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Strategic Planning for Blended eLearning

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Strategic Planning for Blended eLearning

Sandra Wills

Abstract—Although all Australian universities have University strategic plans and IT strategic plans, it is estimated that fewer than 20% have a separate plan for eLearning and eTeaching. The University of Wollongong has recently implemented a new Learner Management System however this technology ramp-up has been accompanied by a two year process of interviews and consultation with committees, deans, managers, academics, students and support staff to:

- more clearly articulate from the educational and strategic perspectives why we use eLearning;
- understand better how eLearning should be supported in a blended environment; and
- inform decision-making about priorities for funding and support.

This has resulted in a *Strategic Plan for eLearning and eTeaching* as well as an *eTeaching Business Plan*. The Business Plan contains 22 actions to accompany the implementation of the Learner Management System. In this paper, using a revision of the MIT90s framework for IT strategic planning, the 22 actions are categorized by the framework's five key factors:

- Strategy
- Structure
- Management processes
- Roles and skills
- Technology.

The revised MIT90s framework proposes that it is never a matter of merely implementing technology, nor a matter of merely stating in a Strategic Plan that technology is important; all five factors must be addressed.

This analysis of the University of Wollongong's 22 actions demonstrates that whilst setting the strategy and structure is essential, the majority of actions are in the two areas of management processes, and roles and skills. Although a number of the actions are only relevant to the University of Wollongong context, the paper outlines several actions that may be generalized to other universities.

Index Terms — Blended Learning, e-Learning, Planning Frameworks, Strategic Planning.

I. INTRODUCTION: FRAMEWORKS FOR IT PLANNING

TEN years ago, a team of nine researchers, including this author, collaborated on a national report for the Australian Government titled *Managing the Introduction of Technology in the Delivery and Administration of Higher*

Education (Yetton et al, 1997). Through interviews with senior managers of twenty universities, we investigated IT planning. All universities had published University Strategic Plans as well as IT Strategic Plans which mentioned the importance of IT in teaching and learning. However only one, The University of Melbourne, this author's previous university, had a separate Strategic Plan for IT in Teaching: *Interactive Multimedia Learning Unit Strategic Plan* (1992). eLearning and the internet was not a reality at the time: the focus was on CDROM, videodisc and multimedia.

Ten years later, despite a substantial increase in eLearning¹, it is estimated that fewer than 20% of Australian universities have a published separate plan for IT in Teaching and Learning (Inglis, Australian Council for Open, Distance and eLearning, 2006). There are some recent **national** strategies that are useful for reference:

- New Zealand, Ministry of Education, *Interim Tertiary e-Learning Framework* www.elearn.govt.nz
- United Kingdom, Higher Education Funding Council for England, *Strategy for e-Learning* http://www.hefce.ac.uk/pubs/hefce/2005/05_12
- Australia, Vocational Training and Education, *Flexible Learning Framework* <http://www.flexiblelearning.net.au/flx/go/home/about>

however, most universities have still not published a set of relevant strategies for their own local context.

The MIT90s framework (Scott Morton, 1991) which underpinned our 1996 research introduced the concept of "fit" and argued that successful organizations demonstrate a high level of fit among these five factors (Fig. 1):

- Strategy
- Structure
- Management processes
- Roles and skills
- Technology.

"In the MIT90s schema, strategic IT planning is the horizontal arm to the cross... When the organizational culture, the vertical post of the cross, is compatible with the implicit assumptions of IT strategic planning, there is a high fit and few impediments to the realization of the strategy." (Wills and Yetton, p.36)

¹ 46% of units at Australian Universities are web supplemented. 54% of units have some web content.

Bell et al, *Universities Online: a survey of online education & services in Australia*, Higher Education Group, Department of Education Science & Training, Commonwealth of Australia, March 2002
http://www.dest.gov.au/sectors/higher_education/publications_resource/indexes/by_series/documents/02_a_pdf.htm

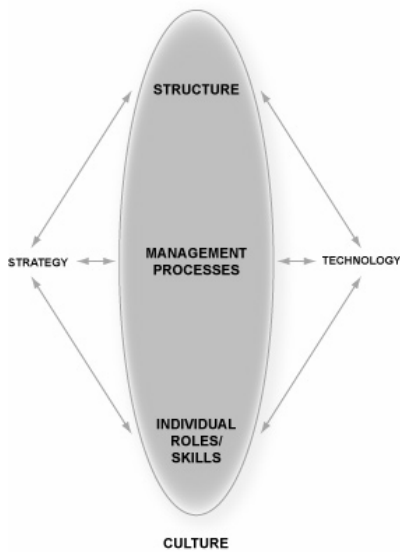


Fig. 1. MIT90's Schema – Culture and IT Strategic Planning

The report recommended an alternative way of looking at the MIT90s framework whereby technology is at the centre of the five factors but “owned” by two competing triangles illustrating the bottom up and top down dimensions of planning (Fig. 2).

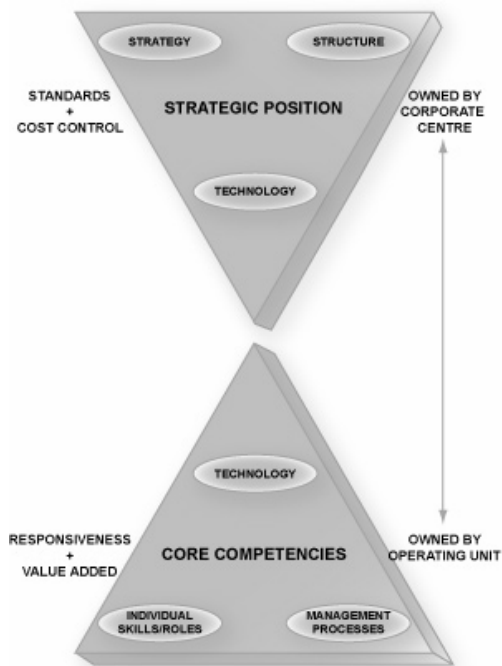


Fig. 2. Dual Roles for IT

“The strategic change and business process reengineering (BPR) literature typically focus on the top triangle, comprising strategy, technology and structure, as the major strategic gains, taking essentially a top-down approach... At the same time, issues about managing change... lie in the bottom triangle... However, because most of the practitioners come to the table with a mind-set of ‘step one, design the top

triangle; step two, implement the bottom triangle,’ the difficulties that arise in relation to the bottom triangle are seen as implementation problems which occur after the event, and therefore as a nuisance factor rather than being central to the process.” (Yetton et al, p.128)

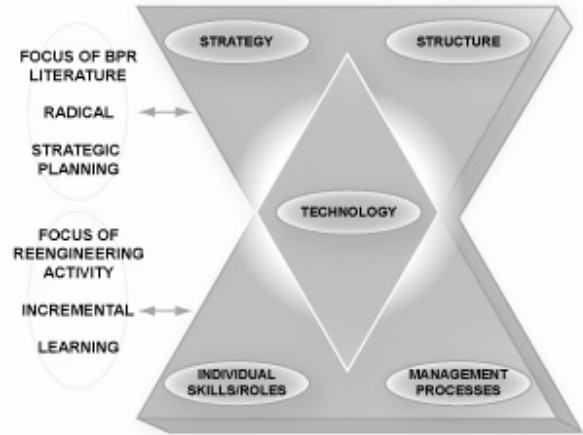


Fig.3. Integrated Top-Down and Bottom-Up Management of IT-based Change

The report recommended that planning would be simplified if technology drew the two triangles together. It is not intended by representing it this way that technology is driving the strategic planning, but it is integral to achieving change.

“Much IT-based strategic change... involves altering the competencies of the organization – and these are found in the bottom triangle. So as well as considering the organization’s strategic position (the top triangle), change requires careful attention to reconfiguring the bottom triangle. In fact an integrated top down and bottom up management of IT-based change is required.” (ibid, p.129)

In other words it is never a matter of merely implementing technology nor a matter of merely stating in a Strategic Plan that technology is important; all five factors must be addressed.

II. PLANNING FOR BLENDED eLEARNING

The University of Wollongong (UOW) has recently implemented a replacement Learner Management System (LMS) however this technology ramp up has been accompanied by a two year process to more clearly articulate why we want to use eLearning, what are the priority uses, how we will manage and support it, and what other things need to change in order to make our eLearning use more effective. Part of this process was to clarify and agree on terminology as interviews found that there was confusion still in many minds that eLearning is the same as wholly online and totally at a distance.

The University’s eTeaching Steering Committee decided on the term “blended learning” to best describe our approach. In order to emphasize the face to face element of a blended learning environment, we defined eLearning@UOW as:

- blending face-to-face and technology-based classes
- linking all University of Wollongong locations world-wide
- using a range of technologies and services
- occurring in various learning spaces.

The range of technologies included the Learner Management System, videoconference, library, electronic portfolio, and streaming of lectures. As shorthand for this definition, we adopted the slogan: “*blending teaching and technology to create global learning communities*”.

In 2004 and 2005, a draft Strategic Plan for eLearning and eTeaching (SPELT) was discussed in a round of presentations to the University Education Committee and its sub-committees; Faculty Education Committees; Deans, Directors and Senior Executive. As per Laurillard’s conversational framework (2002) we do not anticipate that SPELT will be a final public document until we have completed at least another round of “conversations”. The proposed strategic directions for the next five years are summarized graphically in Fig. 4. We have identified “Multi Location Teaching” as the main driver. “Multi Location Teaching” or “Multi Location Classes” is terminology that we have invented for ourselves as better describing our context than “distributed”, “networked”, “distance”, and “online”.

In addition to support for Multi Location Teaching, the draft plan identifies:

- increase in Active Learning; and
- improvement of Internationalization of the Curriculum

as major reasons for eLearning at the University of Wollongong. To take better advantage of the fact that we teach in 22 locations in New South Wales and internationally, and to better emphasize active learning over content delivery, as well as to engage students in internationalization issues, the plan recommends:

*“The specific Graduate Attributes of multiculturalism and team work will be fostered by introducing **Global Learning Projects** in subjects that are blended and multi location so that by 2010 all courses incorporate at least one Global Learning Project: students collaborating online with students in the subject taught at an another location or with students in another University.”*

This recommendation mirrors a similar vision statement for the Global Learning program at Wichita State University:

*“Our **vision** is to provide all students with at least one global learning experience during their program. Our **mission** is to combine **Global Reach**, through modern communication technologies, and **Global Perspectives**, through interaction with learners and faculty of diverse cultures, to produce the **Global Graduate**. Our **Values** are honor, respect, curiosity and critical self-reflection about the many cultures of this world with a view to peace, prosperity and collaboration for mutual benefit.”* <http://gl.wichita.edu/>

The recommendation is still under discussion but it serves here to give an understanding that the University’s directions in eLearning are educationally-based rather than technologically-based.

Directions for eLearning and eTeaching at UoW

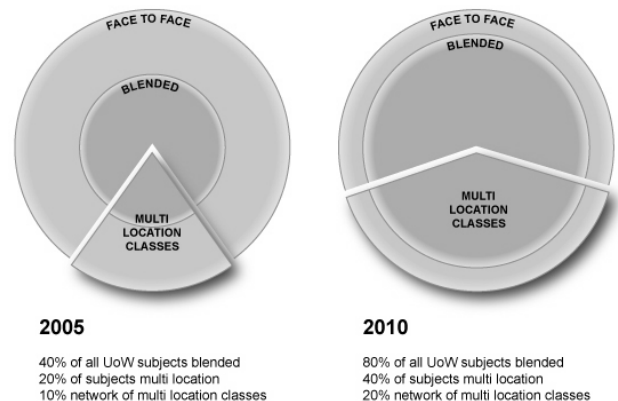


Fig. 4. Proposed UOW Strategic Plan for eLearning and eTeaching

III. FIVE FACTORS FOR “HIGH FIT”

Although the final wording of the Strategic Plan is still under discussion, we have been operating for the past two years against an agreed *eTeaching Business Plan*. The Business Plan contains 22 strategic actions to accompany the implementation of the LMS. The actions are presented as Discussion Papers so that the Business Plan is a living, dynamic document in a rapidly evolving environment. The actions outlined in the plan are reported against twice a year in various university Education and IT committees.

The 22 actions are derived from interviews and consultations with committees, deans, managers, academics and support staff. Although a number are only relevant to the University of Wollongong context and may not be able to be generalized to other universities, they are reproduced in Table 1 and categorized according to the five factors in the Yetton report. It is not always clear-cut which action belongs to which category as some actions cross boundaries. However they have been placed in the category which best represents their main thrust. Of course this categorization does not reflect the amount of activity against any one action; for example, “Increase staff development opportunities” is a very large area compared with “Revise intellectual property statute”.

However the table clearly demonstrates the validity of the Yetton framework. It reinforces that technology itself is a small part of the implementation process because the majority of actions are in the categories of Management Processes and Roles and Skills rather than the Technology category. In addition, a number of the Technology actions, such as “Underpin with Content Management System” (see last section of this paper), include sub-projects which are about roles and skills and culture change, further demonstrating that technology is not the whole story.

“Technology in itself does not change or improve teaching and learning. Attention to management processes, strategy, structure, and most importantly roles and skills, are key to successfully introducing technology in university teaching and

learning.” (Wills and Alexander, p.72)

TABLE 1: 22 eTEACHING STRATEGIC ACTIONS CATEGORIZED BY THE YETTON FRAMEWORK

| Structure | Strategy | Technology | Management | Roles/Skills |
|--|---|---|--|---|
| Establish eTeaching Committees | Strengthen focus on Learning Designs | Select new Learning Management System | Reformulate Service Agreement between CEDIR & Faculties | Increase staff development opportunities |
| Integrate eTeaching administration, Learning Design unit & media production unit | Analyse, articulate & support Multi Location Teaching | Underpin with Content Management System | Coordinate a whole of CEDIR approach to client contact & client tracking | Increase and vary student support options |
| | Design new Spaces for eTeaching & eLearning | Review subject & course database | Revise intellectual property statute | Increase use of courseware for staff training |
| | Create a brand image for eLearning & eTeaching | Integrate emerging technologies | Improve quality assurance of sites | |
| | | Evaluate & implement ePortfolio system | Review Teacher Survey | |
| | | | Revisit responsibilities for system administration, site administration, student support & staff support | |
| | | | Facilitate evaluation & purchase of published courseware | |
| | | | Evaluate & benchmark | |

Although a number of the actions are only relevant to the University of Wollongong context, the paper outlines several actions that may be generalized to other universities:

- Establish eTeaching committees
- Strengthen focus on Learning Designs
- Design new spaces for eTeaching and eLearning
- Increase Staff Development opportunities
- Increase and vary student support options
- Integrate emerging technologies
- Underpin with a Content Management System.

IV. STRUCTURE – VICE CHANCELLOR’S eTEACHING STEERING COMMITTEE

In a university where the central services that impact on the provision of eLearning (IT Services, Registrars Division, Library, Academic Development, eTeaching Support, Learning Design, Materials Production, Teaching Spaces Support) all belong to different divisions with different reporting lines, and nine different Faculties “own” the teaching and learning materials, it was important to develop a committee structure that would sit outside existing university divisions in order to bring together the views and expertise of all these groups in the new enterprise of mainstreaming eLearning. The Yetton report discusses different structures that universities adopt for management of IT (federal, divisional, and subsidiary) however it would have been too disruptive and time-consuming to try to change the UOW structures, so a committee was deemed the best means of developing strong cross-divisional collaboration.

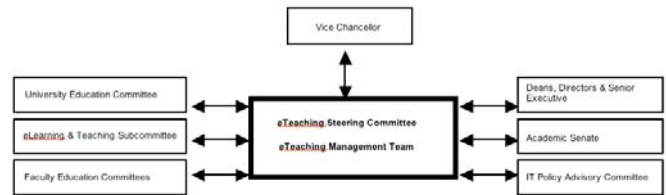


Fig. 5. Structure for Planning of eLearning & eTeaching

The Project Sponsor, the Deputy Vice Chancellor (Academic), chairs the eTeaching Steering Committee, reporting directly to the Vice Chancellor. The Project Leader is the Director of the Centre for Educational Development & Interactive Resources. CEDIR is the central unit responsible for Academic Development, eTeaching Support, Learning Design, Materials Production, and Teaching Spaces Support. The committee membership includes Information Technology Services, Registrar’s Division and the Library as well as Deans and Course Coordinators and receives input from the University Education Committees and IT Policy Advisory Committees. Therefore the eLearning implementation is seen to have strong roots in the academic side of the University. The thinking and negotiation about the structure of this committee, and its sub-committees, took many months and it is important not to under-estimate the value of this stage.

V. STRATEGY - STRENGTHEN FOCUS ON LEARNING DESIGNS

In a context where it was commonly (mis)perceived that use of the existing Learning Management System was mainly for uploading PowerPoint slides of lectures, it was essential to keep the focus of the LMS implementation on improving the University’s approaches to teaching rather than on merely improving technology-based access to teaching materials. Although there were in fact many innovative and sound teaching applications of technology in the Faculties, it was felt that we had not brought these together in a coherent, consistent message about UOW teaching for the other teachers, supported by tools that enabled them to easily adopt and adapt those teaching strategies.

Therefore we are in the process of developing a selection of approaches to active learning (Biggs, 1999) that will hopefully facilitate UOW’s ramp up of pedagogically sound online learning:

- Collaborative Group Work including Global Learning Projects
- Innovative and Integrated Assessment including Quiz, Peer Assessment and Self Assessment
- Learning Designs based on:
 - Problem
 - Role
 - Case
 - Scientific Method
- Highly Visual and Interactive Learning Objects.

This selection will underpin staff development, web resources, guides and templates and reinforces the work of CEDIR’s

Learning Design Unit, which was established in 2002 to coordinate Service Agreements with the Faculties for free design and production on educational resource projects (Lambert, 2003).

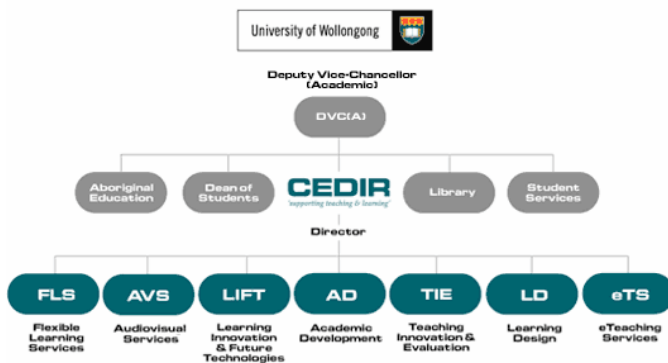


Fig. 6. CEDIR's reporting lines and internal structure

In part, the emphasis on Learning Designs in the *eTeaching Business Plan* flows from our participation in the national Learning Designs Project funded by the Australian Universities Teaching Committee (2000-2003). The aim of this project was to assist dissemination of the best online and multimedia projects previously funded by the Australian government by distilling the essential Learning Design behind the project (Hedberg, Oliver, Harper, Wills and Agostinho, 2002). The project began by commissioning a set of principles for high quality learning in higher education. Boud and Prosser's framework (2002) covers at the top level four broad principles:

- Engaging learners
- Acknowledging context
- Challenging learners and
- Providing opportunities for practice

This framework was used to aid selection of over thirty exemplars from which the project distilled five Learning Designs:

- Explore, Describe, Apply: A problem focussed learning design
- Observe, Represent, Refine: Developing scientifically-acceptable mental models of non-visible physical phenomena
- Review, Access, Question, Decide, Report, Reflect: Structured problem solving
- Review, Interpret, Construct, Justify: A situated problem focussed learning design
- enRole, Research, React, Resolve, Reflect: Developing and using online role play learning designs and four tools:
 - Chemistry Molecular Level Construction Tool
 - Investigate eShell: Supporting students in decision-making, problem solving and case-based reasoning
 - Online Self and Peer Assessment Tool
 - Predict-Observe-Explain eShell

The three year national project culminated in a website which is freely available and contains exemplars, guides and

tools for supporting quality online learning in universities: www.learningdesigns.uow.edu.au

Learning Design is a relatively new but rapidly developing area of e-learning. Since our Australian project, the Joint Information Systems Committee (JISC) in the UK has initiated the eLearning programme with one of its themes being Learning Design: <http://www.elearning.ac.uk/subjects/ldfold>. Britain (2004) in a JISC report identifies three ideas that are central to the concept of Learning Design:

- The first general idea behind learning design is that people learn better when actively involved in doing something (i.e. are engaged in a learning activity).
- The second idea is that learning activities may be sequenced or otherwise structured carefully and deliberately in a learning workflow to promote more effective learning.
- The third idea is that it would be useful to be able to record 'learning designs' for sharing and re-use in the future.

In keeping with Britain's third idea, another key action in our eTeaching Business Plan is to underpin the LMS with a Content Management System (see section later in this paper). It is important to note that although we refer to the need for a Learning Object Repository, the CMS must be capable of storing not only objects but also Learning Designs.

VI. STRATEGY - DESIGN NEW SPACES FOR ETEACHING AND ELEARNING

Since our strategy is "Blended eLearning", the spaces used for face to face learning require as much attention, and budget, as the spaces used for online learning. For example, like most universities, UOW has implemented wireless access at almost all of our locations. The use of wireless laptops should reduce the need for special-purpose computer laboratories as any normal teaching space can be quickly established in lab-mode and spaces previously not viewed as "classrooms" such as gardens and cafes can become teaching and learning spaces. Wireless laptops should:

- permit the use of a greater number of teaching spaces for lessons involving computer use;
- facilitate easier movement of teacher and students within the teaching space; and
- enable much faster reconfiguration of the space to adapt to different groupings and class size.

This has implications for the design of teaching spaces, as well as for the furniture used in them, as there is a need for more flexibility: one moment being used in lecture style, the next moment re-organized for team work, followed by time for individual research and reflection.

CEDIR assists in the re-design of Faculty-based teaching and learning spaces and Common Teaching Areas. We foster awareness of new approaches to technology in teaching spaces by being a role model in our own workshops: wireless laptops and mobile furniture are being used to increase the authenticity of workshops involving the use of technology in

teaching.

We are increasingly moving videoconferencing out of purpose built studios into normal classrooms now that videoconferencing is over the internet rather than ISDN lines. We aim to design the technology into the rooms in ways that are flexible and non-intrusive.

The importance of Teaching Spaces as a strategy integral to the eLearning strategy is reinforced by the new guide recently released by JISC on *Designing Spaces for Effective Learning*:

http://www.elearning.ac.uk/news_folder/designspaces

In addition Australia's Carrick Institute for Learning and Teaching in Higher Education has specified Learning and Teaching Spaces as one of three priorities under its Priority Grants Scheme:

<http://www.carrickinstitute.edu.au/carrick/go/pid/111>

VII. ROLES AND SKILLS – INCREASE STAFF DEVELOPMENT OPPORTUNITIES

The activity in this cell of the table is one of the largest during the two year implementation of the replacement LMS. Key features of our staff development strategies are:

- Modelling good practice through the provision of blended learning programs, which provide a combination of face to face and online learning environments
- Purchasing and adapting existing training materials from University of Tasmania and University of Waterloo, Canada which place the emphasis on educational use of the LMS rather than on skills training in isolation from educational use
- Developing a series of workshops and self-paced resources focussed on Learning Designs
- Augmenting the University's good practice website/showcase with eLearning exemplars
- Personal support from a Learning Designer for all subject coordinators in their own office at the time of migration to the new LMS
- Day to day assistance for all staff via a hotline.

The balance of workshops with personal hand-holding has been a key factor in the smooth transition so far to the new LMS. Most Academic Development units complain that academics do not attend workshops: the majority of attendees are often general staff. Initially as a medium-size university with a small budget we felt we could not afford the individual support that academics prefer over workshops, however it has proved to be more feasible than expected and can be seen to lead to higher quality online sites as well as more confident teachers. The outcomes from workshops are difficult to track; the outcomes from individual support are concrete and demonstrable.

VIII. ROLES AND SKILLS – INCREASE AND VARY STUDENT SUPPORT OPTIONS

Our previous student support was predominantly technical

support. However our student survey results indicated students do not often require this type of support. It was decided that we should refocus our student support with a more educational bent in the same way that staff development was moved away from skills training to contextual pedagogical development. We developed new student support pages for eLearning and these have been elevated to the home page of the University's website. There is information about all components of eLearning at the University of Wollongong, not only the LMS, for example, videoconference, eduStream, teaching space technologies, wireless access, Student OnLine Services, and Library Online.

In addition there is support on what it means to be an eLearner, emphasizing that it is Blended eLearning, rather than wholly online.

"Being an effective eLearner means:

- Be in class at agreed times
- Be connected to a computer and the internet
- Be an effective communicator
- Be able to manage time efficiently
- Be self-motivated and self-disciplined
- Be an active eResearcher
- Be open-minded and patient
- Be willing to "speak up"
- Be original and avoid plagiarism."

To launch the University's new approach to online learning, a CDROM was posted to all students and staff at the beginning of the year.

IX. TECHNOLOGY - INTEGRATE EMERGING TECHNOLOGIES

As in most universities a lot of emphasis is laid on the selection of the Learner Management platform. However, at UOW it has been important to reiterate and reinforce that eLearning is not only about the LMS but also about other delivery technologies such as videoconference, lecture streaming, web-casting, pod-casting, audience response systems, PDAs, even CDROM, as well as software such as Blogs and Wikis, and relevant plug-ins for the LMS such as TurnItIn. All of these systems have to follow the same cycle of:

- Evaluate
- Select
- Pilot
- Integrate
- Mainstream and
- Back up

This process is an on-going workload that tends to get overlooked. It needs to be part of someone's workload to scan for and spot likely emerging technologies that can impact on teaching, for example, Access Grids which have emerged initially to meet the research needs of universities, but are rapidly being taken over for teaching and learning needs.

X. TECHNOLOGY – UNDERPIN WITH A CONTENT MANAGEMENT SYSTEM

With so much investment in online content, universities are looking for methods to facilitate re-use and sharing of content or bits of content. More importantly the University of Wollongong is looking for ways to facilitate sharing of Learning Designs. In 2005 the University continued its evaluation of Content Management Systems (CMS) that might underpin its Learner Management System. The evaluation team included in its brief an evaluation of systems that would work for learning object repositories as well as research object repositories. The aim was to find one system to meet both needs in order to provide a single interface for academics. However during the year the repository of research publications was escalated to top priority and a decision was made to accept a special purpose research system. This then enabled the decision about the CMS for the learning object repository to be finalized as we were no longer trying to find a “one size fits all” solution.

Whereas the implementation of the Research Publications Repository is underway quite quickly as a technology implementation, it is clear that the Learning Objects Repository is much less about technology and much more about Management Processes and Roles and Skills, as the notion of sharing teaching materials is more foreign to academics than sharing research publications. Whereas the Research Publications Repository project is about migrating and meta-tagging public objects that have already been through an external peer review process, the Learning Objects Repository project must first establish internal peer review processes, allow for storing and tracking of objects designed for internal reuse at various stages of review and refinement, take account of possible future developments in external reuse and sharing, organize staff development about learning objects, and foster culture change about peer review of teaching and peer review of teaching materials. It will therefore take much longer in its implementation cycle.

XI. CONCLUSION

The Yetton framework for IT Strategic Planning has proved valuable for reminding us that technology is only the tip of the iceberg in planning for implementation of technology-based change. In planning for Blended eLearning at the University of Wollongong, the *eTeaching Business Plan* has served as a useful vehicle for actions required in the other vital but often submerged parts of the iceberg: Roles and Skills, Management Processes, Structure, and Strategy. The general approaches we have adopted within some of those areas may be transferable to contexts in other universities.

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REFERENCES

- [1] J. Biggs, *Teaching for Quality Learning at University*. Buckingham, England: Open University Press, 1999.
- [2] D. Boud and M. Prosser, *Appraising New Technologies for Learning: A Framework for Development*, Educational Media International, 39(3), pp. 237-245, 2002.
- [3] S. Britain, *A Review of Learning Design: Concept, Specifications and Tools*, A report for the JISC E-learning Pedagogy Programme, May 2004. Available: http://www.jisc.ac.uk/uploaded_documents/ACF1ABB.doc
- [4] J. Hedberg, R. Oliver, B. Harper, S. Wills, and S. Agostinho, “Implementing Generic Learning Designs Based Upon Quality ICT Exemplars” in Proceedings. *International Conference on Computers in Education*, December 3-6, 2002, pp. 1011-1016. Available: <http://ro.uow.edu.au/edupapers/5>
- [5] A. Inglis, unpublished survey of ACODE members, Australian Council for Open, Distance and eLearning, 2006.
- [6] S. Lambert, “Learning Design at the University of Wollongong” in G.Crisp, D.Thiele, I.Scholten, S.Barker and J.Baron (Eds), *Interact, Integrate, Impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education*. Adelaide, December 7-10, 2003.
- [7] D. Laurillard, *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies*. 2nd edition, London: Routledge Falmer, p. 268, 2002
- [8] M.S. Scott Morton, (ed), *The Corporation of the 1990s: Information Technology and Organizational Transformation*, Oxford University Press: New York, 1991.
- [9] University of Melbourne, *Interactive Multimedia Learning Unit Strategic Plan*, 1992.
- [10] University of Wollongong, *eTeaching Business Plan*, October 2005.
- [11] S. Wills and S. Alexander, “Managing Technological Change and University Teaching” in Evans, T. and D. Nation (eds) *Changing University Teaching: reflections on creating educational technologies* Kogan Page, January 2000, pp. 56-72.
- [12] S. Wills, and P. Yetton, “Strategy and Information Technology” in Yetton (ibid, pp.19-48).
- [13] P. Yetton and Associates, *Managing the Introduction of Technology in the Delivery and Administration of Higher Education*, DEETYA, Commonwealth of Australia, 1997.