

A CHANGING ROLE FOR TEACHERS ON-LINE: A CASE STUDY IN HIGHER EDUCATION IN AUSTRALIA

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Introduction

Over the past two years, the Faculty of Education at the University of Southern Queensland (USQ), in conjunction with the University's Distance Education Centre, has offered a Graduate Certificate in Open and Distance Learning. This course is taught fully via the World Wide Web (WWW), with all content presentation, teacher-learner and learner-learner interactions, assignment submissions and feedback being done on-line and via email. This Graduate Certificate has now been further developed into a Masters Degree program which will be offered solely on-line.

Both programs require of students and staff a different level of interactivity from what has been the pattern in on-campus programs and traditional distance education programs previously delivered via print and other media.

This paper examines the nature of these differences and explores the complexity of the task of teaching on-line

Theoretical framework

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 ethnoepistemology is his thesis that exemplars provide group members with concrete models for their activities. Such models are based upon a shared knowledge of ways of undertaking organisational 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 delivery initiatives.

The framework adopted suggests that paradigms are more easily identified where participants perceive anomalies and respond to these anomalies. This paper shows how USQ academics have attempted to resolve anomalous conditions precipitated by the institution's adoption of flexible delivery initiatives.

The USQ context: A brief history

In the Australian higher education context, 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 academics place a

high priority on teaching and learning. Its 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 a wide range of backgrounds, USQ has responded aggressively to the challenges of distance education and international education. This is epitomised in the following statement taken from the Vice Chancellor's Home Page.

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. We are REGIONAL, FLEXIBLE and INTERNATIONAL.

There is a sense in which USQ’s pedagogical tradition was built upon an evolving “rejection of the classical tradition of passing on knowledge in the form of unchangeable ideas”, and the acceptance of “the active engagement of the learner in the formation of their ideas” (Laurillard 1993: 15).

The University attempts to “situate knowledge” in real world activity. USQ has always recognised that the classical tradition of imparting decontextualised knowledge was inappropriate. In this sense, many of the issues arising from the explosion of information and the information technology revolution, as well as the changing student population, have been more easily understood by USQ than by traditional universities.

USQ is in a good position to respond to calls for fundamental changes in teaching and learning in higher education contexts. For example, when distance education became a dominant feature of the University’s profile, many academics acknowledged the crucial role of dialogue in academic learning. The integration of in-text questions and the addition of audio cassettes in print-based materials are two cases in point. The USQ academic community successfully negotiated the “first, second and third generation” distance education models defined by Taylor (1996) (see Figure 1).

Models of Distance Education and Associated Delivery Technologies	Characteristics of Delivery Technologies				
	Flexibility			Highly Refined Materials	Advanced Interactive Delivery
	Time	Place	Pace		
First Generation - The Correspondence Model					
• Print	Yes	Yes	Yes	Yes	No
Second Generation - The Multi-media Model					
• Print	Yes	Yes	Yes	Yes	No
• Audiotape	Yes	Yes	Yes	Yes	No
• Videotape	Yes	Yes	Yes	Yes	No
• Computer-based learning (e.g. CML/CAL)	Yes	Yes	Yes	Yes	Yes
• Interactive video (disk and tape)	Yes	Yes	Yes	Yes	Yes
Third Generation The Telelearning Model					
• Audioteleconferencing	No	No	No	No	Yes
• Videoconferencing	No	No	No	No	Yes
• Audiographic communication	No	No	No	Yes	Yes
• Broadcast TV/Radio + Audioteleconferencing	No	No	No	Yes	Yes

**Fourth Generation -
The Flexible Learning Model**

• Interactive multimedia (IMM)	Yes	Yes	Yes	Yes	Yes
• Internet-based access to WWW resources	Yes	Yes	Yes	Yes	Yes
• Computer mediated communication	Yes	Yes	Yes	No	Yes

Figure 1. Models of distance education: A conceptual framework

The dominant teaching/learning paradigm at USQ is based upon a number of key exemplars:

- Learning should be student-centred, with students and staff working together to “construct knowledge”;
- Learning should be mediated through activities which emphasise dialogue, participation, critical reflection, collaborative learning;
- Learning contexts should “situate knowledge” in real world activities;
- Distance learning can be accomplished by classroom-based collaboration which provides opportunities for “mediated learning”; and
- A well-developed rationale for classroom-based learning should be used as a basis of organisational/administrative structures, systems and procedures.

With the introduction of distance education at USQ, the academic community reinterpreted elements of its existing and predominantly constructivist teaching/learning paradigm by modifying and adapting elements of simple media to ensure that the basis of “mediated learning” was preserved. The dominant elements of mediated learning—dialogue, interactivity, social presence, situated learning—were retained.

Introduction of flexible delivery

Flexible delivery was introduced as a strategic initiative two years ago. Although some claimed that this would provide more opportunities for students in terms of “what they want”, “when they want it” and “where they want it”, at this stage, the focus is more on the use (or misuse) of “network technologies” than on the potential of these technologies to facilitate teaching/learning processes.

The learning networks involve hardware, software and telecommunication lines. The basic hardware components consist of a personal computer and modem (capable of operating in a multimedia environment). Software is used to provide group interaction—essentially electronic mail and conferencing systems. The network links individual computers and enables comparatively large groups of students to use the common software system to communicate with the teacher and with each other and provides them with access to a range of information sources.

Although many units across all faculties in the University have been targeted for “flexible delivery”, at this stage, only a few entire degree/certificate programs are offered on the web. Figure 2 shows the range of units offered in the Graduate Certificate in Open and Distance Learning and the Master of Open and Distance Learning.

Unit		Credit Points	Semesters Offered
81222	Introduction to Flexible Delivery and Multi media	1.0	1, 2 or Summer Term
81520	Perspectives in Open and Distance Learning	0.5	1, 2 or Summer Term
81521	A Systems Approach to Open and Distance Learning	0.5	1, 2 or Summer Term
81522	Designing Instruction for Open and Distance Learning	1.0	1, 2 or Summer Term

81523	Design and Development of Print Materials	0.5	1, 2 or Summer Term
81524	Introduction to Web Publishing	0.5	1, 2 or Summer Term
81525	Audio in Open and Distance Learning	0.5	1, 2 or Summer Term
81526	Video in Open and Distance Learning	0.5	1, 2 or Summer Term
81527	Educational Assessment	1.0	1, 2 or Summer Term
81529	Independent Project in Open and Distance Learning	1.0	1, 2 or Summer Term
81530	Creating Interactive Multimedia	1.0	1 or 2

Figure 2. Units in USQ's Graduate Certificate and Master of Open and Distance Learning

Anomalous conditions or barriers to change?

The manner in which participants respond to anomalous conditions can provide insights into whether a current paradigm will prevail, whether modifications or reinterpretations of the existing paradigm are being contemplated, or whether a new paradigm is a possibility.

At USQ, there is little evidence of widespread resistance to “new learning theory or practice”. Hall (1996) argued that learner-centred approaches continue to be largely confined to non-traditional institutions and programs for adults and distance learners. USQ, being a relatively “new university” has developed a niche in higher education that has much to do with responding to a changing student population and the notion of lifelong learning.

At USQ the dominant teaching/learning framework, at least at the unit level, is not a major obstacle in introducing the concept of flexible delivery. There is a widespread and shared understanding of what would be labelled an open learning model where different learning delivery systems are used to meet unique and varied needs of students. That is not to ignore the fact that there is also a widespread and shared belief that “face to face” teaching and learning still provides the best context in which to achieve the best teaching/learning outcomes.

Although many of the elements, and the strengths and limitations, of flexible delivery teaching/learning systems, as these relate to first, second and third generation technologies, are generally well understood (Taylor, 1996), two major barriers to successful course design, development and implementation can be identified:

- A general lack of understanding of the potential of “knowledge media”; and
- Rigidity of organisational/administrative structures.

Barrier 1: Lack of understanding of the potential of “knowledge media”

Daniel (1996) quoted Eisenstadt who defined knowledge media as “about capturing, storing, imparting, sharing, accessing and creating knowledge”, and argued that a medium was not just a technical format but “the whole presentational style, the user interface, the accessibility, the interactivity” (Daniel 1996:109-110). For example, increases in telecommunications bandwidth and computing power have not yet been fully exploited in flexible delivery programs.

Laurillard (1993) maintained that the teaching/learning process “must recognise the special character of academic knowledge”. Such recognition, she argued, placed considerable importance on the need for a dialogue between teacher and student that is:

Discursive *teachers and students must agree on learning goals, make their conceptions accessible to each other, and give mutual feedback.*

<i>Adaptive</i>	<i>the teacher should alter the focus of the dialogue in the light of the emerging relationship between their own and the student's conception.</i>
<i>Interactive</i>	<i>the student must act to achieve the task goal and the teacher must provide feedback so that something in the world changes as a result of the student's action.</i>
<i>Reflective</i>	<i>the teacher must help students link feedback on their actions to the topic goals at every level. (Daniel 1996:107)</i>

Although academics at USQ are aware of the importance of dialogue, most remain unaware of the potential for the “knowledge media” to generate the dialogue. However, some units in the Graduate Certificate in Open and Distance Learning and the Master of Open and Distance Learning incorporate the conferencing systems (e.g. Discussion Groups using Newsgroups software). These units utilise conference sites such as “Café Chat”, “Reflections”, “Content Chat” to provide teacher-student and student-student interactions. The full potential of these conferencing systems for mentoring, collaborative learning and co-construction of knowledge has not yet been realised.

The co-construction of knowledge is based on teaching/learning principles derived from constructivist philosophies. Taylor (1994) provided some key insights into processes for selecting and organising content that will provide a teaching and learning environment more likely to facilitate the co-construction of knowledge. He described different types of knowledge (item specific, relational, strategic, empirical and affective) and related these to a “novice-expert” collaborative partnership.

Some progress has been made at USQ towards incorporating the principles articulated by Taylor (1994) into the design of some of the units. For example, the use of content maps and graphic organisers in some courses builds hierarchies which exemplify “relational knowledge” (Skemp, 1976). However, because of a lack of understanding of the potential of the technologies to organise such knowledge structures, there is still a propensity to think of content on the web as linear or one-dimensional by using formats based mainly on a “table of contents” approach.

Arnold, Shiu and Ellerton (1996), in pointing to the changes in emphasis and belief that have lead educators away from behaviourism towards constructivism and reflective learning, highlighted the availability of “technological developments which allow non-linear course design through the use of hypertext and multimedia” (p. 719). They went on to point out that unmediated access to information through the Internet, can enable students to pursue idiosyncratic paths through materials, with electronic communications permitting and encouraging students to participate in individual discussion and conferencing involving an ever-wider community.

Barrier 2: Rigidity of organisational/administrative structures

Although flexible delivery has been accorded strategic status at USQ, the operationalisation of the concept is hindered by the rigidity of organisational and administrative structures. The following list provides some of the administrative systems and procedures and personnel guidelines which, we suggest, impact negatively on the implementation of flexible delivery.

- **Quantitative aspects** associated with the management of teaching and learning are perceived to be easier to monitor than **qualitative** elements associated with course delivery. In particular, **time** affects almost every institutional act. Courses are required to be of a certain duration, offered over set periods, and consist of a specified number of units. Enrolment times are relatively fixed, as are assessment times. According to Hall (1996), “the role of time limits what can be done, when it can be done, by whom and in what manner” (p. 32).

Such administrative constraints make it extremely difficult to embrace a learning paradigm which is driven by the needs and interests of learners.

- Academic staff are allocated workloads on **staffing formulas** that are “functionally established”. Teaching points or teaching credits per year are based on lecture/tutorial format. This encourages an industrial model of service that is out of step with the ways of working with students implied in a flexible delivery environment.

Incentives and reward systems for working in new teaching/learning environments need to be investigated by management. This also needs to be accompanied by research into how to maximise student/staff ratios by using databases developed from “frequently asked questions” (FAQs).

- At USQ, the issue of who should be involved in the conceptualisation, design, development, implementation and evaluation of flexible learning programs needs to be debated openly. At present there is a danger that too much power lies with the “technocrats”. Academic staff are sometimes left out of the decision-making processes, and this not only marginalises their input but can create negativity towards the use of technologies in the teaching/learning process.

The academic community at USQ is receptive to the concept of flexible delivery as a teaching/learning constructivist philosophy. What it does not fully understand is how technology can exploit constructivist principles in new ways.

In the context of flexible delivery initiatives at USQ, three weaknesses can be identified. First, the change processes have been managed by technocrats who often have a different perspective on teaching and learning in a higher education context from academic educators. Second, no “exemplars” of sufficient scope have been put forward which members of the academic community could use as concrete models for their curriculum planning and teaching. Third, the roles of staff involved in the change processes have not been clearly defined, and there are no exemplars which provide academics with concrete models for action (Imershein, 1976).

At USQ, some preliminary work has recently been undertaken in order to develop exemplars that will encourage the academic community to gain a shared understanding of relationships between recent technological developments and teaching and learning as they currently perceive it. These developments are concerned with the concepts of graphic organisers, study schedules, and computer-mediated communication.

Conclusion

Those advocating the adoption of flexible delivery 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. Imershein's framework 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 are “not going well”.

In this paper, it has been argued that, at USQ, the participants 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 has been argued that this shared understanding comes from a history where staff have been confronted with student diversity from the outset, where they were required to use teaching/learning approaches that went beyond the traditional university model of information transmission. They are generally both receptive to and knowledgeable about the concept of flexible delivery.

Nevertheless, it was argued that the flexible delivery initiative has not yet been fully embraced by the academic community. Although it may have been able to accommodate a distance education model within an existing teaching/learning paradigm (more a “convergence” of classroom-based group instruction and distance learning) the adoption of flexible delivery has been more a change of degree than a change in kind.

Academics at USQ share a common understanding of what constitutes academic learning. Existing exemplars which guide teaching and learning are consistent with concepts of “mediated learning”, “co-construction of knowledge”, “situated learning” and “collaborative learning”. There is, however, no shared understanding of the potential that new technologies could have in providing a learning environment where these concepts can

flourish. Further, it is not clear how current administrative and organisational structures are consistent with the degree of flexibility that is apparently possible in adopting such technologies.

The overriding “technology issue” may be best solved by improving the “design” of programs so that the technologies are selected on how well they support the aims of teaching/learning rather than the technologies “driving the design”. Experience at USQ has begun to identify elements of a “teaching learning shell” which appear critical in web-based teaching and learning. For example, with reference to “communication”, it is argued that electronic conference sites are established around particular functions (or reflections, assignments, etc.) and provide teachers and students with the capacity to develop mentoring, peer interaction and collaboration, a social presence and a sense of community through a range of different types of interactivity (student-content, teacher-student, student-student).

Technology is available to develop database management systems and expert systems where learners, in theory at least, can push the bounds of flexibility. This could challenge the very existence of organisational and administrative structures, as we know them.

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