in designing online courses' and secondly 'designing web pages' (Ellis, O'Reilly & Debrency, 1998, p. 197).

[A] focus on teaching is recognition of the key role teachers must play in the development of online delivery.

This focus on teaching is recognition of the key role teachers must play in the development of online delivery. It has also led to a wide range of solutions to issues relating to the instructional design for online learning materials. Two major types of approaches can be discerned:

- Approaches that set up a system that pre-structures and facilitates the creation of web pages and other resources for online access (such as in Slay 1999; Hough, McNaught, & van Shaik, 1999).
- Approaches that encourage development teams associated with a particular project. Projects may revolve around a single subject or group of subjects such as a whole course or stream (Ellis & Phelps, 1999; Bates, 2000).

The latter approach can be considered to be more centred on the interests and initiative of individual staff members or small groups. The former approach aims to set up structures based on instructional principles that are developed at the institutional level. The big system/small group approaches are probably best seen as a continuum rather than a dichotomy, with each institution pitching its efforts somewhere in the range.

Examples of the big system approach are those taken by RMIT University and the University of South Australia. The RMIT initiative is to establish online support to augment traditional methods of teaching rather than to replace them (McNaught, Kenny, Kennedy, & Lord, 1999). This involves using a distributed learning system (DLS) and an instructional management system (IMS) on an Institute-wide

basis to enable online support for all subjects. An important aim is to integrate educational principles into the description of the system, so that these principles become part of the way teachers use the technology to develop online courseware. The DLS team work with faculty groups to provide training and support for project development (McNaught, Kenny, Kennedy, & Lord, 1999).

The University of South Australia has established a system for developing online materials using Active Server Technology. Staff use this to create web pages through pre-structured forms completed on the web. Staff development programs are based around the requirements to use the system. These were identified as:

- Creating Home Pages
- Putting your detailed subject outline online
- Preparing your subject for online delivery
- Authoring online materials
- Teaching Online
- Assessing Online
- Evaluating Online Teaching

(Slay, 1999, p. 2)

It is notable in this case that issues of teaching and learning come after the mechanisms of web page creation.

The principal difference between the big system approach and the staff team approach, apart from the scale of the project, is the relative emphasis placed on teaching and the extent of the decision making that is in the hands of groups of teachers. Ellis and Phelps (1999) describe a situation in which a group of teachers who were responsible for a course decided they would offer the whole course online. The group decided that their approach to online delivery was to explore new ways of teaching and learning using the technology, including collaborative teaching and learning processes and new approaches to information literacy and resource access, and to work towards using only electronic resources in the delivery process with all staff and student interaction occurring over the Internet.

The process of staff development applied in the above situation has four stages:

1. Activities that aim to raise interest, including assisting staff to have hardware and software, dial-up access to networks, providing bookmarked sets of sites relevant to the subject area, and providing short seminars on current online activities by staff and visiting experts.
2. Support for project development. This includes training in instructional design and online pedagogy, followed by training I software and course management shells.
3. Further development of online teaching skills through greater technical knowledge and experience with more complex interactions such as synchronous chat to support collaborative projects.

4. Acknowledging the staff members skills by asking them to mentor staff at stage 1 (Ellis & Phelps, 1999, p. 5)

A number of institutions take a similar staff team approach, with a major emphasis on pedagogy rather than systems. Bennett, Priest, & Macpherson (1999, p. 211-212) argue for a staff introduction ‘that increases an awareness of teaching and learning strategies, provides the background knowledge and develops confidence in discussing issues, one that focuses on the teacher rather than the technology’. They emphasise the importance of enabling academic staff to relate their existing teaching experience to the use of new technology.

It is important for staff to feel that they have ownership of the teaching materials and process, even though there may be considerable input from specialists in the development of the technology.

Bates (2000) describes a staff development program using a problem-based approach. Staff work in small groups to prepare a lesson, such as making a set of web pages for an Internet delivered subject. This allows both the practical matters of computer and software use, and the issues relating to teaching and instructional design using this medium. He reports that these sessions have been popular with staff, with a high level of interest in advanced sessions.

For institutions that are not already committed to a big system approach, development using small teams with expert guidance is likely to be the most effective. It is important for staff to feel that they have ownership of the teaching materials and process, even though there may be considerable input from specialists in the development of the technology.

In many instances, the decision to use technology may be made at a higher level for strategic reasons, yet it is important for teaching staff to be fully engaged in the process, and to have ownership of the subsequent materials. Development in small teams with expert guidance and a major emphasis on issues of teaching and learning using online technology is the approach most likely to produce effective results.

Staff Development at other institutions

Most of the institutions visited had a formal staff development program in place. In many cases, teachers were required to undergo staff development either before or during the development of online courseware

Institution	Formal qualification	Instructional design support during development	Course during development.
Athabasca	No	Yes	Yes
Cerro Coso	Yes	No	No
NMIT	Yes	No	No
QLD TAFE Online	Yes	No	No
Rio Hondo	No	No	Yes
UBC	No	Yes	Yes

Table 3. Staff development support for online courseware.

Table 3 indicates the mix of staff development activities conducted at the various institutions. Three main approaches were observed:

1. A **training course in online learning** leading to a formal qualification. These courses used at Cerro Coso and NMIT, were developed for staff within the institution. They are, however, now offered to staff from other institutions on a fee for service basis. Queensland TAFE Online offers support for staff to study modules in the Graduate Certificate in Open and Distance Learning offered by the University of Southern Queensland.

2. **Instructional design support** during the development and production of online courseware. In this approach, a team consisting of the subject teacher and an instructional designer, with other specialist staff as needed, is formed to develop the courseware. Staff development is provided by the instructional designer within the context of the project. This approach is taken at Athabasca and UBC.

3. **Short courses and workshops** provided during the development of online courseware. The major emphasis in this approach is a series of workshops on specific aspects of online courseware development. These may focus on pedagogical issues such as teaching/learning models that are suited to online delivery, or they may be focused on how to use a software package. At Rio Hondo this approach is extended over a whole semester and the summer term to support teachers who are developing courseware. At Athabasca and UBC this approach is combined with instructional design support as outlined above.

It should be noted that Alberta North and QLD TAFE Online are umbrella organisations supporting several individual colleges. Additional staff development activities may occur within these colleges.

With the exception of Alberta North, for which no data is available, all of the institutions visited had a structured staff development program in place to support the development of online courseware.

The impact of online technologies has been to involve teachers and support staff in activities that, for them, are totally new. Staff development as outlined above has been a major element in the transition for all of the institutions visited. From talking to the many people who provided their time to assist this project, it is clear that staff development is a critical area, and that their staff development programs have evolved rapidly to meet the needs of the increasing numbers of teachers who are making use of online delivery.

The transition from a few workshops to a semester length course seen at several institutions makes it clear that an extensive development program is required to enable teachers to come to terms with new methods of delivery and new methods of teaching that involve different ways of writing course materials and organising resources for interactive applications. It is significant that two colleges, NMIT and Cerro Coso, offer their staff development for online delivery as formal courses that are marketed to the wider teaching community.

Changes within ILFR

The University of Melbourne has made a major commitment to the use of multimedia in teaching. This has led to financial support from a centrally administered fund for a range of activities relating to multimedia development, including staff development. To be eligible for this support, faculties must prepare strategic and operational plans that include staff development activities, with appropriate budgets. The university has also made a requirement that at least 50% of academic staff will undergo staff development activities in relation to multimedia use.

This support, from the senior levels of the University administration, is directed towards providing a top-down awareness of the importance of using new technologies by requiring senior administrators to encourage teaching staff to engage in staff development, and providing some funds to support it. In this way, some of the attitudinal barriers to the use of online technologies will be overcome as it will be clear to teaching staff that there is senior management support for the new developments, and that there is support through staff development.

Within ILFR, funds have also been made available for the development and application of new technologies. These have been used to fund the position of Manager, New Learning Technology, and to support the development of projects such as units of competency being developed for online delivery. The Manager NLT has provided support with instructional design, project management and staff development. This support has enabled many staff members to undertake projects, by providing staff development through instructional design.

The approach taken to the development of online modules within ILFR has been to provide instructional design support from the Manager,

NLT or a staff member who has educational qualifications and experience in this area. Some staff development activities, including a two-day workshop, had been offered in previous years, but these had had little impact on the development of online courseware. During this year a program of staff development workshops has been implemented to provide additional support. These workshops are directed towards the use of multimedia in teaching, however they include the development of online courseware.

In accordance with the findings from the literature identified above, the ILFR staff development program is aimed at beginning with workshops that deal with the teaching and learning aspects of using online technology. This includes the rationale for using new technology, teaching and learning models such as collaborative learning and problem based learning, discussion of examples of courseware using these models, and the development process used to create new course materials. These workshops were developed to raise awareness of issues, and to suggest a path to follow, rather than to develop specific skills. Training in practical skills, such as web page making, is readily available within the institution. The more complex skills, such as how to manage teaching and learning in new ways, take longer to develop. They need to be experienced in practice.

To take staff development further, a two-fold approach is planned. Firstly an offer of funding for project development has been made to teaching staff. This ranges from small grants to provide a startup project on a small scale, or to modify an existing program, to larger grants that will fund the development of complete courseware modules. Secondly two-day workshops will be offered. In these, teaching staff will be able to create a segment of online courseware. This will enable learning in a hands-on way to be combined with analysis of teaching/learning issues and problem solving relating to the creation of courseware. In this way a greater level of awareness and readiness will be developed among participants. Many will be ready to apply for further support funding to develop major projects.

From consideration of the literature and the comprehensive staff development programs that have been seen to be necessary at most of the institutions visited, it is apparent that additional support through workshops is likely to be necessary. Instructional design support for project development is available, but limited. A comprehensive support program is required to adequately deal with both the educational and practical issues associated with online courseware development and application to the teaching program.

Recommendations

Staff development is a major element in the implementation of online delivery. A comprehensive program of staff development that includes: the rationale for online delivery; a range of teaching and learning models that are appropriate for online courseware; specific designs for courseware and techniques for developing interaction; the project development process, software applications; evaluation methods; and means of using evaluation data for continuous improvement is necessary for the development and implementation of online courseware.

Instructional design support for project development is an important element of staff development.

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Chapter 5 Support systems for students

Introduction

The integrated systems an institution has in place to support students are critical to the success of an online flexible delivery program.

The range of student support services provided by educational institutions works most effectively when two inter-related sections operate in combination – firstly, administrative support services, including registration, assessment and certification; and secondly, learning support, comprising orientation, resources, study skills, use of library, tutoring and counselling. (Croft, 1991, Nunan, 1992)

The concepts of ‘embeddedness’ and ‘consistency’ are useful in the analysis of online learning support for students. Embeddedness is concerned with the links between the support services and the subject material and consistency is the extent to which support materials are shaped by the subject to which they relate (George et al, 1999). The effectiveness of this variety of student support systems is influenced by the culture of the organisation, the characteristics of the student population and the learning materials provided (Sewart, 1993).

Induction

Induction in an online course context is the process by which students are introduced to this means of communicating and studying via the Internet. Essential skills and equipment are needed, without which students will experience difficulty studying via this mode of delivery. The word ‘induction’ comes originally from the Latin *in ducere* which means to ‘lead in’. In the online area, this involves establishing that students have the necessary computer skills in word-processing, sending email, attaching documents, downloading software, searching the Internet and browsing online library catalogues etc. Students who lack skills in any of these areas need to complete introductory bridging courses.

Induction can also be useful in ascertaining whether students have access to the appropriate computer hardware, modems and an Internet Service Provider. If technical access is a problem, then they need

advice on how to correct it, or how to fine an alternative means to get online.

In the broader context, induction introduces students to the *mores* of their provider institution, its programs, facilities and staff, as well as to the less easily defined areas of campus culture and tradition. It has been suggested that one means of reducing attrition rates is for faculty to initiate early and frequent contact (Minich, 1996), and that the highest attrition rates are among those students with least opportunity to integrate with the provider institution. (Holmberg, 1995)

Creating a sense of identification, of belonging, are key criteria for successful student learning outcomes, motivation and continuation.

To deal with this issue, there has been a lot of research over the years (Bowser & Race, 1991, Morgan, 1993, Holmberg, 1995, Minich, 1996, Patterson, 1997), which suggests that the induction process is a very important one, both for the provider institution as part of its student-centred philosophy and for students with their differing needs and individual learning styles. For most on-campus students at universities and TAFE colleges, orientation is a well-recognised part of the commencement of the academic year or study period, during which students are introduced to various aspects of the campus, student social activities and its facilities. Creating a sense of identification, of belonging, are key criteria for successful student learning outcomes, motivation and continuation (Holmberg, 1995, McInnis, 1999, Sewart, 1993).

Induction programs, are therefore, one of the most important supports that can 'lead in' new students to the organisation and into the skills necessary for successful flexible, online learning (Aspin, 2000). But for the flexible, part-time student, who is often studying at a distance and starting at irregular times through a process of continuous enrolment, it presents a particular challenge for the provider institution to establish these early links and conduct repeated induction sessions, on demand, through out the year.

The Site Visits

There are various responses to this challenge from the institutions visited as part of the ANTA Flexible Learning Fellowship. At Cerro Coso Community College in California, for example, students do one week of face to face computer skills workshops followed by a week of online induction tasks. During the online induction, students are asked to complete a questionnaire which asks 'Are you ready for online?' and students are required to submit emails with document files attached, download software and successfully search the Internet for information. The second part of the induction is entitled 'How to be a successful online student,' and asks students to self assess their

motivation and time management skills and sets out the expectations of the course in terms of student participation.

In some institutions (NMIT, Casey, Gordon, CC Online and Rio Hondo), a successful way to ensure that students undertake the induction skills is to make the induction part of a unit of competency from within an accredited course (see also Flexar Project, 1998). In these examples, induction can be described as embedded in the learning program itself and highly consistent within the overall online offering to the student (George et al, 1999).

In utilising a common induction process, staff from the Cerro Coso Community College in California feel that they are able to avoid significant time wasting (for both students and staff) as the induction modules covers a significant proportion of the frequently asked questions and problems encountered by new online students. It also addresses the issue, before formal commencement, of whether the student has access to adequate computer equipment and the Internet.

At the Northern Metropolitan Institute of TAFE in Melbourne, induction is a major initiative. A face to face workshop is offered to students on how to study online and as a major part of the beginning of an online course, there are a series of activities that are designed to be fun but also teach students the skills needed to function effectively in an online environment. These activities include email, cutting and pasting from one program to another, the use of chat sessions and threaded discussions and the downloading of software and files.

At the University of British Columbia in Vancouver and at Athabasca in Alberta, Canada, online induction tends to be conducted on an ad hoc basis with some subjects offering a self paced 'Welcome to Online Learning' or 'Am I ready?' component in the first opening weeks of the course. As with most institutions, these programs assume that students already have basic computer skills and ready Internet access (or they would have chosen an alternative delivery mode). At UBC, all online subjects include a print-based component and reader.

Institution	Induction a major initiative (accredited part of all online courses)	Ad hoc induction (in some subjects only)	Face to face (induction workshops)	Online (self paced induction)
Athabasca University		X		X
University of British Columbia		X		X
Rio Hondo Comm. College	X		X	
Northern Metropolitan Institute of TAFE	X		X	X
Cerro Coso Community College	X		X	X

Table 4. Extent and Type of Student Induction for Online Courses

At Rio Hondo Community College, which is in a high ethnic, low socio-economic area of Los Angeles, students wishing to study online must first enrol in computer classes and successfully complete the class before being eligible to enrol in a fully online course.

As has been said before, induction is one of the processes that help ensure that we have an open door to our institutions and not a revolving one.

Support from teachers

As a student support service, individual counselling by academic staff members ranks as one of the highest priorities. Students seeking clarification on, or the resolution of, an academic problem need to have ready access via email, facsimile, toll free phone numbers and print to their relevant tutors and course co-ordinators to obtain rapid feedback. In online learning there is an assumption that there will be prompt and ongoing feedback from staff to student contributions to discussion forums and to separate email and online collaborative and assessment tasks. Increasing the level and quality of the interaction between students and their tutors is one of the key advantages of online learning (Bates, 2000). Communicating online to staff and peers helps to reduce the tyranny of distance for students studying off campus. Creating a supportive and positive environment which is conducive to learning is one of a teacher's main tasks whether it is in the classroom or online. Quality interaction is important for various types of learning in that it increases both learner satisfaction and retention rates (Berge, 1999, Webb, 2000). However, it

Increasing the level and quality of the interaction between students and their tutors is one of the key advantages of online learning (Bates, 2000)

can sometimes impose a heavier workload on staff and the expectation of immediacy can be a disastrous experience for students, if staff are unwilling to provide such regular online teaching support.

As Tony Bates says,

...the course development tool (in this case, WebCT) is only a part of the teaching process. It has to be integrated in to a system that includes, student support, assessment and accreditation and, above all, tutoring (Bates, 2000, p 74).

Whether the student's issue is personal or academic, study or career counselling, if they need help, the evidence suggests that students prefer to speak to a person who knows them and their course details and will respond promptly to their needs. In many cases, this person will be a member of the academic staff or the course co-ordinator; or where a problem is of a more personal nature, trained specialists or student counsellors may be referred. If the student has a serious and immediate problem, they need to be able to call their provider institution and speak to a live person, and not get diverted off onto an electronic messaging roundabout (Busch, 2000). Informal feedback by students at the Institute of Land and Food Resources expresses similar dissatisfaction with impersonal messaging systems.

The Site Visits

Athabasca University has gathered extensive data to support a customer focused requirement and has established a useful support service model that others might follow. They have implemented one central Information Centre to handle up to 211,000 phone, facsimile and email enquiries per year. Help desk operators refer students immediately to the most appropriate 'live' person available to answer their query. The operators use a common web page of 'frequently asked questions' to ensure the provision of consistent answers and to follow up all queries within strict time limits. Response times are monitored with the average wait for a student to be connected to a staff member via the telephone was 84 seconds!

At every college visited, and including the Institute of Land and Food Resources, students need encouragement and advice regarding their personal study needs, pathways and time constraints. At both Athabasca and Rio Hondo Community College, students speak to counsellors before enrolment. If the student has not begun to access their online materials within two weeks of the course starting, then the counsellor calls them to help them make a start.

Technical Support

The levels of frustration for staff and students alike who are experiencing technical difficulties and Internet access problems is well known. As Tony Bates says, managers of online programs need to

be aware of whether students will need to develop new skills or buy extra equipment in order to download software. We need to know how long it takes to download the materials over the public networks' and adjust the technical sophistication of the learning materials accordingly. 'Student technical support costs can be reduced if students themselves are responsible for obtaining their own Internet service provider..... and if the system is kept simple and reliable (Bates, 2000, p. 135).

In the larger organisations (Athabasca, UBC) where student support services rated as a high priority, twenty four hour technical help desks, staffed by qualified IT specialists and directly accessed by email and toll free numbers were a common feature. In the smaller organisations, (CCOnline, ILFR) technical help tends to be provided by the academic staff member responsible for delivering and tutoring the subject, sometimes in particularly difficult cases, assistance is provided in conjunction with limited IT staff support available. Induction can help to overcome most of the early logging on problems experienced by students but the unsophisticated user will require a lot of assistance (Fahy & Archer, 1999; Bates 2000).

Institution	Technical support	IT specifications	Delivery system/ software
Athabasca University	Online and freecall helpdesk. Quality assurance checks on response times	Low end IT specifications to maximise access	Lotus Notes
University of British Columbia	Student linked to a programmer, online tech support	PC 486, Pentium + 28.8 modem speed	WebCT MS Office Quicktime video Acrobat PDF Large graphic files heavily compressed and kept to a minimum
Rio Hondo Comm. College	Phone support, but not a major issue, 80% access is on-campus	Pentium, Level 4 browser	Top Class and Web CT
Northern Metropolitan Institute of TAFE	Online and phone help desk		First Class
Cerro Coso Community College	Toll free number for American students, 2 advisers & academic staff	Low end to maximise access, level 4 browser and email. Sound card needed for language courses	MS Word Access

Table 5. Technical Support and IT Specifications for Online Courses

Service Standards

Extensive data gathering by Athabasca university supports the need for support services to not only be highly promoted, but also to be effectively delivered within a specified time limit. To that end, Athabasca widely publishes a student brochure entitled 'Student Support Services – expect the best'. It states standard response times for interaction with the university e.g. 72 hours for the return of marked assignments, 24 hours for email response and 24 hour enrolment, admissions and commencement, it also detailed the complaint channels to go through if these standards were not adhered to.

'Expect the Best' in student support services

Integration

The integration of student support and management systems for students including library, counselling, academic tutoring and administrative processes is an area which often lags behind in the implementation of flexible and online delivery. Until recently, many institutions were forced to develop just-in-time online administrative procedures while simultaneously attempting to come to terms with an entirely new delivery platform (Webb & Cilesio, 1998). As staff members at OTEN in New South Wales explain, these methods, while manageable for very small groups, do not scale to larger online programs. At Athabasca University in Canada, which has nineteen thousand distance education students, several hundred of whom study online, the online student management and support services were well integrated into the organisation and were overseen by a high profile Vice President of Student Services. At this institution, as at the University of British Columbia, the services for online learning build on existing resources and are essentially the same as for flexible delivery, open learning and distance education.

As Atkinson (1999, p.2) states,

The reassuring features about infrastructure and services requirements are that an organisation may have much of it in place already, there are a range of options for covering any gaps which may occur....The disconcerting feature is that, like a chain, a system of infrastructure and services is only as strong as its weakest link.

Conclusion

The following issues have been identified as items for action in the Institute of Land and Food change management plan:

1. A two-part online induction module involving students in a range of preliminary tasks in answering the questionnaire ‘Are you ready for online?’ and a second section, ‘How to be a successful online student’ is to be developed.

2. Personal contact with new online students to be made where students are sent a welcome memo and passwords and a printed online information handbook. If the student does not log on to the website within the first one or two weeks, personal contact by telephone may be able to help overcome whatever difficulties are being encountered.

3. Technical Problems: Induction can help to overcome most of the early logging-on problems experienced by students. Issuing clear statements to students before enrolment regarding the minimum specifications for computer software applications, level of browser and modem speed is a useful way to avoid high levels of confusion and frustration. A technical help desk needs to be established and staffed by people familiar with a range of delivery platforms and remote and on-campus access issues.

4. Student Services Web Site: An institutional one-stop website which houses a wide range of support services and links to counsellors, study skills, referencing and writing sites, library skills and catalogues, course co-ordinators and tutors etc is to be developed. A toll free contact number to student services is to be implemented across all sites of the Institute.

5. The integration of the various service sections of the institution including administrative, financial, library support areas, teaching etc needs to occur prior to wide scale online implementation.

Recommendation

It is important for the alignment of the various financial, administrative, production and teaching sections within an institution to appear as a seamless entity for students. Online delivery creates a student expectation and need for a one-stop-institutional shop which is fully accessible online. The institutional mechanisms and support processes which underpin the online delivery, need to be in place before the wide scale implementation of online courses. This alignment of service sections is critical in the change management process.

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Chapter 6 Organisational Support Systems

Introduction

Education and lifelong learning are seen as a means of providing the capacity to manage change (CRLRA, 2000). How then can these same principles be applied to an educational organisation? To implement change management in an educational organisation requires a number of concurrent changes in academic and administrative practices resulting in a new institutional culture with changed performance expectations and communication channels. To do this well, requires an integration of development, training, service and delivery mechanisms which may formerly have operated as separate entities within the institution.

To implement change management in an educational organisation requires a number of concurrent changes in academic and administrative practices resulting in a new institutional culture with changed performance expectations and communication channels.

The Role of Senior Management

Vision and strategic planning

For an institution to move from a 'Lone Ranger' model of implementation, based on the individual staff member who does online development because they are personally interested, to a broad-based faculty 'buy-in' (Bates, 2000) involves an inclusive management style which actively involves all staff, including senior, older managers, in a 'visioning' process, where the staff as a group, accepts ownership and sets the direction through its strategic plan. A flexible learning management team translates and implements this strategic vision utilising an operational plan with specific online targets. Staff involvement is maintained through an advisory committee made up of a cross section of staff.

At the Cerro Coso Community College in California, the impetus to include online delivery as an important factor in future planning, was simply presented to staff as

Survival and growth, in terms other than bricks and mortar, is among the major drivers in an institution-wide adoption of online delivery.

one of the few ways in which the college could survive in a climate of reducing rural population, increased competition and reduced government spending (Hightower, 2000). In the University of British Columbia, staff worked through a series of workshops where they were asked to envisage what their classrooms and teaching would look like in five years time (Bates, 2000a). Again, survival and future growth in terms other than bricks and mortar, was one of the major drivers. At the Institute of Land and Food Resources, multimedia development is seen as a strong priority area for growth and an opportunity to corner a niche market in agricultural, horticultural and forestry courses online.

Support Systems for Staff

For many staff working in educational organisations, the rapid process of change is not a comfortable one. Formerly acceptable classroom practices, accountability, standards and command hierarchies are challenged by a new set of demands. In some of the institutions which were visited in California as part of the Fellowship, the tension between more traditional senior academics and the manager of the new online Virtual Campus was palpable and had led to personal animosity and conflict.

The early adopters of flexible online delivery amongst academic and middle management staff often experience difficulties in having their efforts acknowledged and adequately resourced. Without the proactive support of senior management, the task of developing and servicing online courses may be perceived as an 'add-on' for already hard

For many staff working in educational organisations, the rapid process of change is not a comfortable one. Formerly acceptable classroom practices, accountability, standards and command hierarchies are challenged by a new set of demands.

pressed staff working within reduced operating grants (Bates, 2000). For the students, unless these tensions are addressed, it can lead to academic program management and student learning support which is geared to some categories of learners, but not to students who study online (McLendon & Cronk, 1999).

Recognition and Incentives

The support systems for both staff and students form a critical backdrop in the implementation of online delivery. For staff the critical factors are: professional recognition and acknowledgment of their efforts, time release, training and access to adequate resources. In many cases, recognition of the individual staff member's efforts in online development and delivery is belatedly bestowed and sometimes only after the new program has attained national attention. One of the important ways in which senior management can encourage staff involvement is to publicly announce the potential for promotional advantage in being actively engaged in multimedia development (Gilbert, 1999). Similarly, short periods of time release from normal teaching duties and research and outreach expectations is another means of practical support by senior management which acts to reinforce online development priorities to the broader college community.

For staff (see also Chapter 4), participation in a range of training workshops in online teaching and learning methodology, Internet skills, discussion forum management and student feedback is recommended as a means of staff support with a positive output in online materials development. To familiarise staff with the use of the Internet delivered courses, it is recommended that at least part of the staff development be conducted on line (Web & Cilesio, 1998; Steed, 1999; Aspin, 2000). The Northern Melbourne Institute of TAFE and Box Hill Institute of TAFE are just two Victorian examples of what is on offer in accredited, online professional staff development courses in online development and delivery which lead to an accredited qualification.

As stated earlier in this report, (see Chapter 3) a project management, collaborative team approach is one that appears to have the greatest potential for quality online learning.

Organisational Infrastructure

Resource Allocation

Resource allocation is a perennial topic in almost all educational institutions who are operating in a framework of reduced government subsidisation with a subsequent increasing demand for cost recovery while at the same time being asked to have a more flexible customer focus and industry responsiveness.

In terms of technical infrastructure, it cannot be assumed that an organisation has the appropriate levels of computer hardware, software and servers or the accompanying technical support staff, and this is an obvious starting point in terms of senior managers

It cannot be assumed that an organisation has the appropriate levels of hardware, software and servers, or the accompanying technical staff. The case for resources and funding needs to be taken up at the highest level of the organisation.

adequately researching online development and delivery. Bates (2000) would argue that the case for adequate resources and funding needs to be taken up with the highest governing body of an institution.

The following table indicates the primary sources of funding for online and flexible delivery programs. In a majority of the Institutes listed below, a proportion of online and flexible course income is comes from fee for service and cost recovery programs. However, reliance on external funding which is often haphazard in its allocation and focus, is not the best way to source ongoing strategic funding for a whole-of-organisation change to flexible delivery (Bates, 2000).

Institution	Internal	External
Athabasca University	Funded as integral, core business of the Institute	
University of British Columbia	Internal budget of \$900,000, of which \$150,000 is avail. to staff for MM grants	
Rio Hondo Community College	R.H's own online program funded the same as an internal depart. or section	<i>California Virtual Campus</i> has USD \$2.8m state funding over 5 years, seeking recurrent funding 2000
Cerro Coso Community College	<i>CC Online</i> - the Virtual Campus based at Mammoth Lakes is funded as one of five campuses	
Alberta North Community College Network		This is an Alberta Province funded initiative to reduce duplication & costs, recurrent funding now being sought to proceed further with the amalgamation

Table 6. Primary sources of funding for online/flexible delivery.

Library Services

For online students, access to online resources is critical, including, for many, full text journal articles accessed through the library. For some librarians, this issue raises serious concerns and poses a fundamental challenge to their role – gatekeeper or facilitator? Without clear operating parameters, the vital learner supports provided by libraries will lag behind student demand. Copyright clearance for published authors accessed via the web is an area of confusion which is still being addressed by many institutions but subscriptions to online journals and,

in some cases, full text books, is increasingly common. Allowing online students full and free access to these subscriptions is, however, still an area of debate.

Librarians - gatekeepers or facilitators?

Student Management Systems

In many instances the enrolment and financial sections of the institution work well for full time on-campus students, and sometimes for distance education and flexible, part-time students, but not for online students. Enrolments for online courses are often handled manually or dealt with online but separately and outside the normal administrative section of the institution. At one campus in North America, this involved physically printing off the electronically submitted enrolment form and walking it across to another building to hand it into the official student administration section. In implementing a major increase in online delivery, this 'double keying' of information is time consuming and risks the loss of important, auditable data on student participation and assessment details (Webb & Cilesio, 1998). It also causes frustration and a lack of access by program managers to important information about a student's current status with regard to other unit enrolments, withdrawals, and/or payment.

It is important that the various financial, administrative, production and dispatch sections within an institution are aligned to appear as a seamless entity for students, regardless of their type of enrolment. Online delivery creates a student expectation and need for a one-stop-institutional shop which is fully accessible online. This alignment of service sections is critical in the change management

It is important that the various financial, administrative, production and dispatch sections within an institution are aligned to appear as a seamless entity for students, regardless of their type of enrolment.

process. At Athabasca University in Canada, which has nineteen thousand distance education students, several hundred of whom study online, the student management and support services were well integrated in the university system and were overseen by a high profile Vice President, Student Services. In this example, the services for online learning build on existing resources and are essentially the same as for flexible delivery, open learning and distance education (Atkinson, 1999). There are no on-campus students at Athabasca and to some extent, this simplifies the management system compared to institutions dealing with the whole gamut of flexible learning options as well as full-time on-campus students.

Institution	Integrated into Institution's main Student Management System		Processing Method
	Yes	No	
Athabasca University	X		Online students not distinguished from other Flexible Learning/Distance Ed. enrolments therefore integrated into main admin system.
University of British Columbia		X	Fee for service and professional upgrade certificates processed separately by the DE&TC. Online enrolments also keyed separately unless student is already registered as an on-campus undergraduate
Rio Hondo Comm. College		X	Six FL counsellors key and manage online enrolments separately
Northern Metropolitan Institute of TAFE		X	Online enrolments processed and managed separately.
Cerro Coso Community College		X	Online enrolments are keyed separately by VC staff at Mammoth Lakes Campus
Alberta North Community College	X		Enrolments for all courses taken at any of 7 campuses, funding claimed by teaching location

Table 7. The administration of online enrolments.

From the table above, it can be seen that there is a range of ways in which online enrolments are handled by the student management system. But to deal with the increasing demand for flexibility, the administration system is has to be modified so that online and flexible enrolments can be dealt with as a separate class list when required as well as an integral part of the main institutions functions for funding and accurate record keeping.

Flexible, Continuous access

The issue of continuous, flexible enrolment and commencement is an accepted norm within VET providers. However, such an enrolment system has important ramifications for the teaching and learning process. For example, if there is continuous enrolment (as in the case of Athabasca University) we find that, though it appeals to the independent self-paced learner, it also usually rules out any meaningful communication between peer groups of students. For while there will be fellow students enrolled in the same subject, there may be little incentive or opportunity for collaborative tasks or even discussion, because they are all at different stages of completion. Similarly, continuous enrolments pose a challenge to induction programs and attempts to synchronise field trips, study tours or workshops. In managing the change to online, consideration needs to be given to the advantages and disadvantages of managing groups of students as a

cohort as opposed to a continuous stream of independent but perhaps isolated learners.

Conclusion

The organisational support systems which underpin successful online delivery involve a proactive stance by senior management in the area of creating a shared vision and strategic plan, in rewarding staff and supporting them with appropriate resources, technical hardware and support staff. It is also clear that there must be a practical and seamless alliance between the various service sectors of the Institute in terms of library access, and the student management system.

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Chapter 7 Change Management Plan

Introduction

The Change Management Plan presented below is based on the conceptual framework for this project, and the actions that are being taken or planned within the Institute of Land and Food Resources. The framework for the project is the development and implementation of online delivery of training materials in the context of making the necessary changes to set the direction for and enable this to occur within a large institution with a complex structure.

The previous chapters have outlined some of the initial developments in online delivery undertaken by the Institute, the nature of the existing organisational and management structure, and the particular challenges faced by the project authors in attempting to introduce the change to online delivery. There have, however, been planning initiatives that have led to strategic and operational plans being developed. Structural and management changes have occurred within the timeframe of this project, and are continuing at the time of writing, that will lead to significant changes in operational processes. These, and future actions that are planned here but have not yet been implemented, should lead to the changes necessary to implement online courseware delivery.

The action plan for change management at the Institute of Land and Food Resources contains a number of interrelated events that sit within a broader strategic plan. The change management process can be diagrammatically presented as a chain of overlapping links. The momentum and sustainability of the organisational change is only as strong as the weakest link.

Figure 3 depicts the recommended integration of services which is required for successful change management to online delivery.

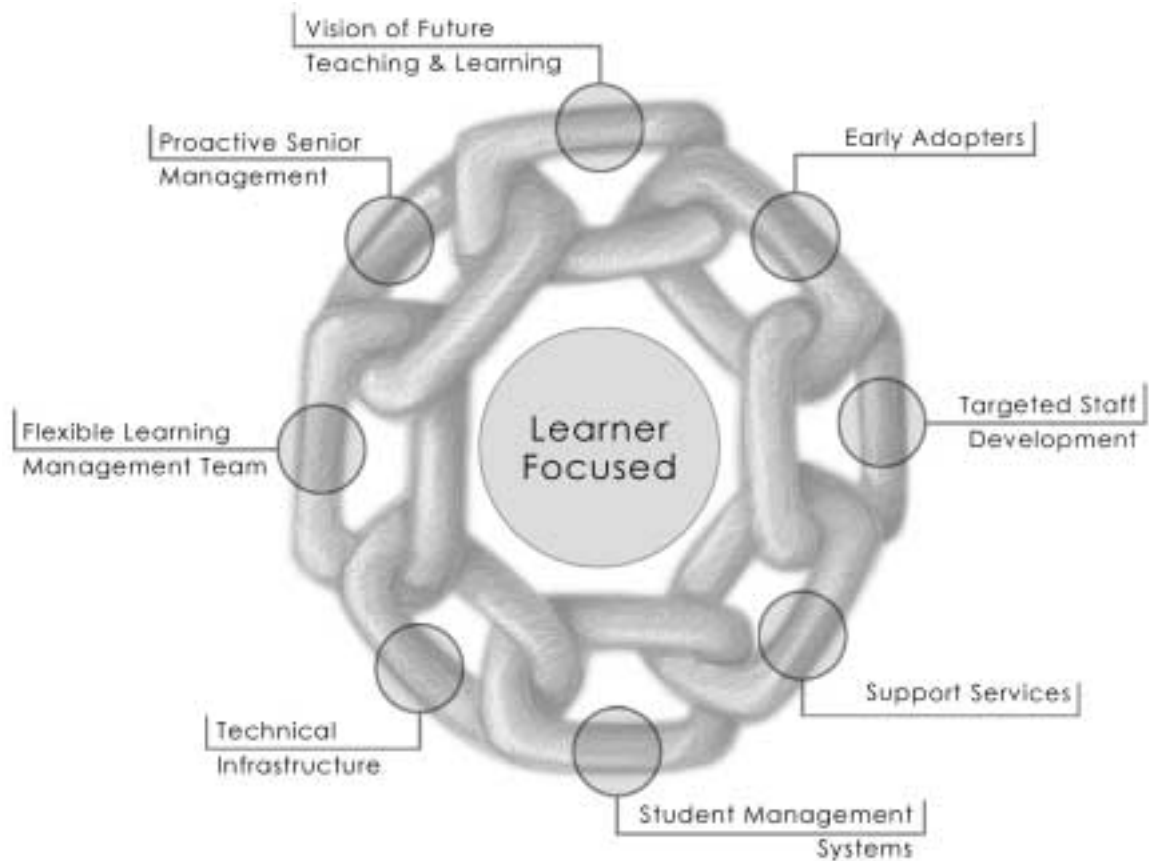


Figure 3. The Chain Model

Each of the ‘links’ can be considered as an essential element in the change management process. These will be considered in this chapter.

Vision of future teaching and learning

Applying online technologies to teaching and learning in a flexible delivery environment leads to a significant change in the teaching and learning processes. In the discussion of instructional design in an earlier chapter, a transition process was identified from online technologies being used to supplement existing course materials and processes, towards the implementation of new models of teaching and learning that are enabled by the use of the technology. On an institutional basis, the application of new models of teaching and learning requires a shared understanding of the rationale for using new methods, the value and potential benefit from using these methods, the models that are seen to suit and support the Institute’s mission and operations, a framework for applying these to flexible delivery design and development, and an operational process for ensuring that these are applied with an evaluation system that can clarify outcomes against expectations and guide a process of continuous improvement. To achieve this we need go to beyond the processes associated with management. Creative leadership is required to shape the necessary

vision through consultation, dialogue and expert advice, and to 'sell' the vision, and the operational process for its implementation, to teaching and support staff across the Institute. Without this leadership process, either the actual development will be constrained within a narrow framework relating to pre-existing methods, and/or several groups will push in different and possibly conflicting directions, which will make it difficult for the potential benefits from online delivery to be achieved.

Creative leadership is required to shape the necessary vision through consultation, dialogue and expert advice, and to 'sell' the vision, and the operational process for its implementation, to teaching and support staff across the Institute.

An example of the application of new models of teaching and learning is the Faculty of Agriculture at UBC. This faculty, as part of a curriculum restructuring process, adopted problem based learning as the preferred model of teaching and learning. This model has been applied to the development of all new subjects in the curriculum. At the time of the project team visit the university was giving consideration to how this model would be applied to flexible delivery projects (Garner, 2000). Also at the University of British Columbia, Professor Bates had been seconded to work with a Deputy President of the university to facilitate a series of workshops in which faculties developed a vision of how teaching and learning would be in five years time (Bates, 2000).

The action plan for the Institute is to implement a similar process. A wide cross section of teaching staff needs to engage, with senior management, in a creative visioning process. This needs to be structured so that the whole range of potential implications and outcomes from the use of online technologies in flexible delivery can be considered. The framework for consideration needs to include strategic reasons for using this technology, potential yet achievable benefits, any problems and potential hazards associated with not making the transition, such as being left behind by other institutions, the implications of changes to current teaching practices and flexible delivery methods.

Within this framework, teaching staff need to be encouraged to be investigative and creative initially by imagining possible future scenarios in which the online technologies can be used to enable more favourable learning outcomes, while reaching a feasible plan to which the senior management are committed, at the end of the process.

Early Adopters

Early adopters sometimes point the way for others to follow within an organisation. As identified in the chapter on staff development, however, the organisation needs to go beyond the original ideas

towards a structured development that involves many staff members. Within the Institute, many of the early adopters of the new technologies have been included in a Multimedia Committee that is a subcommittee of the Coursework Programs Committee, so that their experience can be applied to new developments. This committee considers on-campus multimedia proposals as well as those associated with off-campus flexible delivery initiatives.

Proactive Senior Management

The action plan for this area will be set within the broader Institute Strategic Plan and more specifically within the Multimedia Strategic Plan, and involves creating a shared ownership and accountability for the implementation of online learning on a broad scale across the Institute. In this instance, the primary starting point is to get proactive support for online delivery from the most senior managers of the Institute – the Heads of Department. It is this group that in our Institute has the responsibility for allocating staff time release and resources to enable wide-scale online development to take place. Without the active support and shared accountability from a Head of Departments for delivering agreed projects on time, individual staff members face an inevitable conflict of priorities.

The specific actions to achieve this shared vision will be:

1. Conduct further meetings with the Change Management Support Group setting agreed outcomes and an online target ‘calendar’.
2. Meet with Heads of Department, discuss time release and strategic priorities and funding support for the staff within their sections.
3. Ensure that Heads of Department are involved with all proposals for the development of online courseware, and that issues relating to the content, staffing, timeframe in which the project will be developed, and availability of staff time, are addressed at the proposal stage. Agreement needs to be reached between the staff member proposing the project and the Head of Department with the funding body to ensure a strong commitment to project development within necessary timeframes.

At a broader level, all senior managers need to share in the wider vision and associated operational process referred to above. It has been extremely difficult, to date, to implement projects associated with online technologies because a number of senior managers in critical roles have not been included in any planning process and are not aware of the existing strategic and operational plans. The visioning process must include as many senior managers as possible. It must also have an operational plan that all senior managers are aware of and are committed to so that all decisions that have a bearing on the implementation of the vision take this operational plan into account.

Another specific action in relation to change management is to ensure that operational plans are endorsed by senior management groups. Additional actions will be needed to ensure and maintain the 'buy in' from these groups. These will include regular reports that provide evidence of achievement of the goals included in the visioning process.

Flexible Learning Management Team

The authors of this report have complementary roles in the change management process relating to the implementation of online technologies in flexible delivery. These are:

- Flexible Learning Coordinator
- Manager, New Learning Technology

Developments relating to these roles have had a major impact on the Institute's capacity to develop and use online technologies in flexible delivery courseware. As the Flexible Learning Coordinator has management responsibility for flexible delivery, and the Manager, New Learning Technology has management responsibility for computer-based instructional materials, these roles intersect in relation to online technologies for flexible delivery.

Both of these positions have recently been created to facilitate change within the Institute. The Manager, New Learning Technology position was created two years ago to provide leadership in the development and implementation of computer based learning technologies. The Flexible Learning Coordinator is a new position designed to manage the quality and production of flexible learning materials for the Institute (previously managed separately on several campuses). The establishment of this position follows the decision to create a Flexible Learning Centre. Specific activities relating to these positions, current and planned, are central to the change management plan. These activities are outlined below:

ILFR Flexible Learning Centre

One of the major change management initiatives has been the establishment commencing in the second half of 2000, of a Flexible Learning Centre which will service all students across the Institute. In January 2000, tenders were called for the printing and dispatch of all flexible learning materials for the Institute. The results were ratified firstly by an internal panel of senior staff and then by the University of Melbourne minor tender board. The process was finalised in March 2000, with the Glenormiston site announced as having been awarded the successful tender.

Flexible Learning Coordinator

A further change management initiative, which has recently taken place, is that of the appointment of a Flexible Learning Co-ordinator for the Institute. This position is to provide leadership and effective co-ordination of the delivery of high quality education and training packages across the Institute. The Co-ordinator will have the responsibility to initiate and oversee the quality assurance process in the production and delivery of learning materials and facilitate staff development and student support measures appropriate across all sites of the Institute. A further key responsibility is to seek funding grants and tenders and form collaborative staff teams to work on learning materials and new industry initiatives in liaison with relevant senior and academic staff and course co-ordinators.

Website

At the Institute of Land and Food Resources, the change management process has involved the development of a Flexible Learning Centre web site. The site presents an integrated range of support services appropriate for several subsections of the Flexible Learning audience - current students, new prospective students and staff. The website, which is still under construction, can be found at: <http://flc.landfood.unimelb.edu.au>



Figure 4. Flexible Learning Centre website

ILFR Flexible Learning campus visits

An important part of the change management process is to talk to all the staff most likely to be affected by the change. This includes academic, general and administrative staff. By visiting each of the campuses and conducting open forum style workshops, which lasted up to three hours, it helps to ensure that staff, particularly those located at regional centres, are kept involved in the process and have a chance to voice their concerns and suggest ideas for the future. In introducing a new centralised Flexible Learning Centre in 2001, it was important to start the discussion process well in advance of implementation. Between April and June 2000, three staff members travelled over 2000kms around the eight campuses and spoke with over 40 staff at the different sites. The schedule was as follows:

Parkville, April 27, Creswick, May 3, McMillan May 8, Burnley May 9, Gilbert Chandler, May 9, Longerenong, May 17, Dookie May 18, Glenormiston June 6.

The following key issues were discussed:

- Procedures for improving the quality of the learning materials
- Staff development priorities
- Copyright on academic content
- Developing a consistent presentation across the Institute
- Identifying flexible learning students through the Student Administration system
- Storage and transfer of originals & issuing ISBN numbers
- Developing agreed production and dispatch schedules through course co-ordinators
- Ordering and paying for supplementary materials
- Providing a clear definition of flexible learning materials

Flexible Learning Centre structure

The accountability for the Flexible Learning Centre rests firstly with the Coordinator and from there with the Head of Campus, Head of Department, Head of TAFE and Associate Dean Coursework programs.

The functions to be performed are at an Institute and not site based level

The staffing is largely site funded with production costs being allocated proportionately to departments under arrangements that are the same as those for on campus subjects.

The staffing consists of the full time Flexible Learning Co-ordinator plus a full time Administrative assistant as well as up to five other general staff involved on a sessional basis at peak periods.

Flexible Learning across the Institute is overseen by a Flexible Learning Committee which has representatives from all campuses. Its role is to develop policy, procedures and staff development activities which will enhance the quality of flexible learning, in the higher education and VET sector.

The centre currently accounts for 64% of the Advanced Diploma EFTSU and 80,000 hours SCH. These figures will increase as more Institute wide data becomes available.

Successful funding applications have been made to:

- The University of Melbourne Teaching and Learning (Multimedia and Educational Technologies) Committee;-Priming Grant
- Telematics Trust;- joint award of \$23,000
- ANTA Flexible Learning Fellowship – joint award of \$30,000
- Tender for Flexible Learning production for the Institute- \$300,000

Manager, New Learning Technology

This position was established to manage the development of multimedia materials to support teaching for on-campus and flexible delivery programs, and to provide leadership and promotion in the development of new educational products. Some of the activities relating to this position have been important steps in establishing the Institute's capacity to design, develop and implement online delivery. These include:

- Assisting with the establishment of a Master of Agribusiness Course, delivered mostly using online technologies. This course was aimed at students who could not attend an on-campus course as they live and work in rural areas. It started operation in February 1999, to students who are mostly in management positions in rural and regionally focused businesses.
- Supporting applications for funding to develop multimedia courseware, including online flexible delivery projects. Funding has been obtained from:
 - The University of Melbourne Teaching and Learning (Multimedia and Educational Technologies) Committee;
 - Telematics Trust;
 - The Victorian Office of TAFE (now PETE).
 - ANTA Flexible Learning Fellowship

In addition, funding has been recommended by the Institute's own Multimedia Subcommittee of the Coursework Programs Committee, and subsequently allocated to several projects.

- Instructional design and project management for several projects completed or currently under development by the Institute's teaching staff, including the 'Soil Characteristics and Survey Techniques' project for the Victorian Office of PETE.
- Strategic planning support for the ILFR Information Technology Strategic Plan and the ILFR Multimedia Strategic and Operational Plans.
- Evaluation studies have been carried out on student learning from online courseware. These will be of assistance to teaching staff who are developing online courseware, by indicating the aspects that students value, and that improve the quality of learning. Several studies have been published.

Multimedia Development Unit

This unit was formed in early 2000 with the employment of a Programmer and Part time Graphic Designer, reporting to the Manager, New Learning Technology. The unit's first major project has been 'Soil Characteristics and Survey Techniques', a competency module for online delivery through the Victorian Virtual Campus, and funded by the Victorian Office of PETE. This unit can produce on-campus multimedia and online flexible delivery projects.

Targeted staff development

As discussed in the chapter on Staff Development, a series of workshops has been planned, and several of the introductory staff development sessions have been offered across the campuses. This plan is ongoing, with two-day development workshops scheduled for September and October. The two-day workshops are designed to enable teaching staff to produce a brief prototype for their project if this is possible using web pages. The aim of the workshop is to address the teaching and learning issues associated with the project by enabling the participants to address these within the context of producing a tangible product. In this way, hands-on experience is gained while understanding of the issues associated with teaching and learning during this mode is enhanced. The participants will also address the issues required in writing a proposal for funding. This process requires a comprehensive analysis of the teaching and learning issues associated with the project.

Following these workshops, the action plan is to establish an ongoing staff development plan, in which the existing workshop program will be repeated to enable workshops to be available for teaching staff who were unable to attend this year, and new workshops designed to build on the skill level attained by participants in current workshops. Possible topics for new workshops include:

- Developing online courseware
- Conducting online discussions
- Evaluation of online learning

Within these broad areas there is scope for flexibility of offerings. Staff development has been offered by arranging sessions on particular campuses, at times that appear to suit the staff on that campus. Staff development can also be organised for particular groups with a common interest in a particular subject area. Through discussion of the issues raised by staff during, or even before, the workshop broad topic areas can be adapted to meet the specific needs of participants.

The action plan in this area is to offer a schedule of staff development workshops. These could be arranged as follows, depending upon evidence of demand.

Incentives

To provide incentives to develop online courseware, the Institute has established a budget for multimedia development. This budget enables grants to be made to teaching staff proposing to develop either multimedia projects for on-campus use or online courseware.

To complement the staff development workshop program above, small grants were offered as priming or pilot project grants. These are in the \$1,500 to \$5,000 range which will enable a staff member to travel to visit other sites, 'buy time' by arranging for a sessional teacher to take some classes, employ a research assistant or a programmer to produce a small prototype. These small grants are offered to work with the staff development workshops to enable teaching staff to gain some familiarity with the technology without the stress of having to complete a major project. It is anticipated that most of the recipients of these grants will follow up their startup project with a more significant development.

Small grants are offered for staff to work with the staff development workshops to enable teaching staff to gain some familiarity with the technology without the stress of having to complete a major project.

Teaching staff can also apply for larger grants to complete projects such as developing a competency module for online delivery. Instructional design support is available in addition to funding for these projects. In many ways the best form of staff development does not

involve workshops. By developing a project with an instructional designer, the teaching and learning issues are all examined comprehensively, so that an understanding of how online technologies can be used to enable effective methods of teaching and learning is attained.

The process for awarding these grants is to call for expressions of interest (one page) which outline the subject area, the project, and the proposed budget. These are considered by the Multimedia Subcommittee referred to above. Small grants can be awarded based on a satisfactory one-page proposal. Proponents for larger grants are provided with feedback from the committee. This includes suggestions for developing the proposal further, and an indication of any issues that would need to be addressed in a proposal. Proposals for larger grants are made on a form that allows limited space for a series of questions relating to the overview of the project, the teaching and learning model or strategy to be applied, the proposed evaluation process, the proposed method of developing the materials and the design and development schedule, the breakdown of the budget and a justification. The availability of appropriate IT support and hardware is also considered.

At the proposal stage, the committee may recommend a budget or suggest further planning work that may be needed. A small startup grant may be awarded to assist the proponents reach the full proposal stage. Staff development workshops are scheduled so that proponents can attend these while they are developing their proposals. Recommendations for the allocation of a budget must also be endorsed by the Coursework Programs Committee.

The action plan for change management is to continue this process with greater coordination of the schedule of staff development workshops and the expression of interest and the proposal stages. Many of the teaching staff who attended workshops submitted expressions of interest, indicating that the coordination of these activities is having some effect. Another important aspect of the action plan is to require a letter of support from the proponent's Head of Department if the budget involves funding for staff release. This has to indicate the intended replacement and the time the proponent will have available to complete the project, with a view to ensuring departmental and senior management support.

PETE soils project

The 'Soil Characteristics and Survey Techniques' project has been a valuable aid to staff development as it has been a major online delivery project using a specific instructional model. This model uses many of the features of online technologies, and many important learning methods. In a problem based learning framework, scenarios are presented to the students using audiovisual technology to add realism. Students are required to conduct an investigation using online resources, and to respond to assignments electronically. They are also

required to make use of an online discussion forum to share ideas relating to the learning tasks and the assignments. It has been a valuable demonstration of online technologies in staff development workshops.

Several staff members have indicated that the project is a useful model that they would like to use for their own project. This project, and others developed or under development within the Institute play a valuable role in showing what Institute staff can do using these technologies.

Technical infrastructure

Online delivery cannot be implemented without the appropriate technical support infrastructure, including hardware, software and technical staff. Within the Institute, action has been taken to obtain funding to improve the computers used by teaching staff, to improve the network infrastructure on several campuses, to upgrade student computer laboratories to ensure that there is access to multimedia capable computers on all campuses, and to purchase a new server specifically for courseware. A server specifically for this task, with technical support, will enable online delivery. The upgrades to the student computer laboratories will enable access to online materials for students who can attend the campus at a time when the laboratory is open (for some campuses, 24 hour access by swipe card has been arranged).

Access for students who cannot attend a campus is by their own computer and ISP. It is desirable to find alternative means of access, such as through schools, libraries or community centers, for students who wish to study online but do not have access to the Internet from home.

The action plan in this area is to investigate a learning network arrangement that will enable increased access to online courseware.

Student management systems

As indicated in the previous chapter, student management systems need to cater for online enrolment and support for the online student. The action plan in this area is to arrange with student administration for a mechanism to be created that allows students to enrol online, preferably on a continuous enrolment basis. Additionally, a category of online delivery needs to be created so that students choosing this mode can be readily identified within an overall class list, so that their particular needs can be catered for.

Support services

A range of support services is required to enable online delivery to be effective. Some of these have been discussed above. As mentioned in the previous chapter, support for staff requires senior management to be proactive in promoting this new form of flexible delivery by making these developments one of the criteria for promotion, and by providing time release for staff to enable them to develop online courseware. These matters are discussed in greater detail above.

Support services for students are critical if online delivery is to succeed. Two main areas are essential: telephone and online assistance for technical problems or from teachers, and induction into online study.

1. Telephone and online assistance. If students are experiencing difficulties with access to materials, or with a particular aspect of their study, then they need assistance urgently. One of the main obstacles to online study is the technical matters that need to be addressed before online access to courseware is assured.

Telephone helplines were identified as being essential at several of the colleges visited. These may be arranged for rapid response to any difficulties. At UBC the process was more proactive. A programmer contacted any student who enrolled in an online study module as soon as the enrolment was received to ensure that the student could access the materials before the subject started.

Telephone assistance with enquiries about matters relating to the course materials is also important. In our Institute, telephone support is well organised at some campuses, but not at others. The action plan in this area is to establish an Institute wide telephone and email helpline to provide support for students experiencing difficulty with online study.

2. Induction. Any student who studies online for the first time is likely to experience difficulties. Several of the colleges included in this study had established tutorial support for these students, such as offering a brief on-campus introductory module on how to be an online student, or providing paper-based instructions on how to manage online access and to study online.

Currently under development at the Institute is an online tutorial on how to use the Virtual Campus, including matters such as how to download files and save them, and how to submit assignments electronically through the Virtual Campus. This needs to be supported by paper based instructions and other forms of induction including introductory on-campus or regionally based sessions on access and online study. The action plan is to develop a range of methods of face to face, paper based and online tutorial induction to online study.

Conclusion

By considering all of the 'links in the chain' this action plan covers the range of issues that need to be addressed to enable flexible delivery of online courseware, or online support to supplement existing delivery methods. Each of these areas has been illustrated by the actions that have been taken so far at ILFR, and the planned actions that will lead to the desired outcome. These should provide an indication of the steps needed for implementation of this mode of delivery, and the approaches that are required to deal with the various issues and obstacles that will inevitable arise when the transition to this mode of delivery needs to be undertaken. The implications for other VET providers are considered in the next chapter.

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Chapter 8 Recommendations

Overview

This project is about how to manage change. As illustrated in this report, the transition to online delivery, while it may appear in some ways to be simple, is a highly complex series of events, with a wide range of critical issues that must be understood and addressed. Making the change challenges many of the assumptions about teaching and learning held by teaching staff. In the case of the authors, their assumptions about the operational structure of the organisation have been challenged. Far from being a simple matter of placing existing materials on the Web, the transition to using online technologies can have fundamental implications for teaching and learning that have the potential to lead to changes in teaching practice in the classroom as well as in existing flexible delivery programs.

The report, so far, has concentrated on topical literature, practices at a range of colleges in Australia and overseas, and specific actions that have been taken or are planned at our own organisation. This chapter considers the important issues that must be faced by any VET provider organisation using online technologies for flexible delivery. A detailed analysis of all of these issues can be found in the appropriate chapters of this report.

Among all of the issues, there are some that stand out as being critical to the success or failure of online delivery. These issues, or critical success factors, are reviewed here. Managing the change to online delivery is unlikely to be successful unless these factors are effectively and inclusively addressed. It was clear from the visits to other institutions that no large scale implementation of online delivery had been successfully made without dealing with these issues effectively. These are highlighted as key recommendations in the chapters of this report. They are, therefore, major issues for your organisation.

Critical Success Factors

The following key recommendations have been identified.

Recommendation 1

The implementation of online technologies needs effective leadership and management. Leadership means developing a vision of how online technologies will be used to improve flexible delivery that is understood and accepted by teaching staff. Management means setting out the path to get there, with all the necessary guidelines, milestones, timelines, and warnings of the pitfalls to avoid.

This factor is an effective integration between senior and middle management. Leadership is not the prerogative of one or the other. It is an inclusive process in which staff at all levels contribute to the vision, and accept ownership of the goals and tasks needed to get there. Effective management is needed to handle the process. Guidelines and procedures, forward planning and production schedules, staffing, resourcing and budgeting are essential aspects of the business of making it happen. Senior management have a critical role to play, as the leadership and management roles cannot function effectively without adequate resourcing, support, and integration with other functions of the organisation. The leadership and management functions need to be well integrated for the whole process to be effective

Recommendation 2

The use of online learning technologies should not be seen as an end in itself. Implementation of online technologies needs to be based on instructional design that is linked to key learning outcomes.

Recommendation 3

Evaluation techniques for online courseware should clarify the level of attainment of instructional goals, and be used to identify improvements required in future iterations of courseware.

Online courseware needs to be designed in accordance with high level goals for educational and training outcomes. Some teaching staff may see flexible delivery as a poor relation to the classroom, and the Web as a cheap way to distribute notes. The use of online technologies can enable powerful teaching and learning methods that enable learners to attain high levels of skill to be applied. The design of online courseware should be carried out in accordance with the vision and strategic goals for teaching and learning for the organisation as a whole. In this way, online delivery can make a major contribution to the mission and effectiveness of the organisation. The role of evaluation is a crucial one. Reliable indicators of effectiveness are

essential in any form of education and training. When new technologies and methods are being applied, appropriate methods of evaluation play a vital role in design and quality control processes.

Recommendation 4

Staff development is a major element in the implementation of online delivery. A comprehensive program of staff development that includes: the rationale for online delivery; a range of teaching and learning models appropriate for online courseware; specific designs for courseware and techniques for developing interaction; the project development process; software applications; evaluation methods; and a means of using evaluation data for continuous improvement, is necessary for the development and implementation of online courseware.

Recommendation 5

Instructional design support for project development is an important element of staff development.

Teaching staff need support and guidance to adopt new methods and technologies. They need to know why they should make a transition to alternative methods, and how this will affect their role and relationship with their students. They need clear guidance as to the best ways to use online technologies to enable their students to learn effectively. This can be achieved by systematic staff development through workshops leading to a structured course in how to teach by online delivery, or by providing instructional design support for teaching staff during the development of online courseware.

Recommendation 6

Student support services are integral to online learning and need to be in place prior to delivery.

An organisation-wide approach needs to be taken to implement integrated online student support systems. Both the academic support and administrative sectors of the organisation need to work in seamless combination and be fully available online prior to students enrolling in online courses. In many institutions, appropriate online access to these services often lags behind the commencement of online delivery. Without the provision of adequate support, online delivery will be an unsatisfactory and frustrating learning experience for both students and teachers alike. At its best, well managed support services will be a critical success factor. Online student support services need to include the following elements:

- academic learning supports
 - induction
 - tutoring

- counselling
- study skills
- peer contacts
- discipline/industry resources
- library resources
- administrative supports
 - enrolment
 - financial accounts
 - technical help desk
 - registration
 - assessment
 - certification

This information can be made accessible to students through an institute's web pages and through links from the study materials itself. For example, the TAFEVC in Victoria has a heading of Learner Services under which all the above services can be grouped. Downloading student enrolment information directly from the TAFEVC delivery platform onto the provider institutions student management system is a necessary feature which is currently under development. For students experiencing personal problems or difficulty accessing their online material, the provision of a toll free phone number to counsellors and to a technical help desk is important. These issues are dealt with in more detail in Chapter 5. The alignment of these services is critical to the change management process.

Recommendation 7

Induction programs need to be systematically part of every new online student's enrolment process

Induction programs which introduce a new student to the institute's courses, facilities and staff have long been part of the VET provider's repertoire, but in online programs it is even more essential that a common induction program is systematically conducted. Such a program acts as a checkpoint to assess students' readiness for this type of learning and can help overcome many of the frequently encountered problems and technical frustrations prior to the formal commencement of study.

Induction programs which consist of two related components 'Are you ready for online?' and 'How to be a successful online student' are recommended. These programs incorporate teaching some of the skills essential for successful online learning as part of or prior to, the enrolment process. As one course co-ordinator put it, 'if the student can navigate through and complete the online enrolment registration and

questionnaire, attach files, email a lecturer and access other web pages, they're practically ready to do the course and are indicating they have the necessary skills and equipment'.

Recommendation 8

Operational planning, not ad hoc or just-in-time development is needed to achieve online targets

If the staff vision of wide-scale flexible delivery using online technologies is to become a reality, then the operational plan needs to include clear priorities for online course development and specify the numbers of units to be developed by named groups of staff. One nominated member of the team should be responsible for making sure the development of the project happens by a specified date. An agreed production schedule with due dates prior to key student enrolment and commencement times needs to be widely published and signed off by the production team, course co-ordinator, teacher and relevant senior staff.

Various rewards, grants and incentive schemes for staff involved in online development have been mentioned earlier, but to counter balance that, when staff do not deliver on time then the non-deliverers need to face certain consequences. Not releasing development or time-release money to the relevant section head until work is completed is an option utilised by the University of British Columbia. Alternatively, releasing grant money in a staged manner on the delivery of completed components is an option which can help keep the production on track.

Conclusion

This project, to investigate change management and online, flexible delivery in an Australian, Canadian and North American context, has been both interesting and challenging. Many harder challenges lie ahead in implementing wide-scale online and flexible delivery. To achieve this a change management plan with clear goals and outcomes and the involvement of all staff, including general and administrative staff as well as academic and management leaders, is needed. The change process will not necessarily be a comfortable one but without it, Australian VET provider organisations stand to be left far behind as commercial businesses move into what is seen as the next biggest revolution - global *e*-education.

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What are the strategies used to attract online students?	The provision of Community Access Points is seen as a key strategy. Several computers with internet access are located in each of the communities to facilitate student access to courses and services.
What is the major motivator for online enrolment?	Limited at this point due to the need for preliminary computer and internet skills prior to enrolment in more formal subjects.
What is the design model on which online delivery courseware is based?	Each individual College has its own approach to online delivery so no model exists for Alberta North. A mix of technologies is used including audiographic systems, videoconferencing, Lotus Learning Space and WebCT. There is a transition to web based delivery systems as alternatives such as videoconferencing are perceived to be too expensive. In the attempt to reach a greater degree of commonality the trend is to use web based systems, either Lotus Learning Space or WebCT, and to make the delivery system consistent across all modules in a particular program. This should make the program consistent for a particular student. Many projects have been implemented on a 'Lone Ranger' basis. This has led to some workable models for online delivery, which will facilitate further developments as more funds become available.
What evaluation processes are in place to indicate effectiveness of the online delivery process in meeting institute and student needs?	There is no systematic subject evaluation at this stage.
What is the overall infrastructure for online delivery?	The online infrastructure varies considerably between colleges and the new Alberta North entity has taken a facilitating role and has not imposed a uniform delivery structure. Web CT, Lotus Learning Space, audio graphics and video conferencing. There are plans to introduce a "Campus Alberta" online which will provide a single entry point for information about all courses, campuses and community access points.
How is student induction and support managed?	Student induction and support is still handled at the point of enrolment at the various campuses, face to face is the main delivery approach.
What are the minimum IT specifications for student access	IT specifications are handled by the Alberta North funding providing two or three computers and internet access at each of forty community access points
What technical support is provided for students?	Technical support is provided at the community access points by the staff.

<p>What support is provided for teachers who must develop and deliver online?</p>	<p>Staff development is seen as an important measure to support online development and one and two day workshops are held in various locations around the region. Staff development is designed to be paced at teacher skill levels, which vary considerably.</p>
<p>How is enrolment for online students managed? What are the financial management and support processes?</p>	<p>Enrolments are taken at any campus for courses offered across the full range of sites, funding is claimed by the teaching location for that enrolment.</p> <p>This is a government funded initiative to save costs and avoid duplication. Recurrent funding is now needed to keep the process moving forward.</p>
<p>How is staff development for online delivery managed? What incentives are provided for staff to engage in staff development and to become involved in development of online modules?</p>	<p>Some state government funding has been provided for training and professional development to support online delivery across all of the colleges. This, however, has focused primarily on using WebCT for delivery. As the colleges are small there is an effort to develop centres of expertise to support development, including staff development.</p> <p>Staff development activities include a number of workshops ranging from 1 day to 5 days in duration, focusing on WebCT development.</p> <p>The major incentive for embracing the new amalgamation is one of survival in a declining population. Online delivery is just one of several strategies that will help make the new entity a reality.</p>
<p>How was the change to online delivery introduced into the organisation?</p>	<p>The amalgamation of the colleges into a single entity of Albert North is still in its infancy but as a means of communication, online is seen as one of the main means as well as videoconferencing for achieving the objectives of reducing duplication and increasing access and opportunities for a declining student base.</p>

Athabasca University, Alberta, Canada.

Question/issue	Response/process
<p>Overview of operation.</p>	<p>Athabasca University, located 150 km north of Edmonton in Alberta, Canada is a distance education provider for over 19,000 off campus students. It has satellite learning centres in Calgary, Edmonton and Fort Murray and has a total staff of 600. Athabasca offers a range of certificate, degree and postgraduate higher education and fee for service programs in business administration, computing technology, health science and education. There has been a significant 54% increase in distance education enrolments over the last three years.</p> <p>Market research conducted by the university indicates that the main feature of Athabasca which attracts students is the flexibility of the programs it offers with continuous enrolment all year round, monthly learning material dispatch and online commencement dates. Students who wish to study independently can determine the location, the time of day and the month of the year in which they wish to study. The student body is made up of undergraduate students who may enroll in one or two third or fourth year subjects in order to complete degrees offered by other universities. The other major student group are adult learners wishing to upgrade their career or employment opportunities. A Master of Distance Education program has 300 teachers and professionals enrolled and is an important staff development program.</p> <p>The distance education materials involve a range of media including print-based learning materials and texts, audio, video, TV, radio, CD Rom, floppy disks and more recently, fully or partially online via the Internet. The selection of media components is determined by the subject expert and developer on the basis of the most appropriate fit for a particular subject matter.</p> <p>The university's organisational structure aims to be student centred and this is reflected in the integration of significant resources, personnel and data collection in the technical support, administration and student counselling areas. Within the senior management structure of Athabasca University there is a Vice President, Student Services who is responsible for the meeting of widely published student support service standards..</p>

<p>What types of courses are offered online?</p>	<p>Of five hundred and twenty five subjects, less than 10% are fully delivered online. 15% have an important online component all have email access to lecturers and university services. The primary courses offered at Athabasca that are fully online are in the computing degree area, or Masters programs. Every subject has a minimal online component with email access to lecturers, the university student administration and finance systems. The proportion of material available online is selected on the basis of the best fit between the subject content and objectives and the students learning needs.</p>
<p>Who is the target group?</p> <p>What student support services are provided?</p> <p>What are the strategies used to attract online students?</p> <p>What is the major motivator for online enrolment?</p>	<p>Athabasca draws students from across Canada and overseas. 57% are local Alberta students, 40% are from other states in Canada and 3% are international. 64% of students are female and may be completing high school or degree subjects, upgrading career or employment skills, or pursuing a personal interest. The majority of undergraduate entry students,(67%) have some post secondary level of qualification.</p> <p>Student support services at Athabasca have an extremely high profile as indicated by the senior appointment of a Vice President, Student Services. Student support services encompass student academic and personal counselling, enrolment, library, off campus learning centres, course material production and multimedia, computer and technical helpdesk and information services as well as forming an important link between the various academic, support and administration sections of the university.</p> <p>The most important marketing strategy is word of mouth reports on courses and subjects offered either online or via alternative media. Student views are therefore very important as are student support services.</p> <p>Keeping the administration structure of the university flexible and responsive to student needs is a key means of attracting students whether selecting to study online or by other media. The most significant means of publicising courses is via word of mouth from current or past Athabasca students.</p> <p>The flexibility of starting a course at any time of the year is seen as the major feature attracting students. The ability to email and achieve quick feedback and assignment return times is also an attractive feature. Connections to fellow students via online discussion forums is currently a limited option due to the continuous enrolment process, which does not group students into subject cohorts who are studying a particular issue at any one given time.</p>
<p>What is the design model on which online delivery courseware is based?</p>	<p>No specific instructional design model is prescribed for the university, and different faculties choose the software and design approaches that suit them. Athabasca does not have a concept of courses being entirely online, with the</p>

<p>What evaluation processes are in place to indicate effectiveness of the online delivery process in meeting institute and student needs?</p>	<p>exception of the MBA program. Rather they see an online component as being a significant part of most of the subjects they offer. The Department of Commerce and Administrative Studies, for example, uses Lotus Notes as the delivery system. This is configured entirely for browser access as they found that the Lotus Notes Client software required too much technical support.</p> <p>An important aspect of Athabasca's operation that has a major influence on design is continuous enrolment. The policy is that students will be able to start at any time, and there is a mailout of study packages every month. Students can start at any time and work at their own pace, with the exception of specific exam times. Course materials, including the online component, are designed for the student to work with individually, as many students prefer to work this way. For students who prefer to work in a paced, group focused manner, some subjects have an e-class that works over a semester with a specific start time. These groups make use of online discussions and collaborative activities. For these groups the instructor will customise the online courseware to suit the needs of the group. Students can choose which mode they prefer.</p> <p>Students are sent a paper based evaluation form after each subject. Response rates are low. Some evaluation studies are conducted but no information on these was available at the interviews.</p>
<p>What is the overall infrastructure for online delivery?</p> <p>How is student induction and support managed?</p> <p>What are the minimum IT specifications for student access?</p>	<p>Online delivery is predominantly handled on a subject by subject basis with significant technical and student support services. Within courses, the online navigation is common throughout. In the online computer courseware, web based Lotus Notes is used as the common format.</p> <p>As Athabasca has continuous enrolments all year and monthly dispatch/commencement dates, induction as such is self paced and done within individual subject materials with print based and online sharing common formats and style guides. Extensive student support is provided in the individual counselling and technical helpdesk areas. After two weeks, students receive a personal phone call if they have not logged on. Prior to enrolment, students complete an "Am I ready for Athabasca" questionnaire which outlines the successful time management and self disciplinary skills that will be required to be a successful flexible learning student and directs students to various counsellors and helpdesk functions. Some courses such as the Master of Distance Education has a two week induction program built into the start of each course which leads students through a self paced induction set of exercises.</p> <p>Low end IT requirements are set for most courses to maximise student access except where computer programming courses necessarily demand fast machines. 89% of students have internet access either at home, via an oncampus facility, or through their work.</p>

What technical support is provided for students?	Substantial technical support services are provided online and via a freecall helpdesk. Data on the frequency of assistance calls and the response time and rate are recorded for quality assurance checking.
What support is provided for teachers who must develop and deliver online?	A subject author's guide is produced by the Educational Media Production unit which includes style guides and teaching and learning principles. Subject development follows a similar process of development whether an online component or print, video or audio based learning materials are required. A collaborative team approach involving a subject expert, instructional designer and project manager are involved with specialist assistance called in as required. A large number of subjects are substantially print based with essential texts provided.
How is enrolment for online students managed?	Students can enrol online via the Athabasca Information Centre using a tollfree touchphone number or print based application forms into the student administration system as standard distance education students. Students studying online are not distinguished separately as such.
What are the financial management and support processes?	As the entire Athabasca University is a distance education provider, there are no separate financial structures to support online and flexible learning options. This is integral to the entire organisational structure.
How is staff development for online delivery managed?	The central Computing Services section conducts instructor training in how to teach using the online technologies. Staff also have support from instructional designers, who may be part of the central support services or belong to the faculty. There is a program of research on pedagogy conducted by faculty members running the Masters in Distance Education.
What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?	Instructors may be given relief from teaching to write the materials for a new subject. The alternative is to hire subject matter experts to write the course materials. These may be paid \$10,000 - \$12,000 to do this. Subject writers work in a team with editors and any other specialists that may be needed.
How was the change to online delivery introduced into the organisation?	As Athabasca is an entirely distance education university, the transition to making use of online technology is an extension of print-based distance education materials. As such, the transition is not seen to be one that requires any structural change or a major change in focus. The central production unit, and several of the faculties, have hired support staff to manage the technical aspects of online subject development and delivery. As there was no central prescription about how online delivery was to be introduced, each faculty evolved its own independent solution, with some central support.

Cerro Coso Community College, California, USA.

Question/issue	Response/process
<p>Overview of operation.</p> <p>What types of courses are offered online?</p> <p>What student support services are provided?</p>	<p>Cerro Coso College has established its own 'Virtual Campus' (http://www.cc.cc.ca.us/cconline/) that is equivalent to a campus site to deliver online subjects and courses. This has, in effect, been the growth area of the college enrolments, compensating for declining enrolments in the college's traditional business due to a declining rural population and the downsizing of a military base in the area. The college has five sites spread over 18, 000sqm wide area of mountains and desert in California. The college aims to enable students to complete entire diploma and degree programs online, and is in the process of rapidly expanding the number of subjects on offer in this mode. At the time of interview there were 89 subjects offered online.</p> <p>Subjects are offered across the entire curriculum of the college mainly in the business, economics, humanities and information technology areas. The website (http://www.cc.cc.ca.us/cconline/) is the best source for details of the current offerings. Prerequisite high school level English and Maths classes have a low completion rates.</p> <p>The student support services are in the area of online and toll free telephone counselling, technical support and library services. A lot of the support to online students is provided by a core of three CC Virtual Campus staff and one part time student counsellor based at the Ridgecrest campus. Student support services and particularly the online programs, "Are you ready to learn online" and "How to be a successful Online student" are seen as critical to the success of the online program. More support was required for mature age students less familiar with computers and accessing online resources. They have now amalgamated their various web sites to form a virtual student services centre.</p>
<p>Who is the target group?</p> <p>What are the strategies used to attract online students?</p>	<p>The normal student population of the college is the principal target. That is undergraduate young students seeking to complete their degree. This population is widening due to the availability of online delivery. Entry is open to anyone over eighteen years of age. Online students now form 14% of the total Cerro Coso enrolments.</p> <p>There has not been much need for special marketing for online courses as students have self-selected this mode of delivery.</p>

<p>What is the major motivator for online enrolment?</p>	<p>The student population in the area is widely dispersed, and many students live a long way from any of the campuses. Online delivery is a way for students to study without having to attend a campus. Most students access the subject materials from home.</p>
<p>What is the design model on which online delivery courseware is based?</p>	<p>The group responsible for managing online delivery developed a template that provided a series of related page headers using Microsoft Frontpage software. This has the effect of ensuring that information is prepared under each of the headers in the course writing process. The template can be seen at http://www.cc.cc.ca.us/ccolsamp/ClassHome.html . Everything below the headers is the decision of the course writer.</p>
<p>What evaluation processes are in place to indicate effectiveness of the online delivery process in meeting institute and student needs?</p>	<p>There is no formal evaluation process. Students will send emails or telephone if they are not happy or feel that they are waiting too long for feedback on assignments. The feedback tends to be informal and immediate, and there has not been time to collect formal data. Staff with poor student interaction skills may not be rehired.</p>
<p>What is the overall infrastructure for online delivery?</p>	<p>The small core of Virtual Campus staff are based at the Mammoth Lakes and Bishop campuses. Interested lecturers self select to be involved in developing subjects for online delivery.</p>
<p>How is student induction and support managed?</p>	<p>Induction is conducted over the first two weeks of a program, one week is face to face contact in a computer laboratory then one week of online exercises. There is an online induction videotape, a booklet and a syllabus “Becoming a Successful Online Student” Part 1 & 11. This involves activities and how to get connected, send attachments, use a newsgroup, effective online research techniques. The self quiz section helps students self assess their skills as beginning, intermediate or advanced. There is a student counsellor available online and via a free call number.</p>
<p>What are the minimum IT specifications for student access?</p>	<p>The technological specifications aim to be low end to maximise student access. Hardware and software requirements may differ for different courses eg. Spanish online requires a sound card. Word, Access, browser level 4 and email access are standard requirements. Students mainly have access from home or from on campus computer laboratories at other sites.</p>
<p>What technical support is provided for students?</p>	<p>There is a toll free online technology support provided for American students. There are two student advisors at Mammoth Lakes plus the Director and relevant faculty staff will sometimes advise students.</p>
<p>What support is provided for teachers who must</p>	<p>Faculty members are responsible for all their own online development of course material. A CC College subject</p>

<p>develop and deliver online?</p> <p>How is enrolment for online students managed?</p> <p>What are the financial management and support processes?</p>	<p>template is provided for format guidance and to provide a common physical appearance and navigation style.</p> <p>Online enrolments are separately keyed by Virtual Campus administration staff based at the Mammoth Lakes campus. Online application forms are processed within 24 hours but there is not a good correlation between online applications and the existing student administration system.</p> <p>For the first online offering a faculty member is paid \$500 per unit and \$1500 the first time it is offered. The lecturer owns their own material once it is developed and this partly compensates for a relatively low rate of pay for adjunct faculty.</p>
<p>How is staff development for online delivery managed?</p> <p>What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?</p>	<p>Staff development is organized as an online course for instructors. This has been developed into a certificate course lasting 2-3 weeks. It counts as 1½ credits, which staff can use for salary advances. Instructors who wish to develop an online subject must first complete the online course. This course is now marketed through the statewide college network and has an enrolment that is wider than Cerro Coso staff. Honors students may be invited to become online tutors and mentors to other undergraduate students.</p> <p>Staff who wish to offer a subject online are paid a stipend to write the subject materials and to teach the subject for the first time. The instructor is considered to own the material written for the subject and can, theoretically, offer the same material online through another college. There were no instances of this happening at the time of the interview however. Another incentive is the declining enrolments in the traditional base of the college, due to downsizing of military bases in the area.</p>
<p>How was the change to online delivery introduced into the organisation?</p>	<p>Two teachers offered subjects online on an experimental basis in 1997. The then college Vice President for Instruction supported this mode of offering subjects as a possible means of offsetting the decline in enrolments from other areas. The overt support and political negotiations done by the former Vice President, Instruction was seen by CC Virtual Campus staff as a critical factor in ensuring its establishment and pacifying staff concerns about the changes to online and resourcing and management implications. This mode was seen to be of value as the subjects offered in this way had better numbers than other subject offerings. The decision was made to form a Virtual Campus, based on a centre that consisted of two campuses, at Mammoth Lakes and Bishop. The programs are overseen by a Distance Learning committee that consists of a range of teaching staff from different campuses. All of the online subjects are offered through this centre, regardless of where the instructor is located. As some existing college staff have been reluctant to teach in this mode, many of the online subjects are taught by adjunct staff, so that the program of subject offerings can continue to grow without any staff member being forced to teach in this mode.</p>

External factors including a declining rural population and downsizing of a military base were seen as important motivators for organisational change and as a means of survival for the college as a whole.

Northern Metropolitan Institute of TAFE, Victoria, Australia.

Question/issue	Response/process
Overview of operation.	<p>NMIT are offering online delivery over a wide range of programs including:</p> <ul style="list-style-type: none"> • Agriculture: Certificate 3 in Viticulture (will offer Cert 4 currently being developed by Sunraysia); Herbs and spices. • Business: Information Technologies, Electronics, Commercial Law, Accounting, Workplace assessor. Many of these have been downloaded from ANTA or the Victorian TAFE Virtual Campus. • Further Education, including Coorie programs. • Tourism and Hospitality; many of these are competencies developed by NMIT for ANTA or PETE. • Building & Construction: Electrical Trades and Renewable Energy. • Fee for Service: Information Technology and Music. • NMIT also run training programs for staff on online delivery, and have developed much of the training for PETE for the TAFE VC.
Who is the target group?	A wide range of target groups are being attracted, to participate in the above range of courses, however we are unaware of student numbers.
What are the strategies used to attract online students?	The range of strategies include brochures, the website (including effective use of metadata and contact with major search engines), advertising through the learning network and the VC etc.
What is the major motivator for online enrolment?	Many students like this form of study. NMIT even run a course on how to study online for students.

<p>What is the design model on which online delivery courseware is based?</p>	<p>Online delivery is considered to have more in common with face-to-face teaching than with multimedia or distance education. Consequently a major emphasis is placed on the discussion fora and chat systems in teaching. We did not see any of the study materials, however the emphasis placed on the discussion issue in both teaching and induction is indicative of the type of design model involved. Some of the NMIT materials seen earlier did make significant use of graphics in the presentation style.</p>
<p>What is the overall infrastructure for online delivery?</p> <p>How is student induction and support managed?</p> <p>What technical support is provided for students?</p> <p>What support is provided for teachers who must develop and deliver online?</p> <p>How is enrolment for online students managed?</p> <p>What are the financial management and support processes?</p>	<p>The NMIT Online Flexible Delivery Team operates on a core group responsible for the overall program, and various teams that develop specific programs with a relationship to the core group. They have external partnerships also. There is a major emphasis on fee for service courses, so that the team operates in a relatively independent way to the wider institute due to being self funding.</p> <p>Induction is a major initiative at NMIT. There is a workshop offered on how to study online, and a major part of the beginning of an online course is a series of activities that are designed to be fun, but also teach the skills needed to function in an online environment, such a use of email, cutting and pasting from one program to another, use of chat sessions and threaded discussion lists, downloading files etc.</p> <p>Students are given a CD-ROM that shows how to operate the systems. There is also a helpdesk that will provide telephone and email support. NMIT also operates a learning network that provides access through community centres and libraries.</p> <p>Many courses are offered for teachers, including a course on how to teach online.</p> <p>The TAFE VC is checked every day by an admin assistant for applications to enrol.</p> <p>The On-line Flexible Delivery Team operates as a relatively independent unit, offering predominantly fee for service courses. There is additional financial support from PETE to fund the learning network support centres.</p>
<p>How is staff development for online delivery managed?</p>	<p>No staff member is allowed to offer an online course without going through an induction process. The On-line Flexible Delivery Team operated a range of staff development workshops from ½ - 1 day</p>

<p>What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?</p>	<p>workshops through to a 6 month course in online delivery.</p> <p>Staff development is offered to staff who wish to teach in this way.</p>
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TAFE Queensland Online, Queensland, Australia.

Question/issue	Response/process
<p>Overview of operation.</p> <p>What type of courses are offered online?</p>	<p>TAFE Queensland Online provides a service to other TAFE colleges in Queensland by running online modules. It provides a centralised server operation in a similar manner to the Victorian TAFE VC, but without the same pedagogical emphasis. It provides a centralised administration and hardware support service, including the server, online enrolment system and some material production support. The server houses all course materials plus assignment submission and tracking. TAFE Queensland Online has 16 TAFE colleges as clients and delivery is managed by a system called VETWEB.</p> <p>In March 2000 a wide range of curriculum based modules were on offer. Core Business modules were particularly important. These were applicable to a range of courses. At that time course offerings did not appear to have made the transition to the National Training Packages and units of competency. Each TAFE college chooses the modules it will offer and promotes them locally. Students contact their own college to enroll. Institutions do most of the marketing and are allocated the profile funding.</p>
<p>Who is the target group?</p> <p>What are the strategies used to attract online students?</p>	<p>TAFE Queensland Online has approximately 1000 students, 800 of whom enrolled in early 2000. Delivery to Telstra contractors had resulted in 1200 enrolments, most of whom were Qld based, at the time of the interview. Other program also included 20 overseas students.</p> <p>TAFE Qld Online received a significant boost in numbers by providing Telstra employees with a compulsory industry Occupational Health and safety accreditation. They also rely on their own client colleges to promote online programs through their normal promotional channels. Some statewide advertising was conducted</p>

What is the major motivator for online enrolment?	The major motivator was asynchronous access which enabled programs to run at low cost and with low enrolment numbers.
What is the design model on which online delivery courseware is based?	Modules may run with small numbers of enrolments. There can, however, be students from different institutions enrolled in the module at the same time and accessing the same material and discussion list. Teachers are encouraged to use discussion lists. These are not mandatory. Modules are designed to be relatively self paced and do not rely on collaborative learning. Students may enroll at any time and progress at their own pace.
What is the overall infrastructure for online delivery?	The systems runs with a small number of staff members dedicated to online delivery (administrator, system programmer). There office in located with other central TAFE support services.
What is the minimum IT specifications for student access?	Course content materials were initially designed for low end computers with minimum specifications to enable maximum student access. Graphics are kept flat to minimise the size of JPEG files. A recent (in March 2000) decision established a Pentium computer and a level 4 browser as a minimum specification.
What technical support is provided for students?	A helpline on access problems.
What are the financial management and support processes?	TAFE Queensland Online receives the fee that students pay (eg \$1.00 per hour). The individual college that enrolls the student receives the profile funding (eg \$10.00 per hour).
How is staff development for online delivery managed?	Some support is provided, such as support for TAFE teachers to study units in the USQ Graduate Certificate in Open and Distance Learning.
What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?	
How was the change to online delivery introduced into the organisation?	A state funded government initiative established TAFE Queensland Online specifically to provide online delivery. Institutions were invited to participate. Some institutions had their own system and preferred to continue using these rather than participating in the statewide system.

Rio Hondo College, Los Angeles, USA.

Question/issue	Response/process
<p>Overview of operation.</p> <p>What types of courses are offered online?</p>	<p>Rio Hondo College (RHC, http://www.rh.cc.ca.us) is situated in Los Angeles, serving a primarily Hispanic population. The RHC's Virtual College is managed by Andy Howard, who is also a coordinator for California's Virtual Campus in the Los Angeles region. The Virtual College provides staff development and support for staff who wish to teach a subject online, and overall coordination of the online program.</p> <p>Subjects are offered in the areas of Arts and Humanities, Early Childhood Education, Economics, Management, Psychology, Spanish, and public service courses such as for nursing and the fire department as well as computing and automotive trades. For a complete list see http://www.rh.cc.ca.us/online/list_of_courses.htm</p>
<p>Who is the target group?</p> <p>What are the strategies used to attract online students?</p> <p>What is the major motivator for online enrolment?</p>	<p>The strategy adopted by the college is to target General Education Transfer subjects for online development. This was perceived to be the area of greatest need and popularity as it enables students to transfer to other universities.</p> <p>The subjects developed for online delivery were advertised along with all of the other subjects. No specific strategy to attract students has been needed as the online subjects filled up more quickly than the face to face offerings.</p> <p>The major motivator appears to be convenience for part time study. Rio Hondo does not offer any alternative form of external study, so this mode is selected by students who cannot attend classes. The majority of student access to the online materials is between 8.30 pm and 3.00 am</p>
<p>What is the design model on which online delivery courseware is based?</p>	<p>No specific design model is prescribed, however staff are encouraged, in training courses, to develop subjects in discreet modules with stated objectives for each module and a test at the end of the module. Top Class and Web CT are utilized. The use of discussions is encouraged, by making this a significant part of the subject assessment (such as 20 – 25%). Subjects use streaming audio as part of the presentation, with a transcript available also. Audio presentations may take the form of a slide show. Subjects make consistent use of computer-assessed tests and quizzes (multiple choice or fill the blank) with short answer essays also.</p>

<p>What evaluation processes are in place to indicate effectiveness of the online delivery process in meeting institute and student needs?</p>	<p>Evaluation is left up to the instructor. The college has no regular system of end of subject evaluation.</p>
<p>What is the overall infrastructure for online delivery?</p> <p>How is student induction and support managed?</p> <p>What are the minimum IT specifications for student access</p> <p>What technical support is provided for students?</p> <p>What support is provided for teachers who must develop and deliver online?</p> <p>How is enrolment for online students managed?</p> <p>What are the financial management and support processes?</p>	<p>The online courses are handled separately by the RH Virtual Campus staff of approximately 6, including administrative personnel. They provide enrolment, counseling and academic advice and technical support. The online staff are part of the Rio Hondo college as well as managers of the Californian Virtual Campus. The students are managed as a discreet cohort commencing the subject and progressing through it as a group.</p> <p>Basic face to face classes in computer skills are offered to students who wish to enroll in online subjects. Students also speak to an academic counsellor, who provides advice on the personal attributes necessary, such as being self directed, having minimal computer competencies and able to manage time. An Internet Orientation Handbook is provided. If a student has not begun to access the materials in the first 1½ weeks, a counselor contacts the student to help the student to make a start.</p> <p>A Pentium computer or equivalent Mac with a version 4 browser, either Netscape Communicator or Internet Explorer 4 or greater. 40% of students have computers at home.</p> <p>Students can contact the counselor if they are experiencing difficulty. There is also telephone support for technical difficulties (this is not a major issue at Rio Hondo, as 80% of students access online materials from computer labs on campus, although surveys show that 40% of students have Internet access from home).</p> <p>Staff development is required. This takes the form of workshops and a supported development process for the first subject developed for online delivery by a particular instructor (see below).</p> <p>Six counselors cover 2000 students split into groups. The enrolments are keyed and managed separately. There are 16,000 oncampus students based at Rio Hondo and the student management system currently cannot handle online registrations.</p> <p>The Rio Hondo Virtual Campus is funded as a separate section or department within the normal Rio Hondo college management structure and funded according to student numbers. The California Virtual Campus is funded by the</p>

	state government to the extent of USD \$2.8m over five years and is currently seeking recurrent funding.
How is staff development for online delivery managed?	Staff members are encouraged to develop online subjects by being paid a stipend to develop the subject materials, and for the first offering of the subject online. Online subject development takes place in a training and staff development program that is at least one semester in duration, and may take more time such as over the summer also. Staff development includes workshops, such as a 2 day workshop on the use of WebCT. The extent of staff support for subject development is increasing. Many subjects are developed by adapting commercially available content materials.
What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?	The stipend is the main incentive, although many staff members become involved from intrinsic interest or a desire to keep up with new methods. The stipend was originally \$3,000 to develop the subject and \$1,000 to teach it for the first time. This has now been reduced to half that amount, due to the increased level of support and the availability of commercial material that can be adapted.
How was the change to online delivery introduced into the organisation?	The decision to go forward with this development was made by the college President, in collaboration with the Vice President, Economic and Community Development. The matter was discussed at the college Academic Senate, which is chaired by Andy Howard. This committee supported the development, and the academic staff union also supported the proposal. With this level of support the project was able to go ahead. There is general interest in the development of online materials by academic staff. No staff member, however, is forced to become involved in online delivery. Support of the academic deans has been critical. One academic dean has offered qualified support only. A consequence is that while Rio Hondo offers more online subjects than any other college, a complete degree cannot be offered online as a critical group of subjects is not available in this mode. Staff development is seen as one of the ways in which to infuse the adoption of online delivery across the institute.

<ul style="list-style-type: none"> • Student numbers • characteristics <p>What are the strategies used to attract online students?</p> <ul style="list-style-type: none"> • Undergraduate • Mature Age <p>What is the major motivator for online enrolment?</p>	<p>is 18 – 21 years. The Distance Education and Technology Unit services a total of 5000 students equating to 300 – 400 EFTSU. Of these students, approximately 300 are studying 27 fully online subjects. 50% of the distance education undergraduate students are existing, currently enrolled oncampus students who have a timetable clash or are needing to work. Recently there has been an increasing number of older students, for example nurses and teachers, upgrading to degrees.</p> <p>A significant student survey of 8000 students is currently being undertaken to gain accurate information about the demographics, computer access, learning needs and skill requirements of current distance education students. This data will be compared with information from the oncampus student cohort.</p> <p>The institute strategies to attract online students is to aim for a multiple subject scheduling which will meet the on-campus student demands for flexibility. Most new distance education offerings involve online delivery to enhance the appeal to a wider audience .</p> <p>Due to the increasing interest, there has been a recent move to specifically target the mature age market of professional people needing to upgrade their qualifications. For this market, the flexibility of online and the opportunity to discuss issues online with fellow professionals is appealing.</p> <p>The flexibility of distance education study makes it a convenient and preferred option for 50% of UBC undergraduates which results in a demand for an increase in the number of subjects available online. Both students and staff find the online courses are a more appealing form of distance education.</p>
<p>What is the design model on which online delivery courseware is based?</p>	<p>No specific design model is prescribed. There are several instructional designers in the section. They moved from print based to online development where appropriate and as the technology became available. Individual staff who wish to develop a subject go through a competitive grant process. Successful proposals are supported to the extent of providing \$20 - \$25,000 plus the services of an instructional designer to cover development and continuous improvement (not teaching) over a five year period. The actual design and media use used is selected and developed by the lecturer and designer to best suit the nature of the subject content. Staff are encouraged to use features such as discussion forums but these are not mandatory.</p> <p>A typical subject will have a course package in print which includes readings and introductory material. A study guide and subject content are built into the online materials. Quicktime and PDF are used as appropriate to the content. An important part of the online delivery is asynchronous discussions. One example is to set up a discussion topic for 12 days, with 5 students out of 20 asked to provide discussion starters. This example generated 500 postings in one month. Forums are established in a way that encourages the students to maintain them. The students are not</p>

<p>What evaluation processes are in place to indicate effectiveness of the online delivery process in meeting institute and student needs?</p>	<p>graded on their contribution to discussions. Rather, the discussions are closely linked to assessable assignments to provide motivation for use.</p> <p>Evaluation of tutors and content is carried out on a subject by subject basis using paper forms. This process was under review at the time of the interview (May 2000). In the twelve months prior to interview new online courses had not been evaluated. Some online evaluation forms have been tried - these were found to have a higher return rate. Generally the standard evaluation did not support online delivery.</p>
<p>What is the overall infrastructure for online subject development and delivery?</p> <p>What student support services are offered?</p> <p>How is student induction and support managed for online students?</p> <p>What are the minimum IT specifications for student access?</p>	<p>Online subject development is based on a team approach consisting of a subject developer who is the content expert and an instructional designer who is usually also the project manager. Other staff are called in to perform specific tasks as required such as multimedia animations, quicktime videos etc. Web CT is the preferred delivery platform as it is free, was developed at UBC and is readily transferable to other environments.</p> <p>There are six staff employed specifically in the Distance Education and Technology center who are responsible for the DE website, student services and the dispatch of hardcopy materials and texts to students. They are responsible for the preparation of learning materials and the development of policies and procedures. There is a manager of DE student services responsible for the payment of adjunct faculty members and the setting of minimum standards of response. There is a 72 hour turn around on assignments for staff to mark and a two week turn around for students to receive the marked assignment in their hands. There is currently no electronic data base of distance education students and the support services are done using print based personal files.</p> <p>Online orientation or induction is done on an adhoc subject basis. Some subjects offer a “Welcome to Online Learning” option which includes some introductory skills in how to do an online course. In most cases, it is assumed that students will already have basic computer and internet skills or they would have chosen an alternative delivery mode. All online subjects include a print based component and reader. The print based course handbook which outlines all services provided to distance education students includes a small section on Online access and services.</p> <p>Distance Education and Technology staff are aware of the differing levels of hardware, software, bandwidth and modem speeds that students in varying locations may have. With this in mind, minimum specifications include 486's or Pentium and above PC's and 28.8Kb/sec modem speed . Some subjects also specify a sound card. Large graphic files are heavily compressed and kept to a minimum to be used only where necessary to the learning process. The network infrastructure across Canada needs to be better and faster to allow for real time “chat” and audio functions. Quicktime video and Acrobat PDF files are readily available to students.</p>

<p>What technical support is provided for students?</p> <p>How is enrolment for online students managed?</p> <p>What are the financial management and support processes?</p>	<p>On registration an online student is linked to a programmer and given technical support to assist them to get onto the system what the computer requirements are. There is an online technical help service and information on how to access this is included as part of the course information.</p> <p>Online student enrolments are currently handled separately to the main university student administration system unless the enrolment is from an existing oncampus undergraduate or postgraduate student, in which case the student is enrolled in the UBC distance education program. Technical and professional certificate courses for upgrading qualifications and skills were registered separately by administration staff in the Distance Education and Technology Unit as fee for service enrolments.</p> <p>After operating, research and development costs which were taken out of the \$900,000 Distance Education and Technology Unit annual budget, there was a surplus of approximately \$150,000 which was available to staff to apply for distance education and online development projects. Online application forms and checklist were provided and, once an application was approved, the team approach involving project management, instructional design, content expert, multimedia development, print component and course delivery was implemented.</p>
<p>How is staff development for online delivery managed?</p> <p>What incentives are provided for staff to engage in staff development and to become involved in development and teaching online modules?</p>	<p>Staff development is entirely within the support for the project development provided by instructional designers. Some individual faculties may take this a stage further. The faculty of Agricultural Sciences has established a learning centre. Part of the brief for this centre is to provide pedagogical and technological support for academic staff. The Learning Centre offers several staff development workshops including three day workshops on problem based learning. (PBL) The faculty has made a major commitment to PBL as a teaching method.</p> <p>Teaching staff are paid a stipend of \$6000 to write a 3 credit point subject for online delivery. There is some formal training carried out by the Teaching and Academic Growth Unit. When staff are provided with time release a letter of agreement is signed with the Head of Department. The responsibility for completion then rests with the department. This encourages the Head of Department to ensure that the project is done. Staff tenure processes are to include new technology projects as well as research.</p>
<p>How was the change to online delivery introduced into the organisation?</p>	<p>The move to online delivery has been seen as a natural progression in the development of distance education. Initially there were restraints placed on this due to limited student access to technology. This situation is changing rapidly as more students have internet access either from home, work or computer labs.</p>

A major new initiative was underway at the time of the interview with Professor Tony Bates (May 2000). He had been seconded to work with the Deputy President, Academic of UBC for six months with the specific goal of developing a vision of how teaching and learning will be conducted and the institutional structure to support new developments. This process has involved conducting workshops for whole faculties to facilitate the development of a vision and a series of scenarios focusing on how teaching and learning will be conducted in five years time. These visions and scenarios are developed by the members of the faculty rather than being an imposition from the top. They can therefore be used as a basis for faculty planning.

A part of this process has been to encourage faculty members to consider new markets such as life long learning and continual professional education in addition to traditional undergraduate programs.

A desired outcome of the project is to set up a new (UBC.online) centre based on the current central Distance Education and Technology Centre. There is also an aim to set up a technology supported learning centre in one innovative faculty. The overall strategy is to resource and fund individual innovative projects and to set up support centres to facilitate project development.

The goal from a staff development perspective is to set up a staff development unit that is integrated with the overall plan to support the use of learning technology. This unit would train staff in instructional design and pedagogical issues.

A possible outcome is a central support unit with responsibility for:

- Curriculum development and instructional design
- Project development and production
- Distance Education
- Media Production

Such a unit would be able to deal with issues such as how to develop PBL in an online environment.

The financial issues associated with this university-wide proposal would revolve around establishing the fundamental importance of technologically literate graduates. From this basis the tendency for government grants to cover technology but not operating costs needs to be challenged and the impact of distributed learning on the costs and usage of space on campus needs to be taken into account. From this basis some new approaches to funding with a primary focus on the effective use of technology and innovative pedagogy to support learning can be developed.