

Supporting Teachers Through Pedagogical and Technological Change

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Abstract

In the Australian higher education context, the University of Southern Queensland (USQ) is one of the 'new' universities, having been both an Institute of Technology and College of Advanced Education before achieving university status in 1992. Consistent with the University's previous 'Institute of Technology' and 'College of Education' status, USQ teachers place a high priority on teaching and learning. The research is more 'applied' than 'pure', and has often been undertaken in partnership with industry or professional associations.

In order to present itself as a viable alternative to traditional universities, and to provide opportunities for students from diverse backgrounds, USQ has responded aggressively to the challenges of distance education and international education. This is epitomised in the following statement by the Vice-Chancellor:

The University of Southern Queensland is a leader in the flexible delivery of services to students and members of the general community. The University believes that flexible delivery is about giving people WHAT they want, WHERE they want it, WHEN they want it, IN their style, IN their place, IN their time.

The adoption of flexible learning methodology has been a key initiative in many institutions in an attempt to adapt to the changing educational environment. Information and communication technologies have created new educational opportunities and challenges, which impact upon education models and theory and challenge the traditional roles of teachers and learners. USQ has been in a good position to respond to calls for fundamental changes in teaching and learning. In this paper, it is argued that, at USQ, teachers generally share a common knowledge and understanding of those teaching-learning tasks and activities required in a higher education context, namely those which facilitate opportunities for dialogue, mediated learning and co-construction of knowledge. It is also argued that this shared understanding comes from a history where staff have been confronted with student diversity from the outset. Despite this, it is evident that well-designed support and resources are required in order to guide teachers through technological and pedagogical change. This paper describes the range of programs and resources developed to date at USQ and discusses how a theoretical framework of change has guided this development. It also discusses how adult learning principles and perceived critical 'elements' or features of design have been considered in order to 'shape' the resources, and considers the results of preliminary investigations into the effects of using exemplary models to assist the change process. The paper also reveals some issues that have emerged as a result of the changes which are occurring.

The USQ Context: Flexible Learning and Teaching

USQ is an internationally acknowledged leader in the provision of flexible learning opportunities, winning the International Council for Open and Distance Education (ICDE) Prize of Excellence in 1999 in recognition of the University's contribution to providing global education. In 2000, USQ has also been the joint winner of the Australian Universities of the Year Award for 'developing the e-university'.

In 1997, USQ offered its first Internet-delivered program. All content presentation, teacher-learner and learner-learner interactions, assignment submission and feedback were done online. In the first semester of offer, there were approximately 100 students enrolled in the program, involving five teaching staff. In 2000, over one hundred courses of study are being delivered worldwide via the USQ Internet initiative, *USQOnline* (<http://www.usqonline.com.au>), requiring a quarter of the teaching staff at the University to be familiar with the complexities of teaching and learning in an online environment. To accommodate this rapid change, many of the institutional systems have undergone major reform. Apart from the restructuring of administrative systems, there has been significant organisational restructuring to accommodate the more corporate approach to management at the

University. New committees have emerged, one of which has been charged with the responsibility of coordinating and implementing a staff development (education and training) framework for staff across the campus.

The initial task of the committee has been to assist university staff move into the world of electronic teaching and learning. One strategy in assisting this move has involved the preparation of supporting education and training programs and resources. It is evident from experience and a growing body of literature that well-designed support and resources are required in order to guide teachers through technological and pedagogical change (Lefoe 2000; Osborn & Johnson 1999; O'Reilly et al. 2000).

Theoretical Framework

A theoretical framework of change developed by Imershein (1976) maintained that organisational change can be thought of in much the same way as Kuhn (1970) explained progress in science. Kuhn argued that allegiance to a paradigm in science implied adherence to particular ways of 'doing' science, and advances in science occur because scientists as a group perceive a need for a paradigm shift. Similarly, Imershein argued that membership of organisations can be explained in much the same way, with organisational change requiring shifts in the 'world views' of those involved in the change. A central element in Imershein's theory is his belief that group members need to be provided with 'exemplars' or with concrete models for their activities. Such models are based upon a shared knowledge of ways of undertaking tasks and procedures as well as an understanding of roles appropriate to different group members.

In this paper, it is argued that exemplars provide a useful way of identifying the teaching/learning paradigms which guide the ways academics at USQ design and teach courses, particularly in the context of flexible teaching and learning. USQ developers of support programs for online teaching and learning have based the design on the notion of exemplars consisting of two strands. One strand focuses on how the organisation's members perceive and share understanding about their 'core' business (in this case, teaching and learning); the second strand concerns the shared understandings they have about the roles and responsibilities of the key stakeholders in the core business. In other words, the developed programs and resources serve two purposes - to provide a pedagogical foundation that 'fits' the online environment, and to provide a method for teachers to clearly define their roles and responsibilities within this new electronic world.

The design is also influenced by the literature on adult learning which reveals that an adult's past experience, individual learning style, desire for flexibility in the learning situation, readiness to learn and motivation to learn in areas relevant are important guiding principles when developing resources and instructional programs for adults (Knowles 1996). In addition, perceived critical 'elements' for sound design (Reushle et al. 1999), as well as experience gained by the university over the recent years of electronic development, have been considered.

Programs and Resources

Several programs and resources have been developed to meet the needs of staff moving into the world of online teaching and learning. They include:

- a web site, the Staff Development Gateway (<http://www.usq.edu.au/StaffDevGateway/>) which offers extensive details of professional development opportunities for staff at USQ, and links to other online programs and resources, particularly those developed by other universities.
- an electronic 'how to' guide which includes *Resources and Policies*, *FAQs*, *Staff Support and Research*; and a *Glossary of Terms*. Planning for further development of this guide is underway.
- an online education and training program for teachers entitled 'Teaching and Learning: USQOnline'. The program aims to provide learners (in this case, the academic staff) with first-hand experience of their roles and responsibilities as online teachers and administrators by immersing them in the teaching/learning environment. Each module of the course has sections on how to use the system, related theoretical underpinnings, and recommended resources, and is supported by introductory (non-compulsory) face-to-face sessions. The course addresses administering, communicating and assessing in an online environment. It also provides pedagogical exemplars across all discipline areas. This site undergoes cyclical evaluation and revision.

- staff development papers, available both electronically and in print copy. The papers elaborate on concepts introduced in face-to-face sessions and within the electronic sites (such as, 'Using Computer Conferencing Effectively').

In addition to these initiatives, a 'users' group has been established which meets regularly and has membership from teaching and administrative areas. This group also has an active computer conferencing facility (a listserv) where issues under discussion are collated and presented at appropriate management committee meetings.

The support materials provide staff with details of resources, procedures, policies, contacts, ideas, and discussions, as well as self-paced instructional materials related to flexible teaching and learning at USQ and beyond. In an administrative sense, the materials address the questions of who or what to ask or do, where to look, and how to interpret the answers. The aim is that through the materials, individuals are able to upgrade their skills by participating in a variety of interactive exercises and short courses; to discuss issues; be informed of the skills, expertise and interests of colleagues; and to examine exemplary developments in the field.

Critical Elements of Design

Various 'critical elements' of design have been considered which have helped shape the resources. These elements are presented in a manner that not only introduces participants to knowledge about teaching and learning online but also model the processes involved. Some of the pedagogical exemplars include the following.

Learner control

To support the principle that learning is a process of knowledge construction rather than knowledge absorption or reproduction (Jonassen, Peck, & Wilson 1999; Bates 1999), the opportunity for learner control is considered to be an essential design feature of any learning environment. This supports the cognitive-based, constructivist view of learning which sees learning as the 'active engagement of learners in the construction of their own knowledge and understanding of facts, processes and concepts' (Bagley & Hunter 1992, p.22). Users of the programs and resources are encouraged to 'navigate' their own paths through the material, or they can use tools such as graphic organisers or site maps which are present in various resources and which illustrate the links between information.

Interactivity, meaningful and embedded activities, learner centredness and motivation

Interactivity refers to the active participation of the user in the learning process and its essence is user control. This has been taken into account in the design of the interactive exercises, which aim to 'immerse' the user in the environment, or place the teacher in the learner's shoes (Lefoe 1999), embracing work-based learning and action learning principles. Most USQ staff will need to become accustomed to a teaching system that is very new to them. Design features of the programs and resources support the concept of 'situated learning' which is based on the idea that if knowledge is learned in a meaningful and relevant context of use, it will be used in that and similar contexts (Brown, Collins & Duguid 1989). For this reason, instruction on how to use the online environment has also been immersed in the online environment with the intention of increasing motivation to learn about the system. This approach is supported by Osborn & Johnson (1999, p. 1) - a 'work embedded professional development approach' and O'Reilly et al. (2000, p. 3) - 'staff development in an authentic context'. The program has the same 'look and feel' as the environment the academic will be teaching within. Teaching staff also have the opportunity to practise interacting with groups of 'learners' online and other individuals prior to the commencement of the semester in which they are to be teaching, and to interact with the electronic assessment, feedback and recording systems.

Communication, social relations and learning styles

The design team sees electronic communication and interaction (through computer conferencing and electronic mail) as integral parts of the learning process. It is assumed that each member of the group has knowledge and skills to share with others and that each member of the group is a valuable resource. A growing body of research, not to mention our experience as online teachers and communicators reveals that, as with face-to-face teaching, online relationships can be established based on common interests, beliefs, and skills. This concept is often referred to as *social presence* (Gunawardena 1995). Facilities have been established to enable those with common interests (across the University) to become aware of each other and hopefully make contact and develop some collaborative relationships. Staff are encouraged, in self-generating web pages, to post details of their experience, skills, research interests, conference attendance and paper presentations. The 'users' group and computer conferencing facility also support this concept.

Ease of use

Entering a new learning environment can be intimidating at the best of times - perhaps even more so when entering the relatively new online environment. It is apparent to the team that support for teachers to help ease them into this new environment is a primary consideration. Development of online study aids in terms of tips, shortcuts, examples and opportunities for practice are integral parts of the design. The committee is very aware of the range of skills among staff and is concerned about academics who might find difficulty revealing their 'novice' status in online teaching and learning environments. Some people respond extremely well to working and discussing with others online. However, collaborative learning may not work for everyone in every setting and with all people. Research reveals that people involved in the same online activity can have opposite experiences based on their acceptance of the collaborative ventures set up (Eastmond 1995). For some, the prospect of posting comments to a group can be very intimidating. The design team acknowledges this and has provided opportunity for participants to make contact individually with 'experts' using electronic mail or via an electronic suggestion box, or to participate in a peer mentoring program.

Many of the key social skills needed for nurturing online collaboration are not specific to an electronic environment. They are the skills needed by anyone involved in a peer learning situation - the ability to make group members aware that their own experiences are important and worth contributing and that other peers can be a valuable source of knowledge. As Ragan (1998) comments, 'good teaching is good teaching'.

Interim Evaluation

At this early stage, it is difficult to measure whether the 'exemplars' provided have resulted in an increased shared understanding of teaching/learning in a flexible context. There are two possible explanations for this. First, in relation to pedagogical exemplars, it is possible to infer from the available data that both teachers and learners see the technology/learning interface not as a seamless or transparent divide. Although many academics demonstrate considerable understanding of the nature of teaching in higher education contexts, they do not yet fully understand how to use the technology to achieve the teaching/learning approaches they hope to achieve. The pedagogical exemplars provided are considered to be based on sound teaching-learning principles but the use of technology in operationalising these principles is still not widely understood. At this point in time, no empirically based evidence is available as to why this might be. The possibility is that it may be linked to a lack of confidence in some about the use of technology in teaching-learning environments or the continuing influence of technocrats in mystifying the role of technology in supporting teaching and learning.

Second, the administrative/management exemplars (provided to develop a shared understanding of the roles and responsibilities of those involved in the teaching-learning tasks associated with flexible teaching and learning) are not yet robust enough to challenge the existing administrative/management rationale. Although the electronic resources emphasise the need to embrace a 'team culture' in the design, development and implementation of flexible teaching-learning environments, the traditional university 'person culture' and its strong links to concepts such as academic freedom and lecturer autonomy persists (Laurillard & Margetson 1997).

Such a situation may be explained by the fact that, in an institution that adopts a multi-modal approach to teaching-learning (face to face, traditional distance education, online learning), the dominance of policies, guidelines and procedures which support the more entrenched teaching-learning models continue to operate. The arrival of online delivery with claims to provide teaching-learning opportunities 'when they're wanted', 'where they're wanted' and 'how they're wanted' affect the basis for how previous models have been offered and may continue to be offered.

Those advocating the adoption of flexible teaching-learning in higher education settings often argue that the main reasons for non-adoption of change can be directly linked to the lack of skills of the participants or to a lack of knowledge or understanding of the nature of the change. This is a 'deficit view' of change, which assumes that the organisation's members need to acquire the 'new' knowledge and skills in order to achieve the aims of the change. The framework used for this paper is not consistent with this deficit view of change. It suggests that the members of an organisation are guided by what they understand can be achieved, given their shared understanding of the nature of the activities and tasks they perform, and their understanding of the roles and responsibilities of

members within the organisation. They do not deliberately set out to sabotage an innovation. They will seek new ways of doing things if they collectively perceive that things require improvement.

Other Issues for Consideration

Technological difficulties

An important consideration in the use of electronic delivery and communication systems is that of technical support. Staff skills in using the Internet vary immensely, as do learning styles. In order to address this, additional hands-on courses on computer usage, printed tutorial material and peer mentoring opportunities have been made available. In addition, a Staff Help Desk facility exists within the Information Technology section and each faculty has in-house technical support.

Time demands

Documented experiences of those who teach online, particularly those teachers of adults in tertiary or training contexts, indicates that it can be a very labour intensive activity. The use of computer mediated conferencing, tasks associated with online assessment and feedback, and a lack of advanced computer skills can make the demands on teacher time even greater. Many of the support programs and resources focus of providing strategies to cope with the additional demands.

Conclusion

The use of an electronic environment to provide learning experiences opens up new challenges in terms of teaching and learning. It does, however, enable an interactive and collaborative approach to academic development. The challenge for those involved in staff development is to determine how to structure supporting resources for teachers to provide easy access to a dynamic environment and ensure satisfying results. The team at USQ recognises that change is a process, not one single event and that good quality designs are always 'works in progress'.

References

- Bagley, C. & Hunter, B. 1992, 'Restructuring, constructivism, and technology: Forging a new relationship', *Educational Technology*, vol. 32, no. 7, July, pp. 22-7.
- Bates, A. 1999, 'Restructuring the university for technological change', in *What Kind of University? International Perspectives on Knowledge, Participation and Governance*, J. Brennan, J. Fedrowitz, M. Huber & T. Shah (eds), The Society for Research into Higher Education and Open University Press, London.
- Brown, J.S., Collins, A. & Duguid, P. 1989, 'Situated cognition and the culture of learning', *Educational Researcher*, vol.18, no.1, pp.32-41.
- Eastmond, D.V. 1995, *Alone but Together: Adult Distance Study Through Computer Conferencing*, Hampton Press, Inc., New Jersey.
- Gunawardena, C.N. 1995, 'Social presence theory and implications for interaction and collaborative learning in computer conferences', *International Journal of Educational Telecommunications*, vol. 1, no. 2/3, pp. 147-66.
- Imershein, A. W. 1976, 'The epistemological bases of social order: Toward ethnoparadigm analysis', in *Sociological Methodology*, D. Heise (ed.), Jossey Bass, San Francisco.
- Jonassen, D.H., Peck, K.L. & Wilson, B.G. 1999, *Learning with Technology: A Constructivist Perspective*, Merrill, New Jersey.
- Knowles, M. 1996, *The Adult Learner A Neglected Species*, 4th edn, Gulf Publishing Co., Houston.
- Kuhn, T. S. 1970, *The Structure of Scientific Revolutions*, 2nd edn, University of Chicago Press, Chicago.
- Laurillard, D. 1996, *Rethinking University Teaching: A Framework for Effective Use of Educational Technology*, Routledge, London.
- Laurillard, D. & Margetson, D. 1997, *Introducing a Flexible Learning Methodology: Discussion Paper, Occasional Papers, No. 7*, Griffith Institute for Higher Education, Griffith University, Brisbane, Australia.
- Lefoe, G. 2000, 'Professional development through flexible delivery', *Proceedings of EDMEDIA 2000 conference*, Montreal, Canada, June 26-July 1.
- O'Reilly, M., Ellis, A. & Newton, D. 2000, 'The role of university web pages in staff development: Supporting teaching and learning online', *Proceedings of AusWeb2K - The Sixth Australian World Wide Web Conference*, Cairns, Queensland, Australia.

- Osborn, M., & Johnson, N. 1999, 'Helping academics to help themselves: A work embedded approach to professional development', *HERDSA Annual International Conference*, Melbourne, 12-15 July.
- Ragan, L.C. 1998, 'Good teaching is good teaching: An emerging set of guiding principles and practices for the design and development of distance education', *DEOSNEWS*, vol. 8, no. 12.
- Reushle, S., Dorman, M., Evans, P., Kirkwood, J., McDonald, J. & Worden, J. 1999, 'Critical elements: Designing for online teaching', *Proceedings of ASCILITE99 Responding to Diversity: 16th Annual Conference*, QUT, Brisbane, 5-8 December.