Scaling the Paradigm: The creation of an online learning community at Deakin

Pamela MULREADY*
Toshiki NAKAI**
Terumasa IKEDA**

＜Outline＞

The purpose of this paper is to outline the critical factors enabling the university to undertake transformative change; and to illustrate how the creation of a macro socio-constructivist environment for online teaching and learning using a communications system has become a mainstream vehicle for online education and cultural change. Whilst the merging of our on and off campus communities using information and communication technologies is a significant symbolic achievement, the underpinning organizational strategic planning and resourcing have been critical to facilitate the University's commitment to provide learner centered flexible learning within a global context.

Introduction

A transformation is occurring within higher education, affecting administration, research, teaching, learning; and the systems and structures characteristic of them all. Thomas Kuhn coined the phrase "paradigm shift" (Kuhn, 1970) several decades ago in relation to transformations in the scientific community. The community affected here is global society

*Computer Conferencing System Development, Deakin University
**Center for the Studies of Higher Education, Nagoya University

at an international, national, local and individual context and it is driving the demand to remodel, reshape and reform education. Whilst the world has moved to an information age, education has been observed by many to remain in the industrial era.

At Deakin University the development of a mainstream online learning community has been a symbolic milestone, and evidence of the paradigmatic change the university has embraced throughout the last decade. Historically the tyranny of distance has challenged Australian educators. Today the ubiquitous nature of Information and Communication Technologies (ICT's) enables the university to achieve what was once unimaginable, increasing access to education whilst increasing flexibility of method, mode, location and time. Significantly the merging of the on and off campus communities around an accessible network based system serves the potential of a major breakthrough for learners and a psychological leap for the institution. Importantly this system is one of many parallel and complimentary developments that collectively have enabled institutional transformative change.

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Deakin University

Deakin University was established in 1975 as a dual mode institution (On and off campus). It was the first regional University established in the Australian state of Victoria. Its foundations stemmed from a Technical Institute and a teachers college, with an Open campus mix of school leavers and mature age students. Some of its strategies were to emulate the United Kingdoms Open University in the quality of its print materials, and to provide a library service at a level of quality that is equitable

when compared with an on campus library service.

The university has grown from its regionally based dual-mode beginnings to become a multi-campus and online institution. Deakin's vision today is to be recognised internationally as Australia's most progressive university for the quality, effectiveness and accessibility of its teaching and learning programs; research in key areas, commercial, educational partnerships, and international activities. It aims to provision life-long flexible learning and is committed to enhancing graduate attributes to ensure that they are well equipped to meet the demands of society. Deakin was the first Australian University to be awarded "University of the Year" on two separate occasions, first in 1995 for its innovative use of information technology in teaching, and again in 1999 for its productive partnerships with business and industry.

Facilitating organizational change in an environment characterised by ever reducing government funding, increased accountability, competition, social diversity, and quality control is a significant challenge. When combined with a social context where individuals will need to update their knowledge and understandings throughout their working life, the strategic planning process has been instrumental in harnessing the university's collective intelligence to define directions and priorities within an ongoing framework. The process has enabled the organizational transition from a perpetually propagating organism to one that is much more deterministic and strategic in its development and measured in its review. ICT was identified as a strategic imperative for the fulfilment of its vision and mission.

The early 1990's was a period of considerable innovation with ICT. Deakin led a consortium in the design and development of an administrative system, sufficiently flexible to handle the divergent needs of multi-campus, multi-mode institutions. It also saw the introduction of an innovative online teaching and learning system (TEAS) "Tutorial and Electronic Access System" which combined personal and group commu-

nications, and university services around a single interface. It was adopted by some of the major university programs, however at this particular time, networked computers were not ubiquitous, and the interface and systems were not particularly user friendly. In 1994 funds were made available to improve and expand TEAS, and provision a new more user friendly system for the entire university.

The development of TEAS was motivated by issues surrounding the isolation experienced by remote students as the Australian "Tyranny of Distance", could impact negatively on their learning and success. Following a preliminary investigation of user requirements and a combined expert selection team, FirstClass (Centrinity) was selected to replace the teaching and learning components of TEAS (Thompson, 1994) and delivered to the University as part of a project called Deakin Interchange, a mainstream vehicle for ICT application distribution.

This project was just one of a number of strategic initiatives under the umbrella of the Information Technology Enhancement Project (ITEP), designed to propagate research and evaluation of ICT for teaching and learning. This was the first of what was to become a series of major strategic projects, facilitating seed funding to Faculties for program development. Critically such projects were underpinned by professional development to enable staff to develop their skills, understandings, and most importantly, facilitate their input to the emerging pedagogical models, and environments.

Articulating a vision at Deakin and implementing a plan

Flexibility in structure, mode and delivery was a foremost objective within the 1995-97 strategic plan, and it remains a high priority today. Let's consider the implications to a historically "fixed" organisational infrastructure extending from this definition of flexible learning provided by Jocelyn Calvert Deakin University's Professor of Distance Education.

"Flexible learning refers to an approach to education that places the needs of learners and groups of learners at the center and takes account, in the design of learning and teaching programs, of the particular circumstances of learners and teachers, the requirements of the subject of study and the available options for learning methods and milieux. Flexibility may apply to access to courses; accommodating diverse student groups in a course; the place, time and pace of student; the form and pattern of interactions among learners and teachers; and the type and variety of resources to support study and communication. Underpinning principles include primary emphasis on student learning; catering for diverse backgrounds and learning styles of students; accommodating diverse learning environments; recurrent education as a lifelong process; and the appropriate use of ICT to facilitate learning" (Calvert, 1997)

This approach was complementary to strategic environmental analysis, our community, contemporary understandings of how individuals learn, the nature of diversity, competition and increased accountability, and primarily the needs of learners. Flexible learning places the learner centrally in the learning process. The direct implications of this on structures, systems and procedures called for the transformation in our organizational design, pedagogical approaches, and the systems underpinning them all. A flexible learning framework (Bottomley, 1998) was developed which composed of the following characteristics:

- It supports a range of teaching models suited to the needs of a diverse student body and curriculum.
- It allows for continuous change and improvement
- It is consistent with the emerging international standards for the educational use of the Internet thus allowing for easy acquisition and use of existing learning resources

- It provides a series of online administrative tools and systems to support teaching and learning.

The framework aimed to cater for diversity, flexibility and adaptivity, and be facilitative rather than a prescriptive. The use of technology whilst central to the university's vision and mission, would not determine methodology, but would underpin our ability to respond and provision a range of learning models, suitable to the needs of particular groups. The strategies employed to facilitate these included the acquisition or use of complimentary components, aimed at providing teachers with the media, mediums and systems which would enable them to orchestrate and manage learning experiences for their students. These systems would be fully integrated with our administrative management system, and developed within an Information Systems Framework to support teaching and learning. This in turn would specify systems, standards, and priorities for development, with the aim of providing a coherent overall information systems capability.

The Flexible Learning Framework launched a new stage of professional development, targeting the identified, localized needs of Faculty. This Online Teaching and Learning Enhancement Project (OLTLEP) aims were to identify and quantify (scope) a range of models, appropriate to particular units and courses of study, and to identify and plan contextual professional development models to assist faculty integrate technology into flexible teaching and learning methodologies.

Both ITEP and the OLTLEP fostered the development of projects facilitating an organizational shift to the adoption of ICT for online teaching and learning. While project evaluations sometimes identified structural and procedural impediments to the mainstreaming of systems, the projects importantly provided a framework for university collaboration and support. Faculty would often be confused and frustrated by the multiplicity of communications necessary to foster the traditional and emerging paradigms, and educational support and systems management would

be frustrated by traditional roles and sometime conflicting responsibilities in times of system and service convergence. The management and production infrastructure required for traditional print and analogue educational media was extensive, requiring specialist skills, facilities and systems, the new paradigm demanded new specialist skills and infrastructure, and restructure. With the ongoing development of electronic content and environments and the need for their ongoing management, the need to facilitate organizational and system integration around an information management system became a priority.

The framework identified major organizational re-engineering, redefining the roles of the universities support service providers, the Library, Learning Resources Services (LRS), Deakin Centre for Academic Development (DCAD), and Information Technology Services (ITS). The result of this review saw LRS, the traditional developers of analogue based media; and DCAD the developers of multi-media, teaching and learning systems, and providers of professional development, merge and refine direction, significantly from the development of systems and print resources to the development of digital content. A new combined group called Learning Services was merged under the position Executive director, Learning Services and University Librarian. An earlier review had also dispersed centralized ITS support, largely to faculties, outsourced other key service functions and redefined core business.

The acquisition of an Information Management system to enable the cooperative development, management and delivery of educational materials was central to the re-engineering of educational systems support. While it was desirable to simplify our production systems for Faculty and support providers, it was a significant challenge to find an off the shelf system which would meet the universities criteria, and fulfill diverse teaching and learning needs. A tender process was undertaken and the WBT systems product TopClass was selected as the core component of the Universities IMS, for integration with our Administrative systems. The tool would enable the supported development of educa-

tional content, and the management of these resources, as well as facilitate the introduction of important pedagogical aides, such as online testing, and interactive content, and system reporting. Other critical development motivations were copyright, international meta-data standards, facilitating institutional informational exchange and delivery.

While it is very easy to view tools as technologies, devoid of intrinsic value, they are of course implicitly connected with the nature of human activity and individual and collaborative capability. Whilst the IMS would meet many of the organisational and management needs, as well as the learner centred delivery of content, but could not in its present form facilitate the nature of the online community previously developed using the communication system Centrinity's FirstClass.

The nature and importance of an online learning community

The nature of traditional on-campus education is facilitated within a social environment, sustained through, programs, societies, administrative and support services, architecture and facilities. The online environment at its minimal can be limited to informational resources and email.

Fig 1. The Deakin FirstClass (by Centrinity) Web-site

The metaphor for FirstClass is a personal desktop, with a mailbox, access to public and private conferences. The desktop provides students with personal storage space, a home page folder, directory and lots of tools for organizing and categorizing information, and communicating

with others. Importantly it facilitated a synchronous as well as asynchronous social presence, through the ability to see who was online with you and who had read messages and conversations, providing a dynamic and "live" dimension to the environment. This provided students with a sense of connectedness that is generally absent from many online environments. Interaction with the system is facilitated around personal and group communication through computer conferencing (messaging). System performance is efficient, which remains critical given the geographic spread, platform and network diversity of our community. At a structural level the system facilitates distributed administration, educational development and learner centred access to programs, units and services based upon human communications, as designed by Faculty, teacher or service provider. The system enables the mediated incorporation of external electronic content, and environments facilitating ongoing discourse and learner support.

Fig.2. The student desktop using a web-browser.

FirstClass was originally released within the software distribution system Deakin Interchange (ITEP project). Student evaluations and staff

feedback of the distribution system were negative due to performance issues, however the small numbers with access to FirstClass were very positive, causing the Faculties involved to continue with expanded use of this tool. One early and ongoing problem was that with limited licence holdings not everyone had access, and some staff initially did not know the difference between the distribution system and the tool, leading to frustration, anger and confusion amongst staff who felt obstructed from the opportunity to engage on their own initiative. Due to this it was decided that more licences be acquired to ensure all-staff access. Usage grew from an initial 45 staff and students, to 2500 in 1996, to 6500 in 1997, and by approximately 40% every year thereafter, until in 2001 when it was decided to provision this virtual desktop for all 32,000 staff and students. Funding for this growth has only been made available through responsive strategic funding, rather than an ongoing budget line.

The systems success was measured by continued demand through expanded usage by Faculty. Individual programs were measured by formal evaluations and informal user feedback. There were many micro projects for research, teaching and learning, educational development, student support, and professional development that identified positive quantitative and qualitative results, which contributed to ongoing interest, use and further development. There was no systematic measurement at a macro level beyond performance monitoring and general feedback and observing patterns of use and activity. Strategic funding secured was limited to basic licence requirements, professional and technical support, rather than system development.

The Faculty of Business and Law was an early adopter of online systems for teaching and learning for major university programs including the Masters of Business Administration and Bachelor of Commerce . That faculty identified quickly the benefits for learning offered by the small study group online model. In this model, groups of between 6-8 students meet asynchronously online to work collaboratively on assign-

ments and activities. Whilst not a feature of every unit it is used extensively and successfully. Learners will often find others from widely divergent backgrounds and contexts collaborating. You may find a company director from Hong-Kong, a teacher from Mildura, a businessman from Stockholm and a second year student working together. Characteristics of such activities are multiple perspectives, requiring students to share views and negotiate outcomes. Teachers may not attend the private study areas, however will attend a general unit area, which is used for stimulating discussion, distributing information and responding to any issues and questions.

The online communications environment is not the only medium the faculty use, also relying upon face-to-face and teleconferencing, however they are moving to a position where mediums are selected for their appropriateness for the teaching and learning process, rather than simply following the traditional timetabling and models. With the merger of our on and off campus communities, they has been a reduction in the need for face to face tutorials alongside the increase in the activity within the online environment. They have project managed the development and integration of this medium with their print based educational material, and retained quality control throughout all of their processes. They have designed, developed, planned, released and managed one of the largest online programs in the world, and most importantly an educational rationale has been central to their use and adoption, staff and educational development.

The system is used across the university and within all Faculties for teaching, learning, and student support, as appropriate. There is great diversity of pedagogy, particularly at the unit level, however the shift to a more systematic development at the Faculty and program across the University is well underway.

Professional Development

Professional development has been a critical lever to effect change. The easiest step is to acquire the systems, however staff will not engage unless they perceive added value. Whilst some staff were highly motivated with ICT this was generally an exception to the rule. In the first instance, Professional development was provided Face-to-Face and concentrated on skills and conceptual issues, whilst providing hands on opportunities for staff to explore. Unless individuals designed it to be so, these sessions did not have any direct application to their work. It became apparent that if we were to maximise the opportunities for staff development we needed to engage staff with meaningful developmental activity using the tool, rather than simply providing them with sand-box opportunities.

In 1996, an online computer conferencing course was developed aimed at developing pedagogical understandings and it was targeted but not limited to staff within the Faculty of Business and Law. Critically, it was supported by the Dean who directed staff to participate. Additionally he provided financial incentives to the winning teams. There was some resistance at what could be viewed as a rather didactic approach, however most staff participated. Central support staff important to the organizations shift to the new mediums of communication also participated as students, working in teams together with Academic staff. One aim was to provide participating staff with the same experiences as their students would have using the medium. As the course was designed to be meaningful, the major project for the exercise was for teams to design and develop an online unit. At the end of the training, staff had a relevant and useful product, as well as the experience of collaboratively producing a new course online. They also experienced the environment from the student perspective, and learnt how to use the tool, and developed views on how to and how not to facilitate online. Most importantly they gained an insight on how usage may apply to their particular domain and pedagogy. This course was run several times and if trans-

formative outcomes are any measure then it was highly successful. Staff provided with the opportunity to experience and conceptualise were on much firmer ground, as the possibilities, relevance, and implications for their area became more meaningful. It is heartening today to see many of these staff who once could have been described as recalcitrant resisters become enthusiastic and committed to the use of ICT for teaching and learning.

The course was revised in 1998 as part of a central online- project, directed more to other Faculties, and experienced online teachers, encouraging reflection and cross faculty communication, development and support.

Learning Organization within a Flexible Learning Framework

Another dimension of usage beyond teaching and learning and the provision of meaningful and relevant professional development, are the adoption of the environment for genuine University business, related to strategic planning. In 2000, the university released its Teaching and Learning Management Plan, which outlined a framework for strategic planning around Teaching and Learning. The detail, however, had to be developed by the use of experts across the six campuses of the University; hence, the medium was adopted to assist this purpose with areas established for collaboration, moderated by the relevant chair. This was used in conjunction with face-to-face meetings, and a list-service. At the end of 2000, the developed documents were presented to the University Council for ratification and incorporation into formal strategic processes. Such usage provides relevant applied professional development, flexible access to committees and documents, and opportunities for professional collaboration and productivity previously unavailable. The potential for such use when made available to the broader community can provide transparency of process and outcome.

Research

The system has provided the data for numerous research projects, through the content constructed, the pedagogical process, and the learning outcomes. All activity is retained on the system; hence, this has proved very useful for Academic publication, and contextual reflection. On occasions it has been used for international research, in one instance a World Health Organization project, involving young people in Beijing, Kuching, Suva and Geelong, regarding adolescent health. The data from their communications provided unique perceptions relating to youth priorities, perceptions and cultural differences at the same time but very different place. Since then the value of the medium for providing the mechanism to structure and facilitate a process and capture all input in the form of transcripts, has resulted in many papers and publications reflecting practice and outcomes.

Student support

Social support was a critical early motivation for the development of this system, which clearly displays, through participation, the diversity and

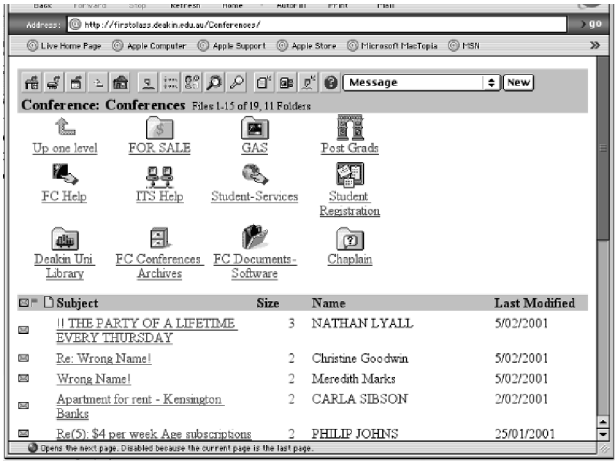

Fig 3. The Public conference

geographic spread of learners. University support staff were one of the first groups of specialist staff to commit to this environment, developing university wide services in the public conference area, which was open to all. The University Chaplain established Stop 42, a philosophical conference in 1996, and the Chapel within it for more theological discussions. While few actively post messages, many discussions are widely read.

The Distance education co-ordinator established a Student services area, harnessing the support of study skills advisors and counsellors to the point that they began rostering "on-line hours" to be available. Whilst this was not necessary, it was indicative of a major cultural change. The co-ordinator also facilitated a remote club after being swamped with responses to the suggestion. Through the conference students have been able to identify others who can provide local support in foreign cities, participate and have a presence within the university wherever they are located, and generally access help and support. The conference like many of the environments is linked from the Student services web-page as well as from the students FirstClass personal desktop. The pic-

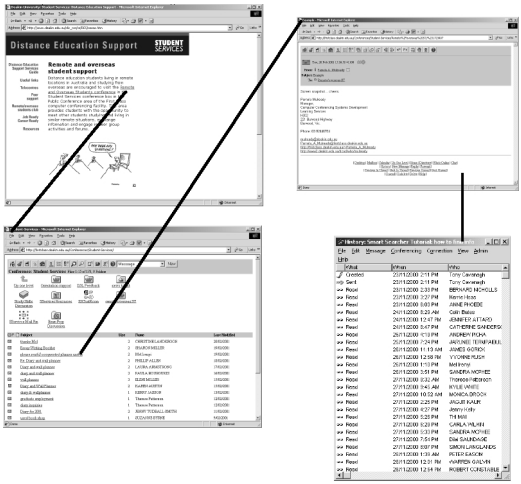

Fig.4. Remote students club, web-page, conference link, sample message, and sample history

ture below illustrates the link from the web-page, the conference environment, a sample message, and a sample history from the message, showing the community who has read the information.

The New higher education environment

In a 1999 interview, Mike Fitzgerald, a strategic thinker on the evolution of higher education within knowledge based society, described an emerging model as being similar to the "Oxbridge" model. This early model involved a relationship between pupil and tutor, where the learner was active in the process of knowledge creation, through negotiation and facilitation with the tutor. The tutor would recommend references, readings, and lectures for the student to attend to assist them in their inquiry. Throughout the 20th Century we saw the industrialization of education, where the learner shifted from the active inquirer to the passive consumer of predetermined content, characterised by teacher centred environments and rote learning, with learning measured by how well the student could regurgitate content during tests. A post-industrial model represented by the UK Open University was characterised by rich learning resources and facilitated by a mentoring tutor providing iterative feedback. According to Fitzgerald, the emerging model is based upon distributed learning with convergent modes of delivery between on and off campus, and a shift to individuate the learning, similar to the Oxbridge model. Fitzgerald thinks the network will be the metaphor for learning and the question is how to individuate.

Deakin has been shifting the concept of on and off campus mode, to a more distributed paradigm as described by Fitzgerald, however the educational evolution is formative. Our students come from many international contexts, be they Australian or foreign nationals. Whilst the challenge may be how to individuate, we must remain mindful of the nature of higher education, the importance of community and learning based upon social and facilitated interaction, within and across multiple contexts. The potential of ICT to compartmentalize learning environments

within micro constructivist contexts without any resource to flexible socio-constructivist associations, across and between contexts may be concerning. Socio-constructivist associations are significantly important for the individual and the community and the macro society to which the individual is a part. It is important that the new immersive environments are contextualized. Our capabilities will be that students will experience a combination of the ICT based cognitive-constructivist models, which can provide the learner with immersive problem based experiences and simulated interactions, and socio-constructivist environments, which will enable higher learning, and the development of real world skills in communication, negotiation, and collaborative knowledge construction, within professional contexts.

Sherry Turkle (1995) noted that individuals adopt the characteristics of behaviour appropriate to the metaphor communicated by its symbolic representation. Within Deakin's FirstClass communication system it can be observed that individual students would behave quite differently in one environment to another, and with some individuals it would manifest in greater extremes. A student can present as being quite aggressive and controversial in a public environment, considerate and reflective in the philosophical area, and an active constructive participator in the study group. Participants in these environments are merely operating within the relativistic context of the communities we construct. It demonstrates that universities cannot consider these systems external and separate to the traditional university, but important social and educational infrastructure in a diverse multi-contextual learning community.

Conclusion

Deakin has moved steadily from the post-industrial model of higher education to a distributed learner centred and flexible system within a global knowledge based society. There has been enormous transformative change in structure, practice and process within the institution. The strategic planning process and objectives have facilitated the develop-

ment of frameworks, which have been pivotal, in enabling a common direction, shared understandings, and structure for change. Within this environment, the development of a socially supportive online community has closed the gap between on and off campus students and fostered the development of a common space across geographical boundaries. It also has been pivotal in facilitating professional development, organisational development and new vistas for research in the online medium. Most importantly, this is merely one of many parallel developments that have stemmed from the strategic planning process and the directions articulated by the University. The continued evolution of ICT for teaching, learning and organisational change, and the quest to individuate learning maybe best sustained by the provision of online systems which empower and enable the individual to form and sustain lifelong connections and interactions within a learning community.

Recommendations

Based upon the experiences of transition and transformation undertaken by Deakin in response to globalization, the new mediums of education, pedagogical development, we try to suggest some recommendations assuming the current situations of university reform in Japan.

- The development of a university strategic plan which considers ICT development, globalization, and local environmental analysis.
- The development of appropriate frameworks to facilitate the implementation of strategic planning processes.
- The seeding of university wide projects to foster professional development and the development of appropriate teaching and learning models, using best of breeding systems.
- The establishment of meaningful professional development opportunities for staff, pertaining to a broad range of relevant areas. (Technical, pedagogical, assessment, and research)
- The fostered development of a community of interested practitioners through the establishment of accessible online systems and seed-

ing funds for development.

- Acquisition, implementation and trial of teaching and learning ICT based systems within a supported organisational framework.
- Provision of on-line orientation and training for students.

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