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Foreword

Many educational and training organisations in Australia and overseas have tended to see ‘flexible delivery’ as a panacea for the problems facing education in the late 1990s. There are many explanations given for its recent rise to prominence in educational and training contexts. Some say it is a response to mass education and the need to cater for more diverse student groups; others argue it is a response to industry needs for ‘on-the-job training’ or champion its value in promoting ‘lifelong learning’, while others link it to emerging educational theories concerning teaching and learning, particularly those who support constructivist approaches.

This report is about the introduction of online education in higher education. Specifically, it is a case study of one University’s approach to offering postgraduate courses totally online—the University of Southern Queensland. As such, caution is needed in extrapolating the findings from this study to other educational settings; nonetheless, the authors believe that the experiences of staff at USQ will have relevance to all institutions that have either begun to offer programs online or are contemplating doing so.

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Executive summary

The purpose of the study

This study involved an investigation of the practice of online teaching and learning in the Faculty of Education at the University of Southern Queensland. It examined this context at a particular point in USQ's history, namely at a stage where it is grappling with the emergence of online education. The purposes of the study were to assess the applicability of online education for higher education institutions, to document the issues with which teachers have to come to terms in the online environment, and to determine whether there might be a 'pedagogical framework' that is unique for online education in higher education. The study is unique in that it draws upon quantitative statistics concerning the number and types of interactions that staff and students have with the online platform as well as qualitative data designed to elaborate upon those interactions. It should be cautioned, however, that the study focused on only one institution, only one discipline area (although views from other Faculties were collected and have been reported in this report) and only on postgraduate students.

The theoretical framework

The general theoretical framework that guided this project centres on how change occurs in organisational settings. This involved a focus on more general literature concerning the implementation of innovations as well as use of a specific theoretical approach to the issue of changing teaching/learning paradigms, developed by Imershein (1976). The Imershein theoretical framework, which is described in the Theoretical Appendix, was used to determine whether a 'paradigm shift' had occurred at USQ as a result of the move from on-campus and print-based distance education to online education.

Research design

The research method employed in this research is case study. One university's approach to online education and, in particular the approach taken in one Faculty of that university, is the focus of the case study. Eight courses delivered totally online were selected for detailed analysis. The rationale for their selection, other than being totally online, was that they had different purposes (graduate seminars, projects, and the like) and they reflected a range of different content structures—from theoretically based courses to skills-based courses emphasising core skills needed to work in an online environment.

A number of data-gathering techniques were used in the study:

- Document analysis/literature review/historical account.
- Quantitative analysis of course statistics available from the *Blackboard* platform.

- Questionnaire sent to staff and students requesting them to respond to an ‘issues paper’ prepared by the authors.
- Questionnaires sent to experienced, ‘totally online’ practitioners in the Faculty of Education, USQ.
- Questionnaires sent to other online practitioners/administrators across the university.
- Interviews with senior administrators.

Staff and student responses: major issues and dilemmas in online education

The responses to the questionnaires sent to staff and students suggested that the introduction of online education had produced anomalous conditions, that is, a violation of their expectations surrounding teaching and learning. These related to three major areas: curriculum design, curriculum implementation, and teacher and learner roles.

Staff and students expressed concern that pedagogical imperatives might be taking second place to commercial interests. They also raised the issue of whether a text-based approach to both content and communication was the only way to approach online education.

When online education began at USQ with its communicative emphasis, it was seen as a potentially powerful tool to overcome some of the perceived weaknesses of traditional print-based distance education. Staff acknowledged the power of the tool, but have become aware that it has brought with it issues that have to be resolved; the quantity of interaction that online education generates, at least in some quarters, has imposed demands and possibly unreal expectations on staff and to some extent students. The interactive focus of *USQ Online* has caused concerns about the commercial viability of this type of operation. Unlike face-to-face delivery, USQ, or individual sections of the University, are not at this point in time imposing constraints on the way lecturers approach delivery; there are no set times for ‘lectures’ and ‘tutorials’ and no set student-staff interview times—it is a 24hour x 7day delivery mode.

It was acknowledged that online education provided a powerful pedagogical tool—its communicative capabilities—but this same tool had increased demands and expectations on staff and students that focused on the appropriate role of the teacher and learner in the online environment. Students have questioned whether their flexibility is being violated by ‘forced’ communications and a predominance of text and staff were unsure if the quantity of interaction was sustainable. The issue touched on appropriate levels of ‘teacher control’ in any teaching setting.

Analysis of the course statistics

The very high teacher and student communicative engagement, in particular in the case of students, compared with content engagement (accessing study materials), suggested that a significant percentage of course content was generated through communicative interaction.

It was suggested that ‘content-heavy’ courses may not be appropriate for the online environment if communication is viewed as a crucial component of the pedagogy. It was also suggested that, because there was no obvious relationship between content heavy courses and other types of courses with regard to final student grade, and as students had an ambivalent reaction to the advantages and disadvantages of print-based material, it might be the case that content heavy courses are more suited to independent learners.

The data indicated that students and staff working in the online environment operated outside of traditional temporal norms. The 9 to 5 day, Monday to Friday was replaced with a 24 hour day Monday to Sunday. The pattern of interaction between staff and students revealed a common trend; interaction was very high at the beginning of the semester and up to mid-semester and then tapered off.

While asynchronous communication was heavily utilised in the courses, usage was variable for students and teachers. Some students seized the opportunity for interaction with staff and their fellow students while others did not. There were the beginnings of informal protocols emerging that controlled the extent of interaction that a lecturer was prepared to manage.

Levels of communicative engagement for gender and different cultural groups were similar, indicating that the relative anonymity and the asynchronous nature of online education might remove barriers to participation.

Design of online courses

A consistent response from the staff in the research, not just those from the Faculty of Education, concerned a lack of flexibility in the learning management system (*Blackboard*) that is used to frame USQ online courses. It should be noted that this inflexibility might not lie in the platform’s inherent capabilities, but in how those capabilities have been adapted for use by USQ in conjunction with its commercial partner. What this response appeared to demonstrate was that there was a clear intent on the part of lecturers to let pedagogy drive the technology, but to some extent they were unable to do so because of the constraints in which they worked.

The Faculty of Education online courses were deliberately structured with a focus on the communication capabilities of online education, operating in a text-based manner. The predominance of text created its own set of issues; it would be fair to say that these were being addressed in an individualistic way, but it would also be true to say that the issues had not been resolved and certainly strategies had not emerged that might form the basis of a shared understanding of the way forward. There had been spasmodic progress made with concepts such as visual grammar, vicarious learning, intelligent tutoring, reflective writing, and communication conventions and protocols.

The analyses also uncovered themes that require further research. For example, the effect of what has been referred to as the ‘body-less realm’ of written communication online deserves study, in particular a lack of paralinguistic cues in the online environment.

With regard to how social identities are constructed through written text and associated issues, such as netiquette, masking and flaming, it was found that staff

were dealing with these issues in an individualistic manner, but a shared approach had again not yet emerged.

Similarly, it could not be claimed that a common view on what comprises effective online pedagogy had emerged; there was, however, agreement about a range of pedagogical strategies that were considered effective in achieving a range of learning outcomes.

Online teaching and learning

Online teachers in the Faculty of Education at USQ were in ‘change mode’; they were not trying to re-interpret teaching and learning around traditional structures, principles and practices.

The physical space defined by a classroom has, in an online environment, been replaced by a ‘virtual’ space defined by a ‘learning management system’. Teachers had developed considerable insights into how to use the ‘Discussion Board’ to their advantage and had made progress in establishing learning communities as a fundamental element of their online teaching and learning experience.

Teachers had become managers of learning and they seemed comfortable with the notion that they had to combine this role with another one that defined them as learning partners.

In order to benchmark the progress that USQ teachers had made towards the adoption of different teaching/learning principles and practices, a paper by Hung & Chen (2001) was used as a framework. It was demonstrated that a lot of what teachers were doing could be linked to specific components of each of the principles in the framework. Progress had been made in getting the best out of the online environment; nevertheless, many of the difficulties that teachers continued to raise focused on ‘teaching skills and information’. With regard to what Hung and Chen considered were more substantial questions relating to ‘facilitating structures’, the USQ experience was perceived to be somewhat lacking.

Managing and administering online courses

One of the most important issues that emerged from the analyses was a fundamental paradox. Staff accepted that the move to online delivery had brought with it a need for differing levels of expertise that suggested the need for a team culture, but they expressed concern over losing control of what they perceived to be their roles and even their rights.

There was one element of online education that was accepted as crucial—its interactive capabilities that are available through email, discussion, chat and the like. It was here, however, where a second paradox emerged. This interactive capability was viewed as a powerful pedagogical tool, but staff had not yet come to terms with the demands that were being placed on them through the 24 hour a day x 7 day a week capabilities of online education.

The analyses raised a third paradox. The Department of Further Education and Training had tried, as far as possible within USQ rules and regulations, to be flexible in dealing with adult learners. The practices adopted had until recently

almost universal support but, coupled with the interactivity demands that online education had created, flexibility (however defined) was emerging as a problematic issue. In other words, the person culture was emerging and could take precedence over the team culture.

It was clear that the Department of Further Education and Training had not embraced a totally new paradigm with shared assumptions about how that paradigm operated, but there were indications that changes had occurred that were supported by staff.

The beginnings of a pedagogical framework?

One of the clearest findings to emerge from the study is that there does not exist at this time a shared pedagogical framework for online education. There was a belief amongst some that an online pedagogy supported by appropriate online instructional design existed, at least partly distinct from face-to-face or traditional distance education, but what it was has not been articulated. It remains, to those who believed that such a pedagogy exists, the ‘holy grail’, an elusive, but cherished prize that might solve the dilemmas and contradictions of online education.

While online teachers in the Faculty were adopting some components of each of the principles in the framework that Hung & Chen (2001) considered appropriate for online education, they had not made the radical transformation from traditional approaches to teaching for online education.

However, we are not suggesting that the Hung and Chen framework is that elusive ‘holy grail’ referred to above that once achieved might solve all the problems associated with online teaching and online course design. In fact, we are not even convinced that the search for such a grail is constructive; it might well be that the challenge for online teachers lies not at the conceptual level of a pedagogical framework, but at the procedural level that deals with strategies and tactics that enable online teachers to cope with the new learning environment in which they are placed. This becomes even more critical if the hope of university administrators is to use online delivery to attract a global and extensive student market, especially given what we had to say in Chapter 5 about the communicative demands that the USQ approach to online education entails.

Recommendations and conclusions

At no point in this study have our respondents suggested that online education is inappropriate for higher education. While there are doubtless some discipline restrictions that limit the extent to which a totally online delivery mode can apply at this point in time, the interactive capabilities of online education and its capacity to make use of extensive and current resources, especially in comparison with traditional print-based distance education, provides educational experiences that we would suggest are ideally suited to higher education.

We would argue, however, that success in introducing an innovation such as online educational delivery does require a shared philosophical vision. It does not have to be shared across the whole university community but, if it is not, adoption is likely to be regionalised.

We make no claims about the relative merits of online teaching and learning compared with face-to-face teaching; rather, we hold the view that ‘good teaching is good teaching’. We hold that the main difference between the different delivery modes lies in the strategies and tactics available to achieve good teaching. Among the strategies that Faculty of Education staff have used to further their pedagogical aspirations and to ‘manage’ their new environment are:

- The use of concept maps.
- The creation of different forums to meet different needs (student lounge, technical support, sharing information).
- The use of what Jonassen (1998) refers to as cognitive tools, for example, problem/task representation tools (such as graphic organisers), static and dynamic knowledge modelling tools (such as databases and spreadsheets), performance support tools (such as spreadsheet templates or notetaking) and information gathering tools (for example, Webliographies or electronic library resources such as Ebscohost).
- The use of ‘Group Pages’ to assist in collaborative learning tasks, for example, problem solving and project management.

Similarly, the following represent some of the more specific tactics used:

- Placing challenging questions into discussion forums to stimulate debate about key concepts in the course.
- The use of what has been called ‘reflections’ in order to situate learning.
- The distribution of regular and brief online evaluation forms to gauge learner responses to aspects of the course.
- Netiquette and interaction guidelines.
- Protocols for synchronous chat.
- Copying discussion items or threads from one semester’s offerings into another where that item or thread appeared to be successful in generating productive interaction (a move into Fifth Generation Technology).
- Developing pre-structured responses to assessment items that might assist in reducing workload when providing feedback to student (a move into Fifth Generation Technology).

Despite the strategies and tactics used by online lecturers, the experience at USQ has revealed the resource intensity of a highly interactive approach to online education. Whether this model is economically sustainable without tighter management controls is also an open question at this time. We make no claim that an interactive approach to online delivery is the only effective delivery approach, but we are strongly committed to the belief that pedagogy must be placed before technology and before simplistic economic beliefs.

1. Setting the Scene

Glen Postle and Andrew Sturman

1.1 Background

Many educational and training organisations in Australia and overseas have tended to see ‘flexible delivery’ as a panacea for the problems facing education in the late 1990s. Interpretations of flexible delivery are mixed and varied with proponents referring to it as distance education, open learning, resource-based learning, ‘technology-enhanced’ learning and more recently ‘networked learning’ (Steeple & Jones 2002). There are many explanations given for its recent rise to prominence in educational and training contexts. Some say it is a response to mass education and the need to cater for more diverse student groups, particularly those who, because of situation and circumstance, are labelled as isolated. Others argue it is a response to industry needs for ‘on-the-job training’ while others champion its value in promoting ‘lifelong learning’. Still others link it to emerging educational theories concerning teaching and learning particularly those that support constructivist approaches (Jonassen et al. 1995). There are others who declare that the emergence of technologies determines the effects that its application has in educational contexts. Those who profess to work in the field of networked learning argue that ‘technological determinism’ has set the agenda for online teaching and learning (Bates 1999b; Spender 2000). In some sense, all of these issues have had some influence on the emergence of flexible delivery initiatives at all levels of education, particularly in tertiary contexts such as universities, technical and further education institutions and industry training.

The investigators regard ‘flexible delivery’ as a term that has been adopted to describe teaching-learning approaches that have ‘arrived’ to address the shortcomings of face-to-face education in dealing with the pressures and influences associated with the provision of ‘lifelong learning’ and ‘access and equity’ in higher education settings. As such, it has become closely linked to existing open and distance education structures, systems and approaches. It has also been linked closely with recent developments in technology, particularly the digital revolution. However, to this point in time the emphasis has tended to focus on the *delivery* of education, that is, identifying mechanisms and systems that can provide students with *what* they want, *when* they want it and *where* they want it. The provision of these delivery systems has been a welcome addition to the educational arena particularly for those who have had difficulty accessing education or for those who want greater flexibility in the way education has traditionally been offered. The ‘technologies’ that currently exist to ‘deliver’ education have improved that delivery immeasurably. However, the use of these technologies has not been accompanied by a commensurate understanding of knowledge of teaching and learning in contexts where technology is being used.

This dearth of knowledge has precipitated much debate about the place of flexible delivery as a viable alternative to more traditional approaches to teaching and

learning in higher education. Proponents of flexible delivery base their arguments on the adequacy of existing models of teaching and learning to provide educational opportunities for more diverse student groups. Opponents of flexible delivery argue that there is no substitute for 'placed-based' education which places learners in direct contact with the 'craft working practices' of individual academics (Mason & Kaye 1990).

This study is based on an investigation of these alternative views, but is restricted to an analysis of flexible delivery defined by teaching and learning that is undertaken *totally online*. The focus for such an investigation will be based upon tracing the emergence of such online approaches as a viable alternative in higher education. To do this, the study traces the adoption of these approaches by one university in regional Australia, namely the University of Southern Queensland (USQ).

1.2 Changing nature of higher education: general perspectives

There is little doubt that few, if any, universities in Australia have escaped the influences and pressures on higher education unleashed in the Dawkins era and pursued by successive federal governments. Influences of particular relevance for this study and largely responsible for significant change in the 'culture' of higher education are:

- the growing legitimacy of flexible pathways for university entry;
- the expansion of teaching strategies available particularly through flexible delivery initiatives; and
- the shrinking financial support from government and increasing trends towards 'user pays'.

In just over two decades, beginning in the Labor Government's Whitlam era, there has been a substantial increase in numbers of students accessing university education and a substantial change in the student profile of those entering universities. Supported by such changes as those contained in *A Fair Chance for All* (DEET 1990), a government initiative to increase access, participation, retention and success in university programs for a number of targeted disadvantaged groups, universities have opened their doors to a more diverse student group. Such widening of access has resulted from universities themselves legitimating flexible pathways for university entry.

The emergence of student diversity has placed increasing demands on the university sector to find ways to address the equity issues that arise from having to meet the educational needs of a more diverse student body. In many universities, particularly the 'newer ones', this focus has positioned equity as a central and strategic concern for teaching and learning within the institutions. Such strategic concerns in some institutions have resulted in the adoption of teaching-learning models such as those based on distance education.

In a recent paper, Taylor (1996b) provides a useful framework for understanding the rationale behind the expansion of teaching strategies available through distance education initiatives, particularly those involving technology.

Table 1.1 Flexible delivery technologies—a conceptual framework

Models of distance education and associated flexible delivery technologies	Characteristics of flexible 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
Videoconferencing	No	No	No	Yes	Yes
Audiographic communication	No	No	No	Yes	Yes
Broadcast TV/radio and 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

The delivery ‘generations’ described by Taylor are not necessarily linear, exclusive or discrete. Some universities, particularly those who by design or circumstances began to provide opportunities for non-traditional students, adopted distance education well before governments began to focus on access and equity initiatives. In such cases, they often operate across all four generations or across more than one generation at any given time. They are also in a much better position to be able to apply technology to teaching and learning in a manner that acknowledges the influences of such variables as ‘the type of subject matter, the specific objectives of the course ... and not the least, the student target audience’ (Taylor 1996b, p. 2). Their initial involvement in distance education has much to do with responding to changing student populations and an increasing demand for lifelong learning opportunities. This claim is supported by Hall when he argues that:

... with the growing number of non-traditional students on and off campus and the parallel developments in learning theory ... learner centred approaches to education [have increased]. For the most part these continue to be confined to the non-traditional institutions and programs for adults and distance learners.

Hall (1996, p. 31)

These developments in flexible delivery have been accompanied by shrinking government financial support for higher education. This has led to unsubstantiated claims such as those that argue that the emergence of flexible delivery initiatives is a budgetary driven response by university administrators. However, these arguments tend to lack any quantitative cost-benefit analysis to support such conclusions. The general absence of studies based on quantitative assessments makes it difficult to argue conclusively one way or the other and unfortunately hinders the further development of flexible delivery initiatives in higher education.

1.3 Online teaching and learning: the specific context

The quote by Hall (1996) mentioned earlier provides support for the claim that many of the ‘non-traditional institutions’ (the newer universities) have made most of the running in providing leadership in flexible delivery in university teaching and learning.

Since commencing its involvement in distance education in 1977, and following successful efforts in establishing niche markets, USQ’s major strength has become the development and delivery of distance education programs at both undergraduate and graduate levels. USQ currently enrolls over 21,000 students with more than two-thirds of these students studying in accredited degree programs offered by distance education. Prior to 1996, the university’s distance education degree programs were delivered almost exclusively via print using audio-visual, CMC and teletutorial support. Since 1996, the university has moved increasingly to online delivery for its graduate programs. However, at this point USQ does not aspire to be an open university. It is a dual-mode institution.

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, p. 15). The University attempts to ‘situate knowledge’ in real world activity. There has been more than a token recognition given to the criticism that teaching and learning based upon the classical tradition of imparting decontextualised knowledge is inappropriate. In this sense, many of the issues arising from the explosion of knowledge and the information technology revolution, as well as the changing student population, have been more easily understood by USQ than by traditional universities.

The move from more traditional distance education to flexible delivery models has done nothing to damage the reputation of the University of Southern Queensland. A jury of international higher education experts has judged the University the best university in the world for its global initiatives and expertise in providing flexible learning opportunities to the world. The Executive Committee of the International Council for Open and Distance Learning (ICDE), based in Oslo Norway, awarded its top two Prizes of Excellence for 1999 to The University of Southern Queensland. The ICDE has membership in 130 countries and is officially

recognised by the United Nations as the global non-governmental organisation responsible for the field of open and distance learning, and is affiliated with the United Nations through UNESCO.

1.3.1 The ‘Case’ of USQ—Emergence of Online Education

In order to explain USQ’s transition from ‘face-to-face’ teaching-learning to its more recent adoption of flexible delivery initiatives, a theoretical framework developed by Imershein (1976) has been used (see Theoretical Appendix). The framework provides the investigators with a way to “tell the USQ story”.

During the initial phase of USQ’s history, it was involved solely in face-to-face teaching and learning. This has been defined as the *Place-Based Education Model*. Using Paulsen’s (1995) framework, aspects of the dominant teaching-learning approaches at this point in time may be described thus:

Techniques	Typical activities
One alone	Library research/reading and writing tasks
One-to-one	Counselling/pastoral care
One-to-many	Lectures (face-to-face)
Many-to-many	Tutorials/seminars/forums (face-to-face)

The typical *roles* of those involved in teaching-learning tasks and procedures were essentially framed in a ‘person culture’. This meant that individuals, particularly academics, were left much to their own devices as far as preparing and presenting teaching materials were concerned. As long as timetables provided rooms and times for teaching and learning pursuits, academics were not required to work closely with other people. However, an administrative rationale was instrumental in establishing rules and systems for length of courses, numbers of lectures and tutorials and assessment times. Time was very much a controlling variable. It is also possible to indicate that at this point in time in USQ’s history, the main role of academics was to prepare undergraduates for a range of professions.

During the mid 1970s, there emerged a number of significant pressures and influences, which resulted in the institution’s adoption of what appeared to be at the time quite different teaching-learning models and approaches. For example, during the 1970s, the expansion of higher education, initiated in the 1960s with the Martin Committee and continued with the work of the Karmel Committee under the Whitlam Labor Government, began to take hold.

In 1975, there were 148,000 students enrolled in 19 universities and college enrolments were up to 125,000. By 1985, this had increased to 175,000 students in universities and 192,000 in colleges—a total of 367,000 in the sector—this represented a more than 14 fold increase in 40 years (DEET 1993). This level of growth provided almost unlimited scope for the increasing diversification of the student body. However, while some studies (Anderson & Vervoorn 1983) concluded that little had changed in respect to student make-up in the sector generally (universities tended to remain socially elite institutions), institutions such as USQ (still a College of Advanced Education at this time) recorded a significant

increase in ‘non-traditional’ students, particularly students from rural and isolated areas and those from low socio-economic backgrounds. In addition to this growth in student numbers, equity had been advanced in several areas of education during the 1970s and 1980s. For example, apart from school-level initiatives such as the Disadvantaged Schools Program, the National Policy for the Education of Girls in Australian Schools and the National Aboriginal and Torres Strait Islander Education Policy, the early part of the Hawke Labor Government saw several initiatives aimed at promoting educational equity considerations in the higher education sector. These included the Higher Education Equity Program (HEEP); a program of growth in funded places that favoured institutions likely to attract under-represented groups, and moves to encourage young people to stay on in the education system.

Accompanying changes in the numbers and profiles of students accessing higher education, developments in educational technologies provided the foundation for tertiary education providers to offer innovative teaching-learning opportunities for such a potentially diverse student body. Taylor’s (1996b) first, second and third generation models of distance education provide insights into the range and function of such technologies.

USQ responded to these pressures and influences by adopting distance education as a major education platform. This second phase of development in teaching and learning at USQ has been labelled the *Mixed Mode Model*. USQ academics were required to provide ‘face-to-face’ teaching on campus as well as design and deliver a range of distance education materials. Using Paulsen’s framework again, typical teaching-learning tasks during this period can be described in the following manner:

Techniques	Typical activities
One alone	Accessing information through books of readings, print-based study materials, library research.
One-to-one	Counselling/pastoral care on campus; Outreach programs (e.g., telephone, Regional Liaison Officers)
One-to-many	Lectures—print-based, audio and video presentations as well as face-to-face
Many-to-many	Tutorials—telephone, audiographic as well as face-to-face

The typical roles of those involved in teaching-learning tasks and procedures were changed, but only minimally. The ‘person culture’ remained a strong feature although the production of distance education materials (study materials, books of readings, audiotapes, videotapes) required that academics work in course teams with instructional designers. Other players such as graphic artists and audio-video specialists were consulted only after the design was formulated. There remained a heavy emphasis on administrative policies, guidelines and procedures designed for on-campus students. Other role changes resulted from an increasing emphasis on postgraduate programs, but the major teaching-learning emphasis was still on undergraduate programs.

While this phase no doubt brought about changes to teaching-learning within the institution, they were more changes of emphasis than of kind. The teaching-learning activities associated with distance education were designed to 'fit into' existing structures. The 'lecture' and 'tutorial' were still dominant features, in fact the writers of the distance education materials were required to detail the lecture/tutorial elements of courses of study through common requirements detailed in a document known then as 'Unit Specifications' and now referred to as 'Course Specifications'. Perhaps the most noticeable effect the introduction of distance education had on the academic community was the more *visible* design of teaching-learning materials, a factor which elevated the status of teaching and learning within the institution.

The next significant chapter in the history of USQ's development of teaching and learning began with the government White Paper *Higher Education: A Policy Statement* (Dawkins 1988). This statement guided the dismantling of the binary system of universities and colleges and the development of the Unified National System of higher education. Equity was stated as a central pillar of this new national system. It saw increased levels of education for more people as the starting point of a restructured economy and viewed equity in terms of the fulfilment of the potential available to society and to its contribution to creating a more diverse and dynamic skilled workforce.

In 1990, the Department of Employment, Education and Training, in consultation with the higher education sector, developed the policy statement *A Fair Chance for All: Higher Education That's Within Everyone's Reach* (DEET 1990). It placed the goals of equity in measurable terms by stating that:

The overall objective for equity in higher education is to ensure that Australians from all groups in society have the opportunity to participate successfully in higher education. This will be achieved by changing the balance of the student population to reflect more closely the composition of society as a whole.

DEET (1990, p. 2)

Much had changed in the higher education environment since the introduction of the national framework for educational equity in 1990. The sector had grown very significantly and had become more entrepreneurial and competitive, particularly with regard to expansion in fee-paying postgraduate programs. More specifically:

- enrolments in the sector grew considerably—485,000 to 604,000 from 1990 to 1995;
- significant growth occurred in postgraduate areas—from 47,000 EFTSUs to 74,000 EFTSUs from 1990–1995;
- very dramatic growth occurred in fee-paying postgraduate programs, following increasing deregulation in the early 1990s and greater pressure for universities to raise non-government sources of revenue;
- international education developed rapidly—from 18,000 in 1988 to over 52,000 in 1995;
- Australia experienced a gradual move towards 'lifelong learning'. DEET (1993) predicted that the proportion of people in the workforce with higher education qualifications would rise from 22% in 1994 to 26% in 2005 with most of this increase coming from the upgrading of qualifications through a commitment to 'lifelong learning';

- increasing pressure for a user-pays environment in conjunction with a trend to increased non-government sources of funding and a declining level of government funding per student placed pressure on the system to broaden fee-paying arrangements and to alter the nature of student income support. Such considerations came to fruition under the federal coalition government in 1995;
- governments placed increasing pressure on the higher education sector to adapt to the challenges created by the need for universities to support economic development and workplace reform, to become increasingly entrepreneurial, increasingly efficient in their operations and hence to become increasingly competitive; and
- the Internet emerged from its military beginnings and impacted upon education. ‘Higher education became the focus of intense pressure to expand and to provide students with the skills that are presumed to be required for the development of a networked society and a knowledge-based economy’ (Trilling & Hood 2001, cited in Steeples & Jones 2002, p. 3).

All universities have been forced to respond to these pressures and nowhere has this been more evident than in the core business of the sector—the provision of teaching and learning opportunities. In order to present itself as a ‘university of the new millennium’, USQ responded to the challenges inherent in the various pressures and influences that are changing the way higher education is offered. This is epitomised in the following statement taken from the Vice Chancellor’s Home Page:

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.

<http://www.usq.edu.au/vc/UniView/view.htm> [accessed 8 February, 2003]

This has resulted in a third phase of teaching and learning at USQ, labelled *Flexible Delivery Model*, of which the ‘totally online’ approach is a central feature. Using Paulsen’s framework, some tentative teaching-learning tasks can be identified. However, it is much less clear than the first two phases since the institution is still in the process of generating what ‘totally online’ might mean and how this might relate to previous models of teaching-learning. Nevertheless, it can be tentatively described as follows:

Techniques	Typical activities
One alone	Researching information—online databases, online journals, webliographies
One-to-one	Mentoring, counselling—email
One-to-many	Lectures, symposiums—bulletin board, listserv
Many-to-many	Tutorials—computer-mediated communication

Note: This approach has not been designed to ‘take over’ or ‘replace’ existing approaches. However, it is being treated as a central plank in the University’s pedagogical repertoire.

The change of roles of those involved in teaching-learning tasks and procedures is significant. However, it must be remembered that the Flexible Delivery Model is still in its early stages of implementation and many of the roles of those involved in teaching-learning tasks and procedures have placed the participants in an uncertain world, somewhere between the ‘person culture’ of the face-to-face model and the ‘team culture’ of the flexible delivery model. Whereas the teacher operating in a ‘person culture’ is a free agent within some limits, the teacher in a ‘team culture’ must accept that there are many involved in both the design and delivery of teaching-learning via the web.

As well as this, there is a need for the administrative rationale to play a more supportive role to the educational rationale encapsulated in the Vice Chancellor’s words of ‘giving people what they want, where they want it, when they want it...’. Policies and procedures that are based on rigid systems and guidelines, however well intentioned, will not support a flexible delivery model.

1.4 The study—a summary

This study involves an investigation of the practice of online teaching and learning in a specific context. It involves observing this context at a particular point in USQ’s history, namely at a stage where it is grappling with the emergence of online education. Whether such activity will result in the articulation of a new or challenging paradigm for teaching and learning in higher education is for the study to resolve.

In order to address this issue, the study involved an investigation of the way the Faculty of Education at the University of Southern Queensland had responded to adopting totally online approaches at the postgraduate level. Eight courses, delivered totally online in a postgraduate program, were selected as a focus for the investigation. A description of the design of the research project follows.

2. The research project

Andrew Sturman, Lesley Richardson and Glen Postle

2.1 Background

Like many researchers, McMillan (1992) has made the distinction between two traditions or approaches in educational research—quantitative and qualitative. Within those paradigms, there exist a number of different research methods and within the methods there are a variety of potential techniques for collecting information. This study is placed within the qualitative tradition, using a single-site case study method and employing a range of data collection techniques appropriate to that method.

This chapter explains the approach and the method used to conduct this study. It then describes the particular techniques that are used in its conduct.

2.2 The qualitative and quantitative paradigms

Two traditions of research have developed within education, each with its own terminology, methods and techniques. Different researchers have used different names to distinguish between these two traditions of research. Sometimes the distinction is made between quantitative and qualitative traditions in research, sometimes between humanistic and scientific traditions, and sometimes between positivist and phenomenological traditions. In essence, these are all different ways of discussing the same distinction. The quantitative tradition includes methods such as ex post facto research, survey research, experimental and quasi-experimental research, while the qualitative tradition includes methods such as case study, ethnography, historical and action research.

This study investigates the impact of the introduction of totally online approaches at USQ. Consequently, because of the complexity of the relationships and their potential interdependencies, it was considered more appropriate to conduct a study predominantly in the qualitative paradigm. Similarly, because the study is being conducted in a single institution focusing on a single issue, case study methodology was considered the appropriate method within the qualitative paradigm. Case study is an eclectic method that allows a range of data-collection techniques to be employed. In this case study, in order to determine the nature and intensity of the issues involved in the adoption of totally online approaches, some quantitative data-collection techniques were employed. The concept of ‘engagement’, for example, was measured utilising statistics available in the courses software.

2.3 The case study method

A case study is defined by Wiersma (1991, p. 422) as ‘a study characterised by an investigation of a single individual, group, event or culture’. Sturman (1994, p. 640) notes ‘while the techniques used in the investigation may be varied, and may include both qualitative and quantitative approaches, the distinguishing feature of case study is the belief that human systems develop a characteristic wholeness or integrity and are not simply a loose collection of traits’. He comments that it follows that an in-depth study of the interdependencies of parts and emergent patterns is needed to understand the case, to explain why things happen and possibly to generalise from that case to other situations.

Stake (1988) comments that what is special about the case study is that it ‘focuses on a bounded system, whether a single actor, a single classroom, a single institution, or a single enterprise—usually under natural conditions—so as to understand it in its own habitat’ (p. 256). Case study works on a conceptual structure, building an understanding and drawing conclusions. ‘What the researcher looks for are the systematic connections among the observable behaviours, speculations, causes, and treatments’ (p. 255). Yin (1989) identifies the case study’s unique strength as its ability to deal with a full variety of evidence and as a specific strategy has a distinct advantage when ‘a “how” or “why” question is being asked about a contemporary set of events, over which the investigator has little or no control’ (p. 20).

While case study has certain fundamental defining characteristics, Stenhouse (1985) referred to four styles of work within case-study methodology:

- Ethnographic case study involving single in-depth studies and usually employing the techniques of participant observation and interview.
- Evaluative case study involving the evaluation of programs where more often than not condensed fieldwork is considered appropriate rather than lengthy ethnographic techniques.
- Educational case study designed to enhance the understanding of educational action.
- Action-research case study designed to contribute towards the development of a case under study.

This study can be defined as educational case study although there are elements of evaluative case study in the purposes of this project.

2.3.1 Case study and theory

Glaser and Strauss (1968) suggested that case study learnt itself ideally to ‘grounding theory’, that is, theory grounded in the data collected in contrast to theory generated from logical deduction from *a priori* assumptions. This approach has, however, been modified over the past decade. Sturman (1994) warned that case study researchers should not proceed without guiding theories and hypotheses. Likewise a ‘conceptual framework’ (Miles & Huberman 1984), ‘theory-building’ (Yin 1989) or ‘conceptual structure’ (Stake 1995) are recommended as vital steps in the planning of case study research. What has prevailed from Glaser and Strauss’ approach is that preconceived theories should not impose relevance in concepts and hypotheses in the conduct of research; Glaser and Strauss themselves

acknowledge that researchers enter settings with theories or hypotheses, but they saw these only as a ‘general sociological perspective’.

The use in this study of change theory and of the Imershein framework specifically was designed to meet this need, that is, it was designed to provide a broad framework that did not impose relevancies (see Theoretical Appendix). The Imershein framework is attractive in the USQ context because the driving force for the implementation of online education has been a relatively small number of people and it is their view of what online education entails that the study describes. The framework also provides a way to investigate relationships between the way members of the academic community engage in particular activities and the knowledge they bring to bear on these activities.

2.4 Data-collection techniques

The degree to which case study research can be structured or unstructured is often ignored in methodological discussion. Louis (1982) indicates the dimensions of variation in multi-site/multi-method studies. Louis suggests that to understand the variety possible, it is necessary to examine the nature of the design and practice at three points in the study: during data collection; during data-base formulation; and during the actual data analysis.

In effect what Louis is saying is that there is no clear and obvious set of steps that distinguishes case study and that the data collection techniques used are quite varied, ranging from techniques usually perceived to be qualitative (such as interview and observation) to those usually perceived to be more quantitative (such as questionnaires).

The techniques used in this study were:

- data mining (from the course statistics in the *Blackboard* software used to frame the online courses);
- questionnaires; and
- interviews.

2.5 Conduct of the study

2.5.1 Selecting the online courses

Eight courses were selected for this analysis, all of them offered ‘totally online’. The rationale for their selection was that they were totally online, they had different purposes (graduate seminars, projects, and the like) and they reflected a range of different content structures—from theoretically-based courses (such as those emphasising principles of teaching and learning) to skills-based courses emphasising core skills needed to work in an online environment. These courses are described in Chapter 4.

2.5.2 Selecting the participants

- An initial issues paper was sent to 20 USQ staff comprising a sample of academics that taught online courses, were instructional designers involved in online courses, or other personnel at USQ who had some involvement in the introduction of online education (for example, the USQ librarian, staff in student administration and staff in Faculty administration).
- The same issues paper was sent to a sample of students enrolled in totally online courses (n=25). These students were in some ways atypical in that most of them had experienced more than one online course where the content dealt with issues associated with online education. They were also postgraduate students who were presumably more experienced with different types of learning.
- A questionnaire was sent to all experienced Faculty of Education teachers of online courses as well as some experienced in the design of online materials who had some online teaching experience (n=17). For the purpose of this study, experienced was defined as having taught online for at least two years and/or having developed fully online courses.
- A questionnaire was sent to staff outside the Faculty of Education who were involved in online education, but not necessarily totally online (n=15).
- Interviews were held with the senior academic administrators of the University (n=11).

2.5.3 Role of the research team

The team comprised members of the Department of Further Education and Training in the Faculty of Education, the USQ Distance Education Centre and the USQ Office of Preparatory and Academic Support. All but one member of the team has or is currently teaching online in the Faculty of Education. Five members of the team have also had instructional design duties directly related to online education. In addition, three members of the team have had extensive administrative involvement in the operation of online education and the development of online programs. Most members of the team have developed at least one online course.

While every effort has been made in this study to remain impartial and to acknowledge both the merits and potential problems of online education, the team has been committed to and heavily involved in its implementation for some years.

2.6 Limitations of the study

As with all case study research, care is needed in generalising from the results of cases even though 'naturalistic generalisation' (Stake 1980), that is, a process whereby the reader assesses the extent to which a particular case might be extrapolated to other situations as opposed to the researcher making those extrapolations, is a legitimate aspect of the method.

It is possible that findings from a study conducted in and by an institution that has expressed its commitment to a particular delivery mode, and has now been

involved in this delivery for some time, might be different from findings that emerged in a different context.

More specifically, the quantitative element of this study has particular weaknesses associated with it. The study team has, as indicated earlier, made use of the course statistics that form part of the *Blackboard* software. These statistics provide ‘hits’ that measure the engagement of participants with particular course elements (for example, discussion board, study materials). What the statistics are unable to provide are the meanings behind such engagement. For example, the statistics will indicate whether a participant has posted a message from the discussion board but, other than that, they say little about participants’ activity in that board. Similar limitations apply to hits on other course elements.

In addition, because the statistics tell us little about student motivation and behaviour, they cannot take account of students who choose to access the material through downloading it (and then interacting with it outside the platform) and they cannot take account of the e-mail correspondence between course participants that takes place outside the course environment. An attempt has been made to address some of these issues through some of the data-collection techniques described earlier.

2.7 Summary

Table 21 below provides an overview of the research design.

Table 2.1 Research design

Aims	Methods
<ul style="list-style-type: none"> • To establish the nature of the critical elements of the current teaching/learning paradigms used at USQ. 	<ul style="list-style-type: none"> • Document analysis/literature review/historical account.
<ul style="list-style-type: none"> • To determine the effects of the introduction of totally online approaches. 	<ul style="list-style-type: none"> • Quantitative analysis of course statistics. • Survey—staff/students
<ul style="list-style-type: none"> • To determine the nature of totally online approaches in terms of emerging pedagogical models and frameworks. 	<ul style="list-style-type: none"> • Questionnaires to ‘totally online’ practitioners. • Questionnaires to other online practitioners/administrators. • Interviews with senior administrators

3. Major issues and dilemmas in online education

Glen Postle and Andrew Sturman

3.1 Introduction

The overall theoretical framework for the study is based upon Imershein's explanation of the nature of organisational change (see Theoretical Appendix). Imershein claims that it is only when 'anomalous conditions' are evident that members of an organisation will contemplate change and it is only then that they will want to do something to address such anomalies. When 'things are not as they should be', members of the organisation are more likely to suggest ways in which such anomalies might be addressed and this has the potential to be expressed as a shared understanding of the way ahead.

To address these theoretical propositions, various approaches were employed for the different phases of the study. The first phase is based upon the use of qualitative data-collection techniques in order to gain an understanding of the meaning given to the changes to teaching/learning at the institutional level by staff and students. The purposes of this chapter are, therefore, (a) to identify issues and dilemmas (anomalous conditions) facing those who are involved in online teaching and learning in higher education within the Faculty of Education at the University of Southern Queensland and (b) to postulate explanations for such issues/dilemmas that will be explored in more detail in later chapters. This section of the study details the way that totally online approaches have been 'received' by the staff in the Faculty of Education who have been responsible for the design and delivery of the postgraduate programs that are offered totally online.

3.2 Data-collection techniques used

A qualitative analysis of the initial staff and student questionnaires were utilised for this phase of the study to develop an understanding of the nature and extent of key issues affecting the adoption of totally online approaches. In later chapters, the issues raised here are explored further through a more detailed analysis of course statistics as well as the responses to the questionnaires that were sent to the experienced online users and to the key personnel involved in making decisions about the future of online education at the University of Southern Queensland.

3.3 The staff questionnaire

The questionnaire (Appendix A1) was distributed electronically to ‘20’ staff members. Of those, ‘8’ were teaching online courses or courses with an online component, ‘8’ were involved in University administration that impacted on online education and the remainder were people whose role was affected by online delivery or who contributed in some way to that delivery. Fifteen questionnaires were returned.

While this questionnaire focussed on the confirmation or otherwise of a number of specific issues identified by the investigators, there was the capacity to raise other issues. The responses are grouped around four themes—online learning, online teaching, managing/administering online teaching and learning, and designing online teaching and learning programs. An initial overview of the responses suggested that these four themes captured the essence of the issues that were raised by staff and, therefore, represented a coherent way to present the data. Appendix D contains all staff responses to the questionnaire.

Table 3.1 documents the major issues that were raised by staff within these four overriding categories. The number in the brackets beside each sub-category indicates the number of times that this issue was raised in the responses.

Table 3.1 Staff responses to questionnaire: major themes and categories

Online teaching	Online learning
<ul style="list-style-type: none"> • Education versus commercialism (n=3) • Place of interaction in online teaching (n=3) • The influence of different content structures (n=3) • Need for new teaching skills (n=1) • Misuse of technology (n=3) • Convergence/divergence of teaching (n=1) 	<ul style="list-style-type: none"> • Learner expectations (n=4) • Inclusivity/culture/expertise levels (n=4)
Managing/administering the online setting	Designing online teaching/learning courses
<ul style="list-style-type: none"> • The market attractiveness of online education (choice/customer focus) (n=5) • Efficiency/effectiveness (n=3) • Technical support (n=2) 	<ul style="list-style-type: none"> • Predominance of text (n=2) • Online education as culture or cultural artefact (n=1)

3.3.1 Online teaching

Staff responses in the category of online teaching ranged across a variety of issues that related to pedagogical practices over which teachers had some control and to matters that impacted on their life, but were beyond their influence.

Education versus commercialism

In his presentation to the 2001 Conference, *Online Learning in a Borderless Market*, Professor Roy Webb drew attention to the view expressed by the Labour Party, in its *Knowledge Nation* policy statement, that online education is a relatively cheap way to improve access to higher education. He went on to say:

If 'half HECS' translates into half the funding universities now receive per student, and I realise that such a result does not necessarily follow, participating universities will experience declining average funding across their total HECS enrolments. This might not represent a problem if the widespread assumption that delivery costs are lower for online delivery than for other modes of delivery is in fact correct. One way of achieving lower costs would be to abandon the teaching-research nexus and recruit teaching-only staff to handle online teaching and, of course, allocate higher effective teaching loads to these staff than to other staff.

Webb (2001, pp. 3–4)

Chipman (2001, p. 12) has argued from overseas experience that delivery is more expensive in the online mode and, to maintain small interactive learning groups, might require the 'globalisation of academic labour'.

Respondents to the questionnaire (3) feared that pedagogical imperatives might be taken off the agenda if commercial interests took control. They suggested that attempts to capture market share would see teaching assume a relatively minor place in the delivery of online education. For example:

To reduce costs, education will be modularised and useable packets of data and processes will become available as 'information objects' that can be used across disciplines. The debate about pedagogy might get left behind as private industry rejoins the process. Private organisations are already offering higher education online with accreditation through registered training organisations and commercial areas of universities.

Skilbeck (2001, p. 61) has also drawn attention to the fact that technology has aided the modularisation of knowledge and has questioned its implications:

Knowledge is being broken down constantly into manageable, assimilable groups of elements, which are being joined with other elements in creating whole new forms, bodies, structures of knowledge. This is not a philosophical or theoretical movement; it is a result of course design strategies and procedures and the resources of technology. I doubt whether sufficient attention is being given to systematic, coherent curriculum designs grounded in clear views about the contribution of university study to either general education or lifelong learning.

Place of interaction in online teaching

The totally online approach allows teachers not only to provide the access and flexibility that is the hallmark of traditional distance education, but to enhance interaction particularly between teacher and student and between students. Interaction between learners, wherever they may be, is now technically but a 'click' away. This type of interaction is predominantly text based, but it has been argued that the growth and development of text-based communication, particularly asynchronous communication, is ideally suited to higher education:

...the asynchronous and precise nature of this means of communication is consistent with higher order thinking and cognitive development ... and in higher education writing is crucial to thinking about complex issues in a meaningful manner.

Garrison (1997, p. 5)

However, where does this place totally online approaches in relation to 'place-based' approaches? Are there differences or are any differences more superficial than real? Is the adoption of totally online approaches just a reinterpretation of principles underlying 'place-based' education, replacing face-to-face communication with text-based communication or does it imply the adoption of new teaching-learning models?

Respondents agreed that the adoption of online approaches provided a number of advantages over traditional distance education, one of the most significant being the increased opportunities for interaction between teacher and student, and between students. While this interaction was available both synchronously and asynchronously, some respondents suggested that the potential of synchronous communication was far from being realised. The point being made here, however, was not simply related to different types of text-based communication, but included multimedia such as video and audios:

To increase the delivery of more than just text/images requires a synchronous teaching environment. Limitations of the synchronous environment are –

- *all participants must have a minimum computing environment;*
- *time coordination issues;*
- *the lack of the ability to capture sessions for future perusal without the use of specialist equipment;*
- *security—the need to introduce new applications;*
- *the inclusion of 'experts' from outside the campus environment is difficult as the systems tend to be geared to employed staff or currently enrolled students.*

Clearly this respondent is arguing from a position, which supports 'real-time' interaction similar to what occurs in face-to-face situations, but this fails to acknowledge that asynchronous computer mediated communication is seen by many as having an important role to play in online teaching in higher education. For example, Garrison (1997, p. 5) highlighted:

The reflective and explicit nature of the written word is a disciplined and rigorous form of thinking and communicating...it allows time for reflection and thereby, facilitates learners making communications amongst ideas and constructing coherent knowledge and structures.

Other comments pointed to the importance of different types of interactions, in particular learner/teacher interaction and learner/learner interaction:

In my experience with processing online student administration questions (USQ Online Support Centre) and liaising with the online administrative staff, the issues of personalising education seems to be a big issue. Online provides the opportunity for regular interaction with other students...and the lecturer. It can be more personal with smaller groups interacting. I think the online experience (compared to distance education print based students) encourages group study or at least contact with other students. There has always been a need for this (example—extensive use of Learning Circles) but online makes the interaction a compulsory part of the learning process.

The influence of different content structures

At USQ, the software used to ‘frame’ and deliver the courses is *Blackboard*. Consequently, the ‘shell’ or ‘framework’ for the course design is based on the functionalities provided by the software. This has resulted in a certain ‘sameness’ in the structure of the courses especially as the instructional design emanated from a centralised centre within the University. It is interesting that some staff have indicated that the ‘same shape fits all’ thinking is not appropriate, particularly in terms of the interactive elements, which are part of the software. This comment is not to be confused with a criticism of the software; it relates to the way in which that software is being used, particularly the tendency for some to allow the technology (in this case the software) direct the nature of teaching and learning.

Some USQ questionnaire respondents argued that the type of teaching framework currently being used is inappropriate for some content structures:

I think that the issues paper has focussed on only one component of online teaching with which this university has the greatest experience, i.e. the use of discussion groups to provide collaborative learning, interaction and personalisation ...because most of the experiences of this university in online education have been in the disciplines of education and business, disciplines in which this way of learning is encouraged anyway, it has resulted in a biased view of online education.

With regard to subject content, Johnson (2001, p. 71) has maintained that full-scale Internet-based education is suitable in ‘certain subject areas’ for ‘mature students with a command of the technology’. He goes on to say:

Nobody is going to develop online courses over the whole range of studies found in the modern, conventional university, where the units are numbered in thousands, not hundreds. The main application of online courses will be in the restricted, vocationally-oriented curriculum which focuses on the principle of immediate application—learn tonight and apply tomorrow in your day job—with an emphasis on the soft skills necessary for business.

Johnson (2001, p. 71)

While there were some questionnaire respondents who believed that there are some subject areas that are unsuitable to offer online, this view was not universal; some

teachers surveyed had a more imaginative view of the relevance of online education to disciplines that had been slow to adopt the approaches:

...an area that might have further investigation is the suitability of online learning for a given academic field of study...it might seem obvious that teaching someone how to ride a bicycle is not really practised [online but] we might want to check to see if our own conditioning and bias isn't colouring our view of the potential or unsuitability of online [approaches].

Need for new teaching skills

Improving the quality of learning is no light undertaking and does not happen just because teaching goes online. A high quality learning system with real potential for improving student performance would entail a quite substantial investment—human, intellectual, financial...

Skilbeck (2001, p. 62)

Spender (2001, p. 23) argues that 'we need new learning theories and practices to account for online processes'. This view also emerged in the responses to the USQ questionnaire. While much of the debate surrounding the introduction of online teaching and learning at USQ has focused on how it compares with the 'ideal' (face-to-face teaching), there were some who argued that such comparisons are unproductive and more effort should be expended on the identification of new teaching skills and approaches that would capitalise on the potential that online education brings:

...course facilitators need a range of other skills (not just knowledge or expertise and how to use the technology)...the simple issue of the lack of non-verbal communication in this mode of delivery raises significant impediments for the teacher...we could be facing a whole new ball game demanding new paradigms with online education.

Misuse of technology

Ryan (2001, p. 31) argued that 'what or how we spend on technological infrastructure is only one of the strategic issues in online learning'. She suggests, however, that 'it is obvious that we have been unable to spend enough, but in technology, as in health, welfare or education generally, there is never enough' (p. 31).

The pace of change in the use of technology in education has been dramatic, so much so that some suggested the technology had become the focus of attention in defining the nature of the change. When this occurs, teaching can become identified with technological excesses such as those encapsulated in multimedia performances of 'Disney-like' proportions:

...a danger from 'techies' who blind others with the bells and whistles and are often oblivious to good pedagogical practices in online education.

Then there were those who took this further arguing that:

From the earliest 'speak and tell' machines, it has been clear that the computer has much more to offer than the role of a substitute textbook. Yet shovelware lives on now perhaps graced with the name 'courseware'... The hardest category (of teaching) concerns understanding and the ability to create novel solutions. I would venture that only a very small proportion of our teaching reaches this level. Here the computer can pose the problems in a realistic form.

This is clearly a reference to the potential of cognitive tools now readily available in much of the technology (Jonassen et al. 1998). However, the inference in the last comment is similar to the caveat expressed by Mayes et al. (2002) who see the misuse in technology as having the potential to resurrect the 'transmission culture'. For example, they note that:

...we have witnessed a gradual shift away from the tutorial dialogue as the cornerstone of the learning and teaching experience, towards a notion of teaching through the effective delivery of information, particularly through...multimedia presentation. We observe this trend by noting a subtle shift in the language used to describe education and training. Increasingly, it is described in terms of the delivery of materials or even as the delivery of learning.

Mayes et al. (2002, p. 3)

Convergence/divergence of teaching approaches

Commentators are often the newly converted, exhilarated to the point of irrationality by the Internet-based road to Damascus experience or they are prophets of doom, more interested in the path to destruction than a road to salvation.

Professor Peter Swannell cited in Ryan (2001, p. 27)

Understandably, the adoption of totally online approaches at USQ has its supporters and its opponents. Some of the staff surveyed saw the emergence of 'two camps' as a development that would hinder progress:

One of the major issues to me is the growing divide between academics who see online education as something 'out there', that is a threat, and those who embrace it as a panacea.

While there was considerable support for online education in higher education, it was not generally viewed as replacing on-campus or traditional distance education. Rather, the prevailing view was more in favour of a convergence of teaching models:

...I see online education serving an integral component of all distance education and perhaps on-campus education as well, with a mixed mode (hybrid) evolving to take advantage of the best attributes of all modes.

3.3.2 Online learning

Two major issues were raised in this section: the desirability or not of flexibility in educational delivery and inclusivity in online approaches.

Learner expectations

The knowledge required to fuel this new form of work and wealth is not the sort that the university has delivered throughout the industrial era... The university content is not packaged in a manner which learning shoppers will find attractive; nor is it accompanied by quality services, which learner/ customers have come to expect. So it will have to transform its content, technology and services—not to mention its business model.

Spender (2001, p. 22)

Chipman (2001, pp. 11–12) has argued that the future will see a reduction in the number of traditional universities and that their main challenges will be to reduce costs to become price competitive, to persuade governments to persist with levels of protection that guarantees them student load and ‘to reorganise work patterns and modes of operation to meet rising student expectations of convenience-focused delivery’.

Just as with traditional print-based distance education, one of the reasons given for students choosing to undertake studies online related to the flexibility of time, place and pacing of courses. The philosophy adopted by the Department that manages the courses selected for this study has, in some modest way, begun to push the boundaries of such flexibility (see Chapter 7).

Although staff voiced some concerns about the resourcing of such flexibility, it was generally accepted that online education, like traditional distance education, provided access to study for those whose situation or circumstance provided barriers to studying on-campus. For example:

The extent of online study will be a personal choice made by students and sponsors... and will contribute to the flexibility sought by users.

However, some concern was expressed where student choice became linked to demands for courses to be ‘serviced’ 7 days a week, 24 hours a day:

Online teaching does come at a significant cost as the expectations of students, working in a 24 hour leaning environment is that support is available 24 hours.

Some saw it as imperative that online educators understand their clients much better:

We need to think more about and understand e-learning from the users’ perspective—for example, why students go online.

These issues surrounding ‘student expectations’ raise some complex questions that link to the concepts of ‘power and control’ in online environments. While traditional distance education provided access and went some way towards meeting the needs of learners who could not access higher education via more traditional

pathways, online education has opened the door still further. The increased levels and quality of interaction have meant students have the potential to access staff and other students any time of the day, at any point in the course and in many cases promptly. It is obvious from several staff responses that responding to student expectations that accompany such development is becoming an issue. Several staff also believed that online education puts *too much* flexibility in the hands of the learner:

Online learning plays directly into a human failing. To quote a Scottish proverb—what can be done at any time will be done at no time. Only when we truly understand what motivates people to better themselves in a given area will we be able to design online learning that overcomes the tendency to treat online learning as a poor substitute for a 'live' classroom.

In fact, some respondents even saw the tendency to recreate the classroom online as having its origin in student expectations and they questioned the direction that resulted from this:

As I understand it, the argument seems to be that, to the extent that technology reproduces tradition the online experience will be familiar, comfortable and 'good'. But in terms of learning—the changing of behaviour—is it also possible for the online experience to be unfamiliar, uncomfortable but effective at least for some audiences?

This last comment contains the elements of a compelling argument in support of online approaches in higher education. Significantly, its focus is on *learning*. In a recent paper by Hung and Chen (2001) in which they argue a case for a 'communities of practice' perspective in online education, they maintain that:

Learning is about dialoguing in matters that we need to understand or that trouble us: not just dialoguing with anyone, but with those that challenge us, those who can provide us with a difference.

Hung & Chen (2001, p. 10)

Is this what is being suggested by the staff member who posited the view that the online experience might be 'unfamiliar, uncomfortable but effective'?

Inclusivity

The universities have a very narrow notion of a student; this is apparent when it is recognised that just about every member of society is turning into a learning shopper.

Spender (2001, p. 22)

The 'issues paper' that accompanied the questionnaire sent to staff identified several areas where issues of inclusivity might arise in online settings. These included learning styles or preferences, cultural differences and differences in background as well as levels of expertise.

For example, with reference to the perceived inference in the issues document accompanying the questionnaire that postgraduate students may be more suited to web-based learning environments, the majority of staff disagreed:

I'm...concerned about the assumption that postgraduate students are more suited to e-learning.

Online teaching presents no more difficulties for individuals than traditional forms of teaching. Individuals will always have different learning characteristics such as cultural difference, learning styles and expertise.

...new school leavers are more and more becoming more online literate and may actually prefer to learn with the new technologies.

Of course, this latter comment only focused on the ability of undergraduates to 'work with computers'. It fails to mention the possibility that undergraduates may not possess the 'learning skills' or 'independence' that may be needed to function effectively online.

As indicated earlier, respondents did suggest that some 'knowledge structures' were difficult to offer online, but the responses did not support Johnson's (2001, p. 71) view that online would only be appropriate for 'the restricted, vocationally-oriented curriculum which focuses on the principle of immediate application—learn tonight and apply tomorrow in your day job—with an emphasis on the soft skills necessary for business'. Generally speaking, background or levels of expertise did not rate as the barrier one might have thought it could be. A similar response was accorded cultural differences, as many staff indicated that they believed that online approaches were more 'inclusive' than other teaching/learning contexts:

I don't believe this is a big problem. I believe that online teaching and learning goes some way to de-emphasising cultural differences. In a way Computer-speak English has become the universal language.

This seems to focus on a definition of cultural difference based on ability with language. Such a view ignores the notion of cultural difference that impacts upon methods of teaching and learning that are dominant in particular cultures. It also fails to acknowledge that cultural difference, defined predominantly in terms of ethnic differences, may ignore the possibility of 'sub-cultures' in particular online learning communities which might influence the processes of teaching and learning. Little was made of differences in learning preferences or learning styles although some suggested that 'text-based' environments ignored the needs of 'visually-oriented' learners and those who were 'non-native speakers'.

The only other area raised which touches upon the notion of inclusivity concerned difficulties of access to online courses that some students may experience:

Online teaching can be an expensive option for students:

- *cost of extended phone calls in some areas is prohibitive especially where there is a need to download masses of information;*
- *service provider charges;*
- *can be excessively time consuming accessing information online.*

3.3.3 Managing/administering the online setting

The issues raised in this section ranged from resourcing online education, including its very viability, to matters of efficiency and effectiveness in its delivery.

The market attractiveness of online education

Universities who do not do their homework and establish demand for online courses by more rigorous methods than they currently use will, I suggest, suffer the same fate as the companies which entered 2000 believing 'build it and they will come'.

Ryan (2001, p. 29).

Chipman (2001, p. 12) has argued that 'while there is strong student acceptance of online elements in courses and programmes...there is still strong student resistance to total delivery by online mode'. King (2001, p. 47), while not endorsing this view, has raised another crucial issue related to the market:

We have had a real failure at finding scaleable teaching and learning models because to go into an international delivery ... you have to contemplate enrolments between 1000 and 2000 in programme areas—if you are serious. You cannot do that with a group of academic staff who are undertaking their conventional research, teaching on-campus students, who think they can allocate a few weeks a year to this new online environment and are prepared to take 20 or 30 students per semester.

King (2001, p. 47)

Is online delivery, therefore, the golden goose that many saw it?

The responses from participants of the questionnaire did not directly address market issues but, through the emphasis on resource issues associated with online delivery, they indirectly addressed this issue.

Issues surrounding the resourcing of online teaching and learning were by far the most often mentioned by respondents. Typical of such responses was the following:

...the oft-made claim that online is somehow 'cheaper' needs careful work...it may be that 'we' fooled ourselves by saying that it was to be cheaper in our efforts to give it some credibility in the extremely tough economic environment.

...under-resourcing education to the extent where educational and admin staff are forced to work extended hours on a regular basis will have a social cost in the future...there is an expectation held by educational administrators that online delivery is a cheaper way to get a bigger share of the training market. There is also the expectation that there is no lead up time needed, that existing teaching resources will suffice and that it will be accomplished in three hours flat per week. Many institutions see it as a way to cut labour and costs unaware of the time it takes to develop good materials.

...resourcing is an issue for a discussion-based view of online teaching and learning as well as for other forms of interactive learning.

The myth that it is a cheap method of instruction prevails despite all the evidence that a system, which supports online teaching and learning, requires sophisticated computing solutions and highly trained technical and support staff—and that is expensive. That is without consideration of the cost of any incurred demands on academic staff time.

These opinions from staff are a source of some concern as USQ management and managers in other universities have assessed online education as a major source of revenue at a time when levels of government spending in higher education has

necessitated the search for new sources of funding. At this point in time, it would seem that the way online teaching and learning is conducted at USQ may not be the funding source originally thought, or at least it may not be so in the immediate future. This is a major issue as it threatens the continuation of online education, at least in its current form. The danger is when institutional administration focuses attention on the returns from a delivery mode and not on the nature of the mode and how it can be designed to provide the most appropriate pedagogy for the disparate clientele that it now attracts (Postle & Sturman 2001). Like any 'product' online education appears to be not a cheaper alternative if it is done well. Mayes (2002) maintains that the personalisation available in online settings is seen by the clients as the hallmark of quality teaching and learning that they can now access. As Garrison (1993) so aptly puts it:

In an attempt to reach mass audiences in an open and cost effective manner, distance education may risk the diminution of essential educational processes.

Garrison (1993, p. 209)

An analysis of some of the work that is currently being done to address the problems associated with resource issues in online delivery is presented in Chapter 7. This work provides some useful 'pointers' for defining just how far the 'online revolution' may extend. It would seem that the resolution of this issue is central to defining the future of online approaches in higher education. Many of those involved in online education, particularly in higher education, believe they are part of a revolution that will transform the higher education landscape. They are encouraged by the fact that developments in technology will continue to be a key factor in shaping what happens in higher education in the future. However, it would be wise to heed what the likes of Gunn (2001) cautions in respect to—

These profit motivated prophets may inadvertently be serving a different master. By promoting the use of technology, facilitating collaboration between commercial and educational establishments and investing in infrastructure they are creating an environment for enhancing quality of learning and access. The one flaw in their projections is that these developments are yet to turn a profit.

Gunn (2001, p. 13)

Some respondents, however, remained optimistic as they argued that developments in technology will force the uptake of online education. For example one respondent remarked:

The discussion is really about what forms it will take, what applications can be identified, how it can be used cost effectively in broader applications, how it can be interpreted into other forms of educational processes. It has to be given full rein even in its crudest form to determine the direction in and speed at which it wants to go.

Resourcing flexibility

Online education stands to deliver learning and training to global audiences in the most flexible and the least available time. ... online education is about the customisation of learning to suit individual needs. These are difficult demands for universities to meet, and we acknowledge that—not least because they are at odds with academic culture and custom.

Stewart (2001, p. 36)

As mentioned earlier, the increased opportunities for interaction (teacher/learner and learner/learner) has provided a teaching/learning context where it is possible for learners to enter and exit courses when and how they wish. This has come about because not only are all the study materials, readings, assessment items and the like available at virtually any time, but records of discussions between teachers and learners, learners and learners are archived and available on request. Students are also able to access the site 24 hours a day, 7 days a week and it is possible to contact teachers and other learners at short notice.

Levels of flexibility such as this are costly and place great demands on staff. As one respondent remarked:

The general issue of flexibility is important well beyond the Faculty of Education experience—in fact well beyond the issue of online education. Not least is the fact that we don't have any agreement on what flexibility means, other than 'carte blanche to do anything I want to do'. I think than an understanding of what flexibility means is a prerequisite to determining (a) if it is a good thing and (b) how to achieve it.

Another side of this issue concerns the management of online approaches that allow such levels of flexibility alongside other approaches (e.g. on-campus delivery) that may not. Some respondents indicated that, in the case of USQ, it represents a significant issue. For example:

It is true that commercially available university administrative computer systems are specifically designed with on-campus students in mind. USQ researched all systems in the market place...and none met the needs for distance and online learning. Peoplesoft Student System was chosen because it had the most potential to configure (rather than customize) it to allow distance and online learning. However, significant customisation has also been required.

Efficiency/effectiveness

A significant number of our academic staff should stop teaching and marking, and become managers of educational delivery, including the supervision and training of sub-contracted staff. Academics should authenticate the content of courses and manage quality assurance processes but not be responsible for delivering those courses when intended for mass overseas markets.

King (2001, p. 48)

Just as the commercial push into online education is understandably preoccupied with market share, profit and reducing costs, the adoption of 'web administrative systems' (to complement online teaching and learning) is designed to reduce costs and adopt more centralized and uniform systems that may challenge the autonomy that academics have become used to. These changes may:

...force a major administrative cultural change upon academic staff. Most faculties at USQ have had a culture of 'looking after students'...doing the administrative work for them...changing their enrolment when staff think it needs changing. With online student administration, students have complete control and responsibility for administrative matters such as enrolment...this has been a challenge to the culture of some faculties.

Others saw this threat not so much in the imposition of institutionalised administrative procedures and guidelines, but in the way the technology was being introduced and managed (or mismanaged):

The biggest problem besetting the introduction of any new technology into teaching is 'institutionalisation'. Those who manage it often do not understand its implications and use it badly. The institutional approach makes an industry out of what should really be a very simple task.

Both of these responses infer that the introduction of online technologies, whether in an administrative or academic sense, has challenged the role of the academics in determining how those technologies should be managed. They infer an underlying tension between efficiency and effectiveness and provide clear evidence of anomalous conditions surrounding the introduction of online education.

3.3.4 Designing online teaching/learning courses

Design issues raised focused on the predominance of text in online courses, the future uses of learning communities and the effective use of software.

Predominance of text

For a number of reasons, the courses offered totally online at USQ are predominantly text-based. That is, not only are the study materials mainly text-based, but the computer mediated communication (both synchronous and asynchronous) is text-based. There are some departures from this in the form of audio and video enhancements (e.g. introductions to the course in *PowerPoint* format and interviews with various 'experts', 'Computer-Managed Learning', 'Graphic Organisers', and 'Concept Maps' for presenting content diagrammatically), but the main thrust is text-based. Several staff commented on the limitations of this design feature:

...there are students who tend to struggle with, or do not have a preference for text-based approaches to e-learning.

...we often hear that as much as 70% of what's communicated is done via body language and tone/inflection. Text heavy delivery methods associated with online learning necessarily exclude this.

The inference from staff on this issue is that, if text-based approaches continued to dominate, then ways need to be found to compensate for the deficiencies that text brings to the ways people communicate online. This view is contrary to that proposed by Garrison (1997), however, who indicated that asynchronous text-based communication seems eminently suitable for higher education.

Online education as culture or cultural artefact

Hodgson (2002) talks of the internet as a 'cultural artefact' and as 'culture'. In the former, she suggests the emphasis is on 'virtual communities as an extension of social practices and patterns of interaction' (p. 233), while in the latter 'the emphasis

is on how communities are created as cultures within virtual environments' (p. 232). It was stated by one staff member that:

...there seems to be a whole new interesting field out there which needs to be looked at...how macro cultural differences are (re)negotiated/reformed in internet chat...this is beyond learning preferences.

This seems to suggest a view of 'internet as culture', not a widespread view, but an acknowledgement that there may be something quite new and unfamiliar in online teaching and learning.

Influence of software

As pointed out previously, USQ online courses are based upon the *Blackboard* software. Even though the USQ experience provided some opportunities for customisation to suit the needs of teachers and students, there remains some design issues that emanate from the restrictions imposed by the way the software is currently being used. For example, one staff member indicated that there was a need for campus-wide standards for the production of online materials because 'mathematical and music concepts need to be delivered...without the student requiring specialised software'.

3.4 The student questionnaire

Thirty students were sent the same questionnaire that was given to the staff and 22 returned it completed. The student questionnaire is contained in Appendix A. The respondents selected were students who had either completed or were currently enrolled in the Faculty of Education's Masters programs (Online Education, Flexible Learning, Educational Technology). Some of these students had completed the courses selected for analysis in this study.

The analysis of responses was undertaken in the same way that was conducted for staff responses. Issues derived from questionnaire responses were assembled around four themes—'online teaching', 'online learning', 'managing/administering online teaching and learning' and 'designing online courses'.

Table 3.2 Student responses to questionnaire

Online teaching	Online learning
<ul style="list-style-type: none"> The nature of participation (n=11) 	<ul style="list-style-type: none"> Loss of flexibility (n=5) Learning community (n=5) Different skills/preferences/expertise (n=8) Access and equity (n=4)
Managing/administering online teaching and learning	Designing online programs
<ul style="list-style-type: none"> Dominance of economic rationalist perspectives (n=6) Organisational acceptance (n=3) Emergence of team culture (n=1) 	<ul style="list-style-type: none"> Online or mixed mode? (n=2) Influence of content (n=2) Influence of classroom-based approaches (n=2) The elevation of individual constructivism (n=3)

3.4.1 Online teaching

The responses in this section focused on the nature of participation expected of the teacher by the students, particularly in respect to the way teachers utilised the interaction provided by the online approaches.

The nature of participation

Good pedagogy is not simply subject expertise, knowledge or information digitised. It is also the skill to convey the content in ways that enthuse and are meaningful to each student, and to stimulate the motivation and the social learning that a good class group produces. Education is as much a service industry as a knowledge or information industry, where the service is teaching or, if you like, the facilitation of learning.

Ryan (2001, p. 28)

The fact that online education brings with it increased opportunities for interaction (teacher-learner; learner-learner; learner-content) implies differences in the nature and levels of teacher participation. Some respondents saw teacher expectation of their participation in quantitative terms. That is, they indicated that some online teachers used various means to encourage learners to be ‘seen online’. The following comment illustrates the point being made:

Although it was not totally obvious how involved one had to be—that is, the lecturer’s expectations were not quite clear in that regard. There is a bit of a fine line between the lecturer simply encouraging participation or on the other hand indicating your participation level is not high enough.

There was also a number of responses which hinted at some emerging principles underlying what students thought constituted desirable teacher participation. These are mainly derived intuitively from experiences as a learner in an online setting, but

it is possible to link one of these comments to the literature (see, for example, Laurillard's work on 'mediated learning'). Students' comments indicated that the teacher's active participation was seen as desirable:

Modelling the paradigm should be considered. By this I mean the sum of resultant measures and practices that produce a similar online experience for all learners, for all courses. Of the six units [courses] completed in my (program) only two modelled the online learning environment in both instruction and student-centred learning. The remainder are positioned along a continuum that encompasses placing lecture notes on the web to the odd solitary dip into CMC [Computer Mediated Communication].

...the teacher's role and ability to generate interaction between the group, identify individual expectations and provide significant feedback are...very important.

...requires conversation between the worldview holder (the teacher) and the learner. It cannot be achieved by transmission but requires many interactions of the teacher proposing their conception, the learner offering back their interpretation of what they have learned the teacher re-proposing their conception but adopting it in light of their interpretation of the learner's conception, and so on, until both agree that a shared worldview has been achieved.

...the prompt reply of the instructors encouraged me and also developed the confidence that I was going on the right track.

Reading and writing becomes a pleasure when the instructor replies positively and in time.

3.4.2 Online learning

It is difficult to determine a 'cohesive argument' for the role of the online learner in the following comments. Nevertheless, the respondents have isolated several issues that affect their participation in online settings, some of which appear to contain inherent contradictions (for example, loss of flexibility).

Loss of flexibility

...these 'flexible access' technologies have the potential to allow the student to access learning at will, as lifestyle permits—it allows student to progress at their own pace.

Taylor (1996, p. 3)

The 'predominance of text' was a specific issue mentioned by teachers. While the students rarely mentioned this as a specific issue, the inference in the following comments would suggest that they believed that the online learner had a much-increased workload, particularly if they availed themselves of the levels of interaction available through computer mediated communication (CMC). There was also a suggestion that the flexibility available in other forms of distance education was diminished in online settings. This is contrary to the opinions of authors such as Taylor (1996) who had indicated that the technologies now available would bring benefits to learners as flexibility of access increased student control over their learning.

The comments from students (and some of the teacher comments noted earlier) would suggest otherwise:

When interaction via the web is required, it is very easy to feel left behind. This is especially so if you haven't kept up with the time rich classmates (who may interact daily+). You can end up feeling more stressed and in some ways this removes the flexible from flexible delivery.

The labour required for the course, sometimes becomes too much for the working students.

Different skills, preferences and expertise

The issues paper that accompanied the student questionnaire suggested that 'learning styles/preferences', entry behaviours identified as 'levels of expertise' and cultural differences (broadly defined) may present difficulties for learners wishing to access and participate in totally online approaches to learning. These comments suggested that the online environment is not for all. They suggested that learners might need to acquire certain skills before they engaged in online learning. Most student responses supported these views:

It is apparent that without direct teacher support online education is not ideal for learners who have not reasonably well developed learning skills, but is better suited for autonomous learners.

...could be used for undergraduate courses but motivation could be a problem...may be difficult to get them to participate in online discussions.

...there are some generation differences as well that must be [considered]—that is, a person's adaptability to technology, basic understandings and attitudes may relate to age...[I am] not [referring to] the case of people who do not like change...[but] more to people who do not have the basic orientations and familiarity with technology as some from the younger generation do.

Moodie (1998) argued that the online context was appropriate when students possessed the necessary independent learning skills. He maintained that more cognitively mature learners, preferably with some successful study behind them and work experience, were more likely to benefit from e-learning. On the other hand, Mayes and his colleagues (2002) are working with secondary school students in online situations (the Vicarious Learner Project) and they concluded that these students were coping well with the online environment.

Some of the USQ respondents to the questionnaire suggested that the online environment did have the potential to meet a wide range of student needs:

Compared to DE (Distance Education) online teaching and learning has the potential to address a wider range of skills and thus learning styles—future technologies (broadband communication, audio conferencing) should be considered.

Learning community

A significant difference, which would qualify a vibrant and sustaining e-learning community, is an online system which would be able to manage and facilitate the intense interactions and dynamism of both information (content and resources) flow and participants' involvement.

Hung & Chen (2001, p. 10)

Some respondents 'flirted' with the notion that the 'online classroom' was significantly different to the traditional classroom. The concept of a learning community was mentioned, but not explained:

...online education is not physically bound...online programs may attract learners who are distant to the teaching institution...this includes learners from other countries...need for developing some kind of global culture.

I have been involved in a number of online courses at USQ; what has emerged from that...is the importance of values and their acceptance by a community...on which to build a learning community.

One response even went further to suggest that the concept of 'internet as culture' (detailed in the section on staff responses) will eventually impact greatly on the way learners interact with teachers and one another:

I predict the day is coming when the students will consider [that] face-to-face learning, without the use of new media and interactive strategies via the internet, is in fact lacking, diluted and shallow.

Access and equity

The notion that online degrees will extend access to students who have previously been excluded from on-campus study by economic or social disadvantage ignores the fact that such students are least likely to be prepared for computer-based education and are more likely to be highly dependent learners.

Ryan (2001, p. 28)

Several respondents were forceful in their condemnation of the way that the emergence of online education has taken place with apparent disregard for access and equity issues:

The issue of equity for online delivery is...a dilemma...Although educational technology leads to 'delocalisation of learning' allowing learners space to learn whenever they choose, access to telecommunication technology is rigidly demarcated in terms of income, social class, ethnic group and gender and remains firmly young, white, middle class and male.

However, it is interesting to note that some student responses and several staff responses inferred that the online context was possibly 'more friendly' for those learners from different ethnic backgrounds, but were less forthright in their support that online initiatives could assist learners from different social classes or those from lower social-economic backgrounds. The question of access remains a problem area:

The reality of whether students have access to the technology capability/ download speeds/ISP access etc...will there be another group of disadvantaged people—those who are technology poor.

3.4.3 Managing/administering online teaching and learning

Some of the responses under this theme were similar to those given by teachers, particularly in respect to resourcing issues.

Dominance of economic rationalist perspectives

Most comments in this section were clustered around problems of resourcing the potential offered by online education. The students had experienced what it had to offer, valued it, and were critical of notions that seemed to be at odds with what it offered. They identified inadequate resourcing and cost cutting as measures that did not sit comfortably with what online could deliver:

No one would complain about the amount of personalised attention, but it was always very obvious even to the student how labour intensive the (course) was to both student and lecturer alike.

...the drive for cost cutting and for profit-taking are affecting educational values. E-learning has been seen as a way of cutting costs by increasing class-sizes—the only proper consideration in fixing class size is to maintain the best level to facilitate learning.

...education providers are at risk of opting for a franchise model of training and education which denigrates traditionally accepted values of education.

Organisational acceptance

Somewhat unexpectedly, there were a number of comments made about the overall acceptance of online education by those who work within the organisation:

Organisational learning and the associated cultural change will be critical for successful implementation of online courses university-wide.

...the majority of online instructors...have minimal knowledge of current online teaching technologies or how to use them efficiently.

...(where) 'flexible delivery' is not embraced (then) online learning opportunities become a major 'leap' for traditional academics...who have concerns about the equivalency of the learning process.

Standardisation

The move to open and distance learning from location-based approaches has involved a shift in the way materials are developed and implemented. With classroom-based approaches, the teacher/instructor assumed responsibility for the design, delivery and evaluation. This has been referred to as 'person culture'. Open and distance learning demanded more 'specialist' contribution to both design and delivery. This has resulted in the emergence of the 'team culture'. While this was acknowledged, the 'downside' according to some was the standardisation of the development process and the teaching/learning products themselves:

Presentation of information should be attractive and friendly, but if the sole focus is on attracting customers, educational values will be distorted, leading to a

pursuit centred around bite-size, 'point and click' accumulation of facts...the education is being unbundled—one specialist develops the material, another teaches the course, another evaluates the course. This creates a standardisation of delivery, but not necessarily better education.

3.4.4 Designing online programs

Responses in this section speculated on the merits of a totally online approach, its appropriateness for all disciplines areas, the influence of traditional face-to-face approaches and the concept of constructivism.

Online or mixed mode

There were comments that reflected some criticism of the 'totally online approach':

I actually prefer hard copy leaning material provided without the need to interact... (this) is based on a number of reasons all related to time... with hard copy material I can take it onto the verandah, sit in the sun and read without distraction.

Influence of content

Just as with some staff responses, students also suggested that the type of content may have something to do with whether it was appropriate to be offered online:

...the type of knowledge, the areas of study that are successful in an online context. Does it favour some areas and not others?

Influence of classroom-based approaches

Another comment, which had its parallels in staff responses, concerned the futility of trying to recreate the face-to-face classroom online:

Attempting to reproduce a classroom...environment in the online education experience through chat, debate etc seems to be a pursuit that goes against the grain of the nature of online delivery. The primary attraction is convenience and individual learning flexibility...online education cannot replace face-to-face but it can offer, in most instances, an equally appropriate learning path.

This comment also seemed to be suggesting that the benefits of 'interactivity' provided in totally online contexts were minimal and that the real benefits lay elsewhere in its choice and flexibility.

The elevation of constructivism

A completely opposing viewpoint to that expressed above was that the 'interactivity' provided by online approaches was seen as compelling and a key feature of learning:

...most forms of learning require time spent with others, chewing over ideas, bearing contrary points of view and defending conclusions.

This type of interaction, which is formed in 'collaborative leaning' and linked to Jonassen's (1998) notion of 'social constructivism', was acknowledged as highly desirable, but some saw it as insufficient. They drew attention to the fact that online technologies now featured a range of cognitive tools that could provide opportunities for the individual learner to construct meaning through interaction with content (for example, concept mapping, graphic organisers, spreadsheets, databases). It was considered that this type of interaction was being lost or more likely confused with the use of multimedia that emphasised the transmissive culture of teaching. Some students saw the need for:

...the creation of good content that generates student-student interaction and takes advantage of computer-based delivery. That means...innovative instructional design, expensive software and hardware, web developers...(and) high quality writing that is suitable for non-linear formats...virtual worlds that actually work at an instructional level.

This was a plea repeated by many authors currently writing about online education. Mayes and his colleagues, in their work on the 'Vicarious Learner Project', commented on the use of technology in this project:

In general the added value of technology for learning becomes greater as we move from primary exposition to construction to dialogue. Traditional media support exposition well. Communication technology becomes important in construction, particularly in groups learning tasks and especially strong in supporting dialogue.

Mayes & Fowler (1999, p. 495)

3.5 Summary of critical issues

The purpose of this section of the study was to ascertain the presence of 'anomalous conditions' in terms of the manner in which organisational members of a higher educational context (teachers and students involved in postgraduate studies) had responded to the introduction of 'totally online' approaches. To do this, questionnaires were administered to a sample of staff members who had 'experienced' online approaches (administrative/production/teaching role) and a sample of students who had completed online courses as part of a Masters program offered totally online.

The issues identified by staff and students have been categorised in four major groupings—the online teacher, the online learner, managing/administering online teaching and learning and designing online courses. While later chapters examine in more detail the issues that were raised at this stage of the study, the following provides an initial overview of the key issues that emerged at this stage of the research.

3.5.1 The online teacher

Three critical issues were identified by staff and students.

Effective pedagogy for online approaches

This related to comments about the appropriate role of technology in learning, a perceived negative influence of commercialism on maintaining a focus on educational principles and the implications of changing teacher roles (e.g. manager, facilitator).

Making effective use of interaction

This referred to the dilemma related to the desirability of compulsory as apposed to voluntary participation in interactive activities. The underlying sentiment concerned the degree of control teachers should bring to interactivity elements in online settings. It also referred to comments that sought clarification of the derivation of pedagogical principles for the changing nature of interactivity (learner-content; learner-teacher; learner-learner).

Universal appropriateness of online education

This related to its suitability for all discipline areas, for different content structures (including vocational education) and for different target groups (e.g. undergraduate, postgraduate, international students).

3.5.2 The online learner

Five critical issues were identified by staff and students.

Catering for student diversity

This related to cultural differences (including sub-cultures within groups), learners from different workplace contexts, learners with different levels of expertise (cognitively mature/immature) and different motivations, as well as students with different needs, expectations and preferences.

Heightened expectation

This related specifically to the capacity of online approaches to cultivate an 'expectation of immediacy' (feedback, response time) and the demands placed on teachers to cope with this. This promotes different images of roles and responsibilities of all course participants and has changed teacher/learner relationships, particularly in terms of power and control in the learning environment.

Loss of flexibility

This referred to the notion that the introduction of interactive elements into online settings has placed extra demands on learners that seem inconsistent with the original conception of flexibility (e.g. pacing/time).

The concept of learning community

This related specifically to whether the web environment (the infrastructure) contributes to the formation of a 'learning community' and what the potential of a 'learning community' is in contributing to student learning?

Access and equity

This referred to the fact that technological developments both include and exclude learners in participation.

3.5.3 Managing/administering online teaching and learning

Five critical issues were identified by staff and students:

Economic rationalism or educational innovation

This issue referred to the concern that educational administrators, including some university leaders, perceive online education as the new gravy train, whereas educational practitioners perceive it to be a form of delivery that can add value to education, but one that is resource intensive and certainly not a cheap alternative.

Resourcing flexibility

This referred to the fact that the greater the flexibility that teachers provide for learners, the greater the resource implications.

Market attractiveness

This referred to the fact that, despite the high expectations of online delivery to attract student numbers, the reality is at this point in time somewhat different.

Institutional control

This referred to the desirability or not of moving control of the teaching environment away from lecturers to education centres that can provide a standardised shape and feel to educational products.

Educational and organisational acceptance of online education

This referred both to the possibility that online education might be perceived to be a type of second rate education, in comparison with face-to-face education, and to the possibility that organisations might not see the need to provide professional development to staff working in a new field of delivery.

3.5.4 Designing online programs

Four critical issues were identified by staff and students:

Predominance of text

This issue referred to the fact that the main ‘model’ of online education was basically a text-based approach, not just in the subject content, but also in the way that interaction is managed.

Instructional design for text and non-text

This issue referred to the fact that, if online delivery was to remain predominantly text based, there needed to be a re-thinking of how content might be represented and how students might interact with it and one another.

Standardisation of software

This issue raised the dilemma of the need for some control over the use of software to ensure consistency in standards, but different disciplines and different content structures require flexibility in how that software is used.

The future shape of online delivery

This issue referred to the fact that the future of educational delivery may make distinctions between on-campus, online and traditional distance education redundant in that each may draw on elements of the other.

3.6 Identifying anomalies

The responses to the questionnaires sent to staff and students suggested that the introduction of online education has produced anomalous conditions, that is, a violation of their expectations surrounding teaching and learning. These related to three major areas: curriculum design, curriculum implementation and teacher and learner roles.

3.6.1 Curriculum design

Staff and students have expressed concern that pedagogical imperatives may take second place to commercial interests. They have also raised the issue of whether a text-based approach to both content and communication is the only way to approach online education.

3.6.2 Curriculum implementation

There is no doubt that when online education began at USQ with its communicative emphasis, it was seen as a potentially powerful tool to overcome some of the perceived weaknesses of traditional print-based distance education. Staff have acknowledged the power of the tool, but have also become aware that it

has brought with it issues that have to be resolved; the quantity of interaction that online education generates, at least in some quarters, has imposed demands and possibly unreal expectations on staff and to some extent students. The interactive focus of *USQOnline* has also caused some concerns about the commercial viability of this type of operation. Unlike face-to-face delivery, USQ is not at this point in time imposing constraints on the way lecturers approach delivery; there are no set times for 'lectures' and 'tutorials' and no set student-staff 'interview' times—it is a 24-hour x 7-day delivery mode. Another issue related to curriculum implementation is the extent to which it is considered an appropriate delivery tool for curriculum areas or learners. The responses to this issue was ambivalent.

3.6.3 Teacher and learner roles

It has already been stated that online education has provided a powerful pedagogical tool—its communicative capabilities—that is acknowledged by staff. It has also been stated that this same tool has increased demands and expectations on staff and students that focus on the appropriate role of teaching and learning in the online environment. Students have questioned whether their flexibility is being violated by 'forced' communications and a predominance of text and staff are unsure if the quantity of interaction is sustainable. The issue touches on appropriate levels of 'teacher control' in any teaching setting. Staff have also raised the issue of what type of skills might be required of the 'online teacher' who cannot make use of the visual cues available on-campus.

4. Quantitative analysis of *Blackboard* course statistics: teacher-learner engagement

Glen Postle and Andrew Sturman

4.1 Introduction

In Chapter 3, a number of issues were revealed which highlighted specific features and processes surrounding the introduction of online approaches that were problematic. They either did not fit with existing teaching-learning frameworks or administrative/organisational structures. These issues were defined as being similar to Imershein's use of anomalous conditions to describe organisational change. The purpose of this chapter is to determine how teachers and learners actually use the features provided in the online courses selected for the study. That is, how is the learning management system (*Blackboard*) used by teachers and learners?

Research into online teaching and learning to this point in time has tended to rely on methods and techniques that are solely qualitative in origin. While the investigators have no inherent objections to these approaches, it was believed that there is a need to attempt to describe quantitatively what is happening in these online settings.

The quantitative analysis involved use of the concept of *engagement* to assess how teachers and learners used the learning management system in eight courses in Semester 1, 2001, a period of 16 weeks. One of the benefits of conducting research in an online environment is the record keeping functionality of many web-based applications, including the learning management system used by USQ. The course statistics collected, that is the number of 'hits' that teachers and learners make on the course elements, can be a rich source of data for empirical research related to the generation of participation profiles that track the engagement of students and staff.

4.2 Course description

Eight courses from the Faculty of Education's Masters Degree programs were selected for this analysis, all of them offered 'totally online'. A general description of the courses selected is provided in the table below:

Table 4.1 Description of courses selected for quantitative analysis

Course	Details
(i) EVAL-1	<p>This is an introductory course in the field of educational evaluation. It provides a broad view of educational principles, models and theories underlying evaluation. The content structure embraces relational strategic and empirical knowledge, but there are limited opportunities for students to practise cognitive skills in realistic environments. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81528s1x.htm [accessed 27 February 2003]</p>
(ii) TEAC-2	<p>A course aimed at introducing students to online teaching and learning. It assumes some knowledge and experience in teaching and learning and access to a teaching/learning context. The course focuses on the further development and refinement of relational, strategic and empirical knowledge structures in terms of key concepts, principles and processes underlying teaching and learning online. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81531s1x.htm [accessed 27 February 2003]</p>
(iii) FLEX-3	<p>A course aimed at introducing students to issues and basic principles in the field of flexible delivery/flexible learning. It focuses primarily on strategic knowledge and focuses on cognitive skills, which allow opportunities to analyse and evaluate specific educational contexts. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81222s1x.htm [accessed 27 February 2003]</p>
(iv) GRAD-4	<p>This course is best described as a 'graduate seminar' where students are encouraged to negotiate their own meaning from content, which is often self-selected. The course focuses on the use of cognitive skills to analyse, interpret and evaluate specific educational issues, which can be applied to their context in relation to the introduction and adoption of online approaches. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81533s1x.htm [accessed 27 February 2003]</p>
(v) WEBD-5	<p>A basic course in web-design. It focuses on the development of specific skills, is competency-based and provides opportunities to apply acquired skills in specific contexts. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81524s1x.htm [accessed 27 February 2003]</p>
(vi) PROJ-6	<p>This course provides opportunities for students to undertake study in a topic of their choosing, but based upon skills acquired and relevant to the overall Masters program in which they are enrolled (Education Technology, Open and Distance Learning, Online Education). The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81529s1x.htm [accessed 27 February 2003]</p>
(vii) DSGN-7	<p>This course is aimed at introducing students to instructional design as it applies to open and distance settings or online settings. It assumes some knowledge and experience of educational theories and principles and some access to teaching/learning contexts. The course focuses on the development of relational, strategic and empirical knowledge structures in terms of key principles and processes underlying instructional design in open and distance (including online) settings. The course specification provides further details of the content of this course:</p> <p>http://www.usq.edu.au/unit-2001/fullspec/81522s1x.htm [accessed 27 February 2003]</p>

- (viii) **MULT-8** A course that builds upon basic web-design and assumes some knowledge and skills in the use of multimedia as applied to educational settings. The course aims to develop and enhance knowledge and skills associated with educational design, particularly in online settings, drawing upon relevant educational technologies. The course specification provides further details of the content of this course:
<http://www.usq.edu.au/unit-2001/fullspec/81534s1x.htm> [accessed 27 February 2003]
-

In most, if not all of the courses studied, the features included the use of an interactive study schedule as a basic navigation tool. This feature sets the broad parameters of the subject matter content to be studied and lists the exemplary resources (such as readings, links to URLs). The students were also encouraged to surf the Web for supplementary resources that they might share with their student colleagues. The interaction with courseware is only one element of the interactivity built into the USQ pedagogical approach. Interaction with teaching staff, other students and in some cases other experts is achieved through the use of Computer Mediated Communication (CMC), mainly through the use of asynchronous discussion groups. Students were encouraged, and in some courses required, to communicate through various electronic discussion groups through a number of forums that were in most cases established by the teacher.

Central to this approach in most courses was the use of asynchronous CMC as the mechanism for facilitating effective social and intellectual communication among participants. A similar pedagogical approach was reported by Mentis, Rypa and Annan (2002) based on postgraduate study at Massey University in New Zealand.

It has been argued (Taylor 2002) that computer conferencing, particularly asynchronous written communication, lends itself to the reflective nature of learning in higher education. This is supported by Garrison (1997, p. 5) who indicates:

the reflective and explicit nature of the written word is a disciplined and vigorous form of thinking and communicating...it allows time for reflection and, thereby, facilitates learners making connections amongst ideas and constructing coherent knowledge structures.

4.2.1 Course elements

As indicated previously, *Blackboard* software has been used to 'frame' all of the courses offered totally online at USQ. This software features a 'Course Statistics' functionality that records the number of times teachers and students visit the course elements (see Appendix B for the list of elements for which statistics are recorded and an explanation/definition of each of these course elements).

Communication features include 'Discussion Board', 'Post Message', 'Send Email', 'Chat' and 'Group Pages'. The 'Post Message' facility allows staff and students to *initiate* a comment within a forum in the Discussion Board or *reply* to a post made by another course participant. The 'Send Email' facility allows staff and students to send emails to single users, groups, and all users. The 'Chat' is a synchronous facility providing staff and students with a 'virtual classroom' where they can organise discussion in real time. The 'discussion' is conducted by way of text transfer and graphics (slides, files, *PowerPoint*) viewed on a whiteboard. 'Group

Pages' is a facility that provides groups (established by the teacher) with a space with their own discussion board, virtual classroom, email and file transfer facilities.

The non-communication features (administration/management and content) included elements such as 'Subject Introduction', 'Student Homepage', 'Send File to Instructor', 'Assessment', 'Check Grade' (all used by students) and 'Announcements', 'Assessment', 'Create Group', 'Modify Group', 'Online Gradebook', 'Digital Drop Box' (all used by teachers and all, except 'Assessment', not being available for students).

The authors used these statistics as a way of describing the nature and intensity of teacher/student engagement with specific course elements across all courses selected for this section of the study.

4.3 Student engagement

4.3.1 A macro analysis of the course elements

A first step in the analysis entailed an assessment of the overall engagement patterns for students for all elements of each course across the eight courses selected for the study (see Appendix C). As noted earlier, the concept of *engagement* is defined as the number of 'hits' that learners make on the various course elements over the duration of the course. The tables provided in Appendix C represent all of the 'student hits' on all course elements across the eight courses for Semester 1, 2001. Consequently, all types of engagement are included in Appendix C. Student details (gender, age, country of birth, residency) are also included as well as the final grade received by each student at the completion of the course.

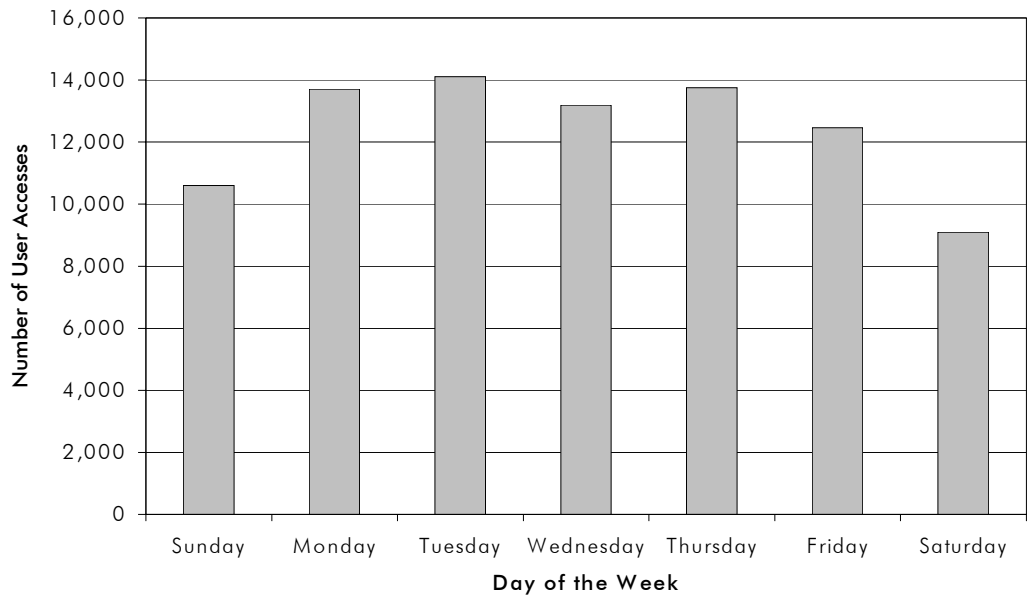
The actions taken by students outside of the *Blackboard* environment (such as private emails to teachers and other students, downloading of course material, the amount of interaction with that material, and student web searches) have not been, and in some cases could not have been, included in the analyses.

Generally speaking, all eight courses reveal similar overall patterns of student engagement. For example, all courses illustrated that most students used the 'Discussion Board' (although the way they used it was different and will be dealt with later), visited the 'Study Material' (not unexpected) and used the 'Student Tools'. Unless they had 'book marked' features, most students entered the environment through the 'Main Page'.

Elements such as 'Subject Introduction', 'Student Homepage', 'Send File to Instructor', 'Assessment' and 'Check Grade' were all features that would generally be visited only at particular times during the implementation of the course (for example, commencement of course, assignment feedback) and, therefore, had a lower number of student hits.

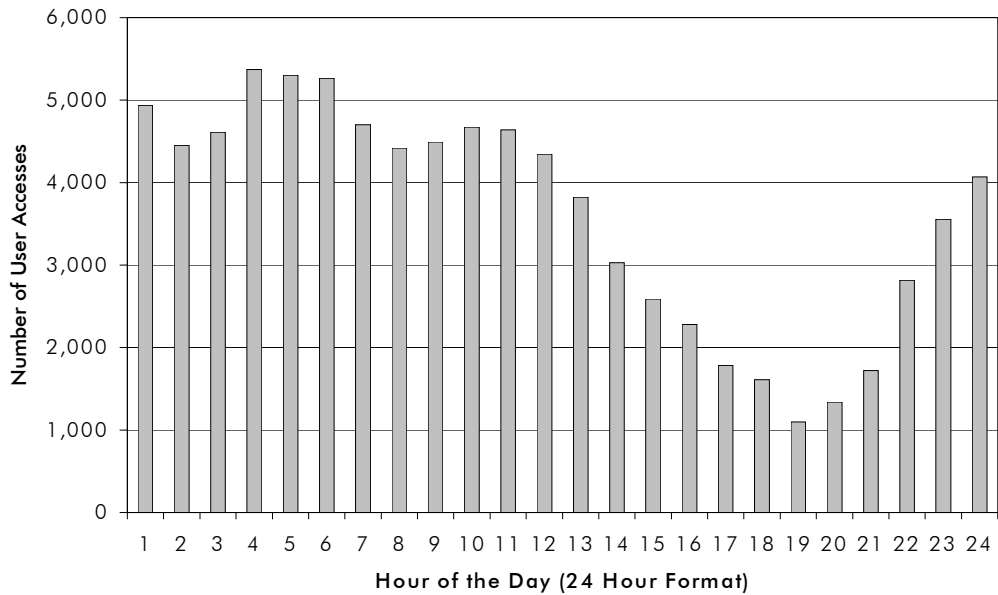
The course statistics also demonstrated that the students in these courses made the most use of the flexibility of online learning opportunities by accessing the site throughout the semester each day of the week and every hour of the day, a genuine '24x7' operation, defined for the purpose of this study as *student access engagement (SAE)*. Appendix C contains data and graphs for each course. Figures 4.1 and 4.2 below show these data for the eight courses combined.

Figure 4.1 Course students: user accesses by day of week



Note: Data based on Greenwich Mean Time

Figure 4.2 Course students: user accesses by hour of the day



Note: Data based on Greenwich Mean Time

4.3.2 Student communicative and content engagement

Table 4.2 indicates both the total number of hits and mean hits (per student) on those course elements, which we have described as *communication elements* (Discussion Board, Post Messages, Send Email, Chat and Group Pages) and the *content* element (Study Material). The table also provides a *content-communicative ratio*, that is, the ratio between total content hits and total communicative hits for each course.

Table 4.2 Student communicative/content engagement: number and mean hits for selected course elements

Course	Number of students	Discussion board	Post messages	Send email	Study material	Chat	Group pages	Total	Content-communicative ratio
FLEX-3	(N=45)	3183 (M=70.7)	488 (M=10.8)	67 (M=1.5)	1000 (M=22.2)	45 (M=1.0)	60 (M=1.3)	4843 (M=107.6)	0.26
DSGN-7	(N=58)	4928 (M=86.5)	689 (M=12.1)	138 (M=2.4)	2206 (M=38.7)	14 (M=0.2)	118 (M=2.1)	8093 (M=139.5)	0.37
WEBD-5	(N=72)	6693 (M=98.4)	1239 (M=18.5)	220 (M=6.3)	1707 (M=24.7)	42 (M=2.1)	156 (M=3.4)	10057 (M=139.7)	0.20
EVAL-1	(N=11)	515 (M=46.8)	34 (M=3.1)	27 (M=2.5)	322 (M=29.3)	29 (M=2.6)	10 (M=0.9)	937 (M=85.2)	0.52
PROJ-6	(N=10)	624 (M=62.4)	60 (M=6.0)	22 (M=2.2)	22 (M=2.2)	–	2 (M=0.1)	730 (M=73.0)	0.03
TEAC-2	(N=44)	5324 (M=121.0)	796 (M=18.1)	207 (M=4.7)	1510 (M=34.3)	123 (M=2.8)	718 (M=16.3)	8678 (M=197.2)	0.21
GRAD-4	(N=18)	3037 (M=168.7)	432 (M=24.0)	58 (M=3.2)	369 (M=20.5)	4 (M=0.2)	21 (M=1.2)	3921 (M=217.8)	0.10
MULT-8	(N=58)	6495 (M=112.0)	1364 (M=23.5)	150 (M=2.6)	1063 (M=18.3)	47 (M=0.8)	2186 (M=37.7)	11305 (M=194.9)	0.10
TOTAL	(N=316)	30799 (M=97.5)	5102 (M=16.2)	889 (M=2.8)	8199 (M=25.9)	304 (M=0.9)	3271 (M=10.4)	48564 (M=153.7)	

Average student hits on the 'Discussion Board' (97.5) far exceeded average hits on any of the other elements. The asynchronous form of communication (discussion board, post message, email) was used widely; students visited the Discussion Board to read even if they did not post a message. Average student hits for the 'Post Message' function was 16.2. The synchronous communication elements (chat and to some extent email which can be used synchronously or asynchronously) were not widely used; 0.9 and 2.8 respectively. 'Group Pages' were used by two courses (TEAC-2, where the average student hits was 16.3; MULT-8, where the average student hits was 37.7). In TEAC-2, the course deals with introducing students to teaching/learning online and students would be expected to 'experience' a wide a range of teaching/learning tasks online. MULT-8 used group pages widely for group tasks as part of the assessment requirements.

The average student hits for 'Study Material' was only just more than a quarter of the number of hits on the 'Discussion Board'. It is worth repeating here that many students employed the practice of downloading study materials and readings. Consequently, the number of hits on this course element will not be an accurate measure of how many times students visited the study materials. The statistics provided underestimate, therefore, *student content engagement* (SCoE). What is significant, however is that *student communicative engagement* (SCE)—teacher-learner interaction, learner-learner interaction—was high which indicates that many students did avail themselves of the communicative features of the course, particularly the asynchronous 'Discussion Board'.

The content-communicative ratio is provided in the final column of Table 4.2 and ranged from 0.03 to 0.52. These differences need to be treated carefully as some can be explained in terms of different content structures and different course goals. For example, PROJ-6 is a course with very little set content as the students are expected to negotiate the development of a project proposal and the course content will be derived from this negotiation. Nevertheless, it is clear that asynchronous communication represented a significant component of student communicative engagement and this form of engagement, even excluding PROJ-6 data, was, in this study, utilised between two times and ten times more frequently than student content engagement. Even with the knowledge that student content engagement is underestimated, this provides some useful insights into the way the students in this study made use of the course elements.

Variance in the intensity of participation on the interactive elements of the courses also seemed to be linked to different subgroups of students. Differences defined by gender appeared equally divided between courses, with little to explain why in some courses participation was dominated by males and in others females dominated. While it might have been expected that learners with different cultural backgrounds may have participated online at lower levels than their Australian counterparts, this was not the case. In every instance, it was noted that overseas students participated at higher levels than Australian students. A more granular analysis (western/eastern cultures) may, however, reveal different patterns of participation. These issues are addressed in more detail later.

Lave and Wenger (1991) stressed the importance of the social context in which the learner is immersed, and the place of learning in a community of practice. In the online teaching and learning context, the facilitating structures include not only the curricular design and associated analysis of the information architecture of the course (Taylor 1996), but also the extent to which it is based on emerging web

useability principles (Neilson 2000). The explicit way learners use the environment, that is, the patterns of student engagement, presents significant opportunities for research. While a more granular analysis of student communicative engagement is provided later in this chapter, it is clear from the data provided in Appendix C (engagement patterns for each student for course elements for all courses) that there existed a variance of student engagement ranging from 'proactive participation' to 'parsimonious participation' (Taylor 2002). This interpretation is also taken up later in this chapter.

4.4 Teacher engagement

The concept of *engagement* was also used to ascertain how the teachers of the eight courses selected used the same course elements in their role as teacher. In some courses with larger student enrolments, the course leader was provided with 'teacher assistants'. As it has been difficult to ascertain the different levels of involvement of teachers in these teaching teams, the statistics used to generate teacher engagement for courses where teaching teams have been used have been aggregated. (TEAC-2, WEBD-5, DSGN-7). Appendix C provides details of the engagement patterns for all course elements across all eight courses.

4.4.1 A macro analysis of the course elements

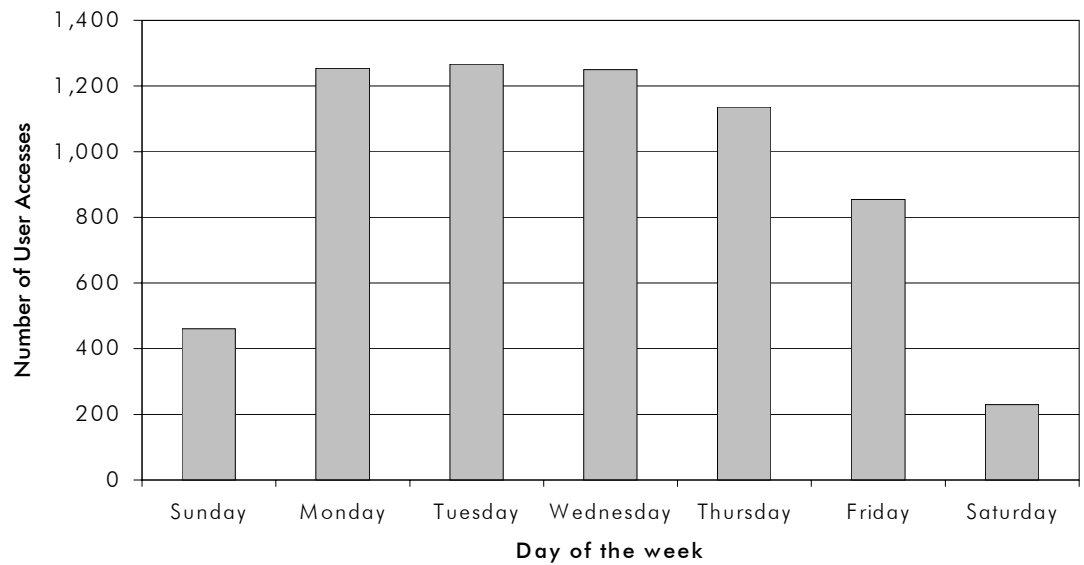
A first step in this analysis entailed an assessment of the overall engagement patterns for teachers for all elements of each course across the eight courses selected for the study (see Appendix C). As noted earlier, the concept of *engagement* is defined as the number of 'hits' that teachers made on the various course elements over the duration of the course. The tables provided in Appendix C represent all of the 'teacher hits' on all course elements across the eight courses for Semester 1, 2001. Consequently, all types of engagement are included in Appendix C.

The actions taken by teachers outside of the *Blackboard* environment (e.g. private emails to students and other teachers, downloading of course material, the amount of interaction with that material, and web searches) have not been, and in some cases could not have been, included in the analyses.

Generally speaking, all eight courses revealed similar overall patterns of teacher engagement. For example, all courses illustrated that most teachers used the 'Discussion Board' (although the way they use it is different and will be dealt with later), used the 'Announcements' facility, 'Assessment', 'Gradebook' and 'Digital Drop Box'. The 'Group Pages' and 'Chat' (the virtual classroom) facilities were on average less used.

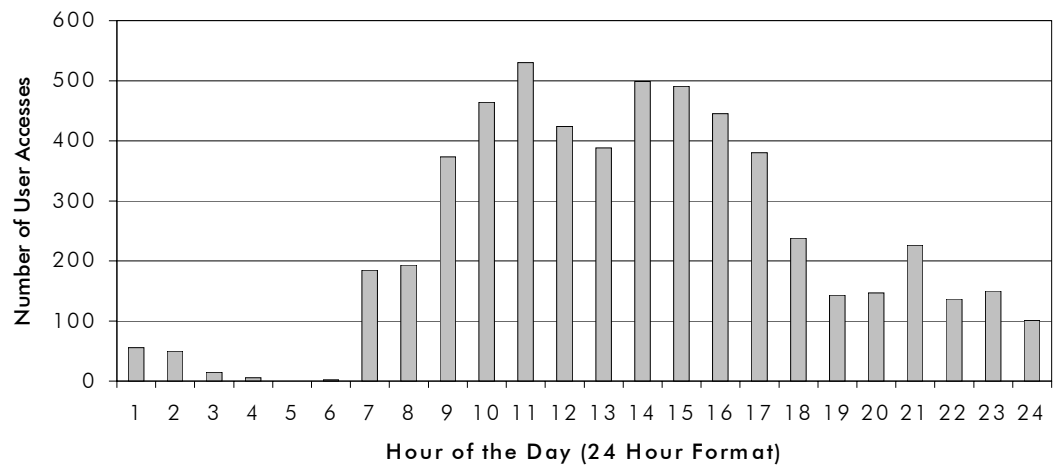
The course statistics also demonstrated that teachers in these courses made the most use of the flexibility of online learning opportunities by accessing the site throughout the semester each day of the week and every hour of the day, a genuine '24x7' operation, defined for the purpose of this study as *teacher access engagement (TA_{accE})*. Appendix C contains data and graphs for each course. Figures 4.3 and 5.4 below show these data for the courses combined.

Figure 4.3 Course lecturers: user accesses by day of week



Note: Data based on Greenwich Mean Time. As there is a 10-hour difference between local and Greenwich Mean Time, the data may not reflect totally accurately local time day activity.

Figure 4.4 Course lecturers: user accesses by hour of the day



Notes:

1. Data based on local Queensland time
2. Course GRAD-4 excluded as lecturer operated across three time zones.

4.4.2 Teacher communicative and administrative engagement

Table 4.3 focuses specifically on *communicative* and *administrative engagement*.

Table 4.3 Teacher communication/administrative engagement

Course	Number of students	Discussion board	Post messages	Send email	Announcements	Chat	Create group	Modify group	Online gradebook	Digital dropbox	Total
FLEX-3	(N=45)	652	116	65	14	0	3	1	68	157	1076
DSGN-7	(N=58)	485	171	104	62	0	8	1	35	207	1073
WEBD-5	(N=72)	1038	65	114	30	3	4	8	158	93	1513
EVAL-1	(N=11)	187	38	64	15	7	2	1	18	53	385
PROJ-6	(N=10)	106	17	14	10	0	1	0	37	100	285
TEAC-2	(N=44)	1398	271	119	57	51	16	32	140	392	2476
GRAD-4	(N=18)	501	49	16	51	0	0	0	37	65	719
MULT-8	(N=58)	676	42	69	18	1	3	17	45	62	933
Total	(N = 316)	5043	769	565	257	62	37	60	538	1129	8460
Course Average		630.37	96.13	70.62	32.12	7.75	4.62	7.50	67.25	141.12	1057.50

The patterns of engagement have been labelled 'communicative' and 'administrative' for specific reasons. Administrative engagement refers to teacher roles that have to do with organising student details and records (for example, assessment details). The term 'communicative engagement' has been chosen to reflect the role of the teacher in communicating with students, but it encompasses an emerging management role for online teachers. Kimball (2001, p. 1) is but one of many who maintain that:

in addition to managing the delivery of the content to their courses, faculty...must learn to manage a new set of variables which determine the extent to which their courses are effective including: metaphor, meaning, culture, roles, time, awareness and collaboration.

In Table 4.3 'communicative engagement' refers specifically to interaction with 'Discussion Board', 'Post Messages', 'Send Email', 'Announcements', 'Chat' and 'Group' facilities ('Create Group', 'Modify Group').

In all eight courses, teacher use of the Discussion Board, a component of *teacher communicative engagement (TCE)*, was high indicating that asynchronous communication was a valued form of communication.

The average use of the 'Discussion Board' (approximately 630 hits) was higher than all other aspects of teacher communicative engagement. For example, it was approximately 81 times greater than the average use of the 'Virtual Classroom' (synchronous communication) and approximately 136 times greater than the average use of 'Group Pages'. It would appear very little use was made of facilities that promoted interaction synchronously or collaboratively. However, it is known that some teachers used the 'Discussion Board' collaboratively through the use of forums that encouraged reflective dialogue and discussion.

All teachers of the eight courses utilised the other interactive features of teacher communicative engagement, that is, the 'Post Messages' facility, a feature within the Discussion Board that allows one to initiate a 'threaded discussion' or reply to a post made by another person, and the 'Send Email' facility.

The only other features used extensively by teachers, referred to as *teacher administrative engagement (TAE)*, were the 'Assessment' features ('Gradebook' and 'Digital Dropbox') that allow teachers to record student results and receive and return student assessment items. These had an average use of approximately 67 and 141 hits respectively. However, because the 'Gradebook' functionality on *Blackboard* is not the official University *Gradebook*, not all staff would have made use of this feature.

Such patterns of usage revealed the apparent value that teachers place on the various features available. It is obvious that asynchronous communication was critical for all teachers.

The statistics illustrate patterns that revealed differences between teachers in the way they used the online environment. Two courses (TEAC-2 and GRAD-4) had a higher average number of hits on the 'Discussion Board' than the other courses, 31.8 and 27.8 respectively. The teacher of TEAC-2 visited the 'Discussion Board' 1398 times and the teacher of GRAD-4, 501 times. The teacher of TEAC-2 also initiated the highest number of hits on the 'Post Message' element (271), but teachers of FLEX-3 and DSGN-7 recorded high numbers of hits on this course element as well, 116 and 171 respectively.

It is obvious from the data that teachers used the asynchronous interactive elements of communicative engagement ('Discussion Board' and 'Post Message') differently. The teacher of TEAC-2 visited the 'Discussion Board' the most number of times, recorded the highest average hits per student on the 'Discussion Board' and had the highest number of hits on the 'Post Message' element. On the other hand, teachers of FLEX-3 and DSGN-7 recorded visits to the 'Discussion Board' that could be described as conservative, 652 and 485 hits respectively, but recorded the next highest number of hits on the 'Post Message' element, (116 and 171 hits). Such differences may have several explanations. It is more than likely that the content structures of some courses dictated the levels of teacher interaction (for example, GRAD-4 where the content of the course is negotiated and there is little 'set content'). In other cases, this is unlikely to be an explanation, because course design was very similar (for example, TEAC-2, FLEX-3 and DSGN-7). In these cases, it may be that different teachers used different methods of facilitation. Some may be more directive, controlling or interactive than others. There may be other possible explanations. At this point, suffice it to say that the statistics indicate that teachers had similar views on the value of particular features provided by the software, but at the same time had different interpretations of the best way to use such features.

Asynchronous engagement ratio

Another statistic, that adds support to the idea that teachers approached the task of facilitation in different ways, is what we have called the *asynchronous engagement ratio* (AER) (Table 4.4). This is a way of describing the different rates of asynchronous engagement between teachers and students as defined by participation on the 'Discussion Board'.

Table 4.4 Asynchronous engagement ratio

Course	'Discussion Board' Hits			'Post Message' Hits			Teacher postings per week
	Students	Teacher	Ratio	Students	Teacher	Ratio	
FLEX-3 (N=45)	3183	652	0.20	488	116	0.24	47
DSGN-7 (N=58)	4928	485	0.10	689	192	0.28	35
WEBD-5 (N=72)	6693	1038	0.15	1239	65	0.05	74
EVAL-1 (N=11)	515	187	0.36	34	38	1.12	13
PROJ-6 (N=10)	624	106	0.17	60	17	0.28	8
TEAC-2 (N=44)	5324	1398	0.26	796	271	0.34	100
GRAD-4 (N=18)	3037	501	0.16	432	49	0.11	36
MULTJ-8 (N=58)	6495	676	0.10	1364	42	0.03	48
Total (N=316)	30799	5043	0.16	5102	790	0.15	361

With regard to the 'Discussion Board', the AER ranged from approximately one 'teacher posting' for ten 'student postings' (DSGN-7 and MULT-8) to

approximately one ‘teacher posting’ to three ‘student postings’ (EVAL-1). This points to significant differences in the levels of teacher involvement across the courses. When this is combined with the teacher postings per week, it provides some further insights into teacher communicative engagement. Even though the teacher of EVAL-1 had the highest AER (0.36), the number of posting per week was only 13. On the other hand, the teacher of TEAC-2 had the second highest AER (0.26), but had the highest number of postings per week (100).

With regard to the ‘Post Message’ facility, the AER ranged from approximately one ‘teacher posting’ for 32 ‘student postings’ (MULT-8) to approximately one ‘teacher posting’ to one ‘student postings’ (EVAL-1). This again points to significant differences in the levels of teacher involvement across the courses.

4.5 Asynchronous communication: a significant reference point

We have previously drawn attention to the fact that a major pedagogical feature for all eight online courses is the asynchronous ‘Discussion Board’ and associated features that engender interaction between people. This involves interactions between teacher and student/s, and between student/s and student/s.

To support this claim, an aggregate of the student engagement statistics for the eight courses for the content/communication features throughout Semester 1, 2001, a period of 16 weeks, indicated that communication between people (Discussion Board, Post Message, Send Email, Virtual Chat and Group Pages) accounted for approximately 80% of the interaction, whereas interaction with content via study materials accounted for approximately 20% of that interaction (see Table 4.5).

Table 4.5 Communication and content interaction for students in all courses

Course	Discussion board	Post message	Send email	Virtual chat	Group pages	Study material	Content-communication ratio
DSGN-7	4928	689	138	14	118	2206	0.37
FLEX-3	3183	488	67	45	60	1000	0.26
WEBD-5	6693	1239	220	42	156	1707	0.20
EVAL-1	515	34	27	29	10	322	0.52
PROJ-6	624	60	22	0	2	22	0.03
TEAC-2	5324	796	207	123	718	1510	0.21
GRAD-4	3037	432	58	4	21	369	0.10
MULT-8	6495	1364	150	47	2186	1063	0.10
Total	30799	5102	889	304	3271	8199	0.20

These percentages are not an ‘across the board’ figure, for PROJ-6 and EVAL-1 varied considerably from the average. However, PROJ-6 is a project-based course

with no set content, the content being generated through negotiation with the teacher of the course. EVAL-1 is a course that introduces students to a relatively new and complex content area and, of all the eight courses, is continually represented as a course that is ‘different’.

Two other courses—GRAD-4 and MULT-8—also provided ‘content-communication ratios’ that deviated slightly from the average. However, again this is understandable. Grad-4 is a ‘graduate seminar’ where students negotiate the topics/issues they wish to follow. Consequently, there are few visits to ‘study materials’ since the content provided is not extensive or mandatory. MULT-8 has a lower ‘content-communication ratio’ because it is a requirement that students work collaboratively and are assigned to groups within the ‘Group Pages’ facility. This mandatory requirement accounts for the measure of ‘communication between people’ for this course being at the upper end.

It should be mentioned again that the level of interaction with study materials is misleading since many students do ‘download’ study materials and readings to save costs and time associated with reading from the web. Nevertheless, the difference between ‘communication interactions’ and ‘content interactions’ is sufficiently wide to suggest that interaction between people in online teaching and learning is a critical feature.

4.5.1 Discussion participation and grade performance

A more granular analysis of participation on the discussion board provided evidence of different types of asynchronous participation. By examining the number of times individuals actually posted contributions while within any of the forums set up within the Discussion Board it is possible to differentiate between numbers of students who ‘visited’ the Discussion Board to read posts and those who visited the discussion to read and reply to posts or initiate new ‘threads’ of dialogues. This can be used to generate what might be called ‘participation profiles’ for individual students. For example, the total group for each course can be divided into a number of subgroups on the basis of these profiles.

Three subgroups have been derived from the analyses of these participation patterns—Proactive, Peripheral and Parsimonious (Taylor 2002, p. 7). The differentiation of these groups in this study has been undertaken in a relative arbitrary manner and follows the procedure outlined by Taylor. For example, Taylor defined the Proactive Participation Group as those students who contributed an above average number of postings to the discussion board and students in this group were often among the first to post a message and to respond quickly to other messages, often creating ‘threads’ of ongoing dialogue between students. He went on to describe the Peripheral Participation Group as those students who contributed less than the average number of postings to the Discussion Board, but at the same time participated regularly in the discussion in ‘read only’ mode. Students in the Parsimonious Participation Group contributed less than one third of the average number of postings to the Discussion Board and visited this feature of the site less than fifty percent of the group average.

The descriptive statistics presented in Table 4.6 provide an overview of participation and performance for ‘proactive’, ‘peripheral’ and ‘parsimonious’ participants.

Table 4.6 Overview of participation and performance

Course	Student sub-groups	Average number: discussion board hits	Average number: messages posted	Average grade point average	Number of incompletes
FLEX-3	Proactive	132.6	23.9	5.5	2
	Peripheral	57.4	8.2	4.1	1
	Parsimonious	29.9	2.2	4.6	3
DSGN-7	Proactive	166.8	26.6	5.7	1
	Peripheral	79.3	9.5	5.4	5
	Parsimonious	29.2	4.3	4.6	5
WEBD-5	Proactive	156.0	31.3	6.2	0
	Peripheral	83.8	12.8	5.8	2
	Parsimonious	24.1	4.1	5.5	
EVAL-1	Proactive	106.0	7.0	5.3	0
	Peripheral	28.6	1.8	4.3	0
	Parsimonious	18.0	1.3	5.6	2
PROJ-6	Proactive	100.0	9.5	6.8	0
	Peripheral	61.0	6.5	5.5	0
	Parsimonious	25.5	2.3	5.5	8
TEAC-2	Proactive	192.7	38.2	5.4	0
	Peripheral	141.8	13.2	5.5	0
	Parsimonious	33.3	4.2	4.6	0
GRAD-4	Proactive	222.6	33.6	6.9	0
	Peripheral	127.1	17.1	6.6	2
	Parsimonious	71.5	5.0	6.0	0
MULT-8	Proactive	165.2	35.3	5.4	0
	Peripheral	82.7	16.1	5.2	0
	Parsimonious	21.5	5.4	4.9	0

Notes:

1. Grade Point Average (GPA) is defined as the average of the numerical value of all final grades obtained by students in all graded courses accredited towards an academic program weighted by the unit value of each of these courses. For the purpose of this table the GPA is calculated on the following assumptions: Fail = 3, C = 4, B = 5, A = 6, HD = 7.
2. Students who at the time these data were collected had not completed the course were assigned a USQ grade of 'incomplete'.

As demonstrated in earlier chapters of this study, the actual design and implementation methods used for these courses seemed to have engendered levels of student engagement in the asynchronous areas that were significantly higher than engagement for any other elements of the eight courses. Furthermore, it is clear that there were different levels of participation that appeared to be linked in some way to performance. In all courses except EVAL-1, the Grade Point Average (GPA) for students classified as 'proactive' participants was higher than the GPAs for 'peripheral participants' or 'parsimonious participants'. Course EVAL-1 is a

little misleading as there were only eleven students in the course, three proactive participants, five peripheral participants and three parsimonious participants and these numbers are too small to accord any significance. Furthermore, the course is a ‘content heavy’ course based on a lot of ‘page turning’ and resembles a traditional print-based course. It is the one course that assumes a high level of independent learning.

It is clear that the students in the majority of courses, who had a more parsimonious approach to engagement, received lower grades. In fact, most of the failures and those who were awarded an incomplete grade were students in this category. Further research entailing a qualitative dimension is needed in order to understand the reasons for varying degrees of engagement and the perceived value of these interactions from a student learning perspective. This has pointed to an area that with further investigation, may begin to assist to define the parameters associated with ‘minimal and optimal levels of participation that will provide students with a reasonable chance of academic success’ (Taylor 2002, p.9).

In Table 4.7, the communicative and content dimensions of participation are linked with performance through ‘gender’ difference.

Table 4.7 Overview of participation and performance (gender)

Course	Gender	Average number: discussion Board	Average number: messages posted	Average number: study materials	Average grade point average	Number of incompletes	Lost data
FLEX-3	M (N=27)	78	11.9	22.9	5.1	0	0
	F (N=18)	59.8	9.2	21.3	4.6	0	0
DSGN-7	M (N=21)	75.1	12.0	37.4	5.1	4	0
	F (N=36)	93.5	12.4	40.1	5.5	3	0
WEBD-5	M (N=31)	103.4	18.6	23.5	6.0	7	5
	F (N=36)	92.4	17.3	25.1	5.5	3	0
TEAC-2	M (N=19)	137.2	25.1	34.0	5.6	3	0
	F (N=25)	108.7	12.8	34.6	5.1	5	0
EVAL-1	M (N=2)	25.5	2.5	37.0	3.5	1	0
	F (N=9)	51.6	3.2	27.6	5.3	1	0
PROJ-6	M (N=5)	70.0	6.4	1.0	6.2	0	0
	F (N= 8)	54.8	5.6	3.4	6.0	2	0
GRAD-4	M (N=11)	167.9	27.5	19.8	6.7	0	0
	F (N=7)	170.0	18.6	21.6	6.6	2	0
MULT-8	M (N=28)	82.2	19.2	16.6	4.9	0	0
	F (N=29)	139.9	27.8	20.1	5.4	1	0

Notes:

1. Grade Point Average (GPA) is defined as the average of the numerical value of all final grades obtained by students in all graded courses accredited towards an academic program weighted by the unit value of each of these courses. For the purpose of this table the GPA is calculated on the following assumptions: Fail = 3, C = 4, B = 5, A = 6, HD = 7.

- Students who at the time these data were collected had not completed the course were assigned a USQ grade of 'incomplete'.

There is little to suggest from these statistics that levels of performance in online courses are linked to gender. However, there were some courses where levels of participation for males and females varied considerably. In courses FLEX-3, TEAC-2, WEBD-5 and PROJ-6, the levels of participation, particularly in terms of the Discussion Board (and, in most cases, the Post Message facility) were higher for males. In DSGN-7, GRAD-4 and MULT-8, the levels were higher for females, although in the case of GRAD-4, the difference was minimal. It is interesting to note again that higher GPAs can be linked to higher levels of asynchronous communication, in every instance except for the GRAD-4 course

In Table 4.8, the same approach is taken, but this time from a 'country of origin' perspective.

Table 4.8 Overview of participation and performance (country of origin)

Course	Country of origin	Average number: discussion board	Average number: messages posted	Average number: study materials	Average grade point average	Number of incompletes	Lost data
FLEX-3	Aust (N=21)	50.7	8.5	21.1	4.9	0	0
	O/seas (N=24)	88.3	12.9	24.1	4.9	0	0
DESG-7	Aust (N=35)	71.3	9.9	39.6	5.6	2	0
	O/seas (N=22)	111.3	15.9	38.2	4.8	4	0
WEBD-5	Aust (N=37)	79.3	16.9	23.2	5.9	5	0
	O/seas (N=34)	117.6	19.0	25.5	5.9	4	5
TEAC-2	Aust (N=18)	93.1	12.4	33.2	5.4	3	0
	O/seas (N=26)	140.3	22.0	35.1	5.3	5	0
EVAL-1	Aust (N=8)	41.1	3.4	27.0	5.2	2	0
	O/seas (N=3)	62.0	2.3	35.3	5.0	0	0
PROJ-6	Aust (N=5)	63.6	6.0	1.4	6.0	0	0
	O/seas (N=5)	61.2	6.0	2.6	6.3	2	0
GRAD-4	Aust (N=6)	210.8	27.3	23.0	6.7	0	0
	O/seas (N=12)	147.7	22.3	19.3	6.7	2	0
MULT-8	Aust (N=27)	92.0	21.2	17.4	5.4	1	0
	O/seas (N=30)	130.6	25.7	19.2	4.8	0	0

Notes:

- Grade Point Average (GPA) is defined as the average of the numerical value of all final grades obtained by students in all graded courses accredited towards an academic program weighted by the unit value of each of these courses. For the purpose of this table the GPA is calculated on the following assumptions: Fail = 3, C = 4, B = 5, A = 6, HD = 7.
- Students who at the time these data were collected had not completed the course were assigned a USQ grade of 'incomplete'.

Again, there was little to suggest that levels of performance were in any way significantly connected to ‘country of origin’. The GPAs were quite similar for each course, with DSGN-7 and MULT-8 providing the largest differences. However, what is interesting is that, in almost every case (except GRAD-4 and PROJ-6), the levels of communication for the ‘Discussion Board’ were significantly higher for the ‘overseas’ students. Furthermore, the level of communication for ‘Post Messages’ was also higher for the overseas students, but not to the same extent. If we place beside this the fact that both groups used the ‘Study Materials’ at similar levels, then the ‘overseas’ students are making greater use of the asynchronous communication provided in these courses. While it is conceded that this group would contain some whose first language is English, it still challenges the notion that overseas students participate in these courses at lower levels than their Australian counterparts. If there is a link between interaction and grade levels as suggested earlier, granted that the reason for higher levels of overseas students’ interaction may be related to their need to ask more questions, consider more points made in discussion forums and revisit points made more often, it is nonetheless significant that the online environment does seem to provide them with the means to succeed at least at levels similar to Australian students.

In conclusion, an analysis of interaction for some subgroups (gender, country of origin, participation profile) suggests that asynchronous communication could represent a useful focus for understanding the way different learners use the online learning environment.

4.6 Summary

The following dot points summarise the main conclusions from the quantitative analysis of the course statistics:

- For both staff and students, the most widely used feature of the learning management system was its asynchronous communication capabilities.
- Both staff and students made use of the time flexibility that online education provides, that is, its 7-day a week and 24-hour a day capacity.
- Little use was made of the synchronous capacity (the Chat facility) of the learning management system.
- Student communicative engagement was much higher than student content engagement.
- Staff communicative engagement was much higher than staff administrative engagement.
- There was variation *between* courses in the asynchronous engagement ratio and in the communicative-content engagement ratio.
- Final student grade might be influenced by participation on the Discussion Board.
- There was no relationship between gender and participation on the Discussion Board, but students from overseas participated at a higher level than Australian students.

4.7 Identifying anomalies

The analysis of the course statistics suggested that the introduction of online education may have produced anomalous conditions, that is, a violation of student and teacher expectations surrounding teaching and learning as they have come to know it. These relate to the following major areas: treatment of content; managing interaction; variable interaction; and the globalisation of cultural norms.

4.7.1 Treatment of content

The very high teacher and student communicative engagement, in particular in the case of students, compared with content engagement (accessing study materials), suggests that a significant percentage of course content may be generated through communicative interaction.

Because there was variation between courses, it is possible that ‘content-heavy’ courses may not be appropriate for the online environment if communication is viewed as a crucial component of the pedagogy. However, as there was no obvious relationship between content heavy courses and other types of courses with regard to final student grade, and as the previous chapter indicated that students had an ambivalent reaction to the advantages and disadvantages of print-based material, it may also be the case, that content heavy courses are more suited to independent learners. Postle and Sturman (2000) have made a distinction between three types of learners in online courses: independent, interactive and collaborative.

Another interpretation of the differences in communicative engagement across courses might be the nature of knowledge structures inherent in these courses. Taylor (1994) has suggested that expertise is identified with mastery of a range of knowledge structures (item specific, relational, strategic, empirical and affective). Both item-specific and relational knowledge structures are generally associated with early levels of expertise where learners are becoming familiar with knowledge/content structures. Strategic, empirical and affective, on the other hand, are generally associated with more advanced levels of expertise. The content in the different courses in this study may reflect these differences that in turn may affect communicative engagement; early levels of expertise may lead to more tentative approaches to communication as defined in the online environment.

4.7.2 Managing interaction

The data clearly indicated that students and staff working in the online environment were operating outside of traditional temporal norms. The 9 to 5 day, Monday to Friday had been replaced with a 24 hour day Monday to Sunday. Having said this, the pattern of interaction between staff and students revealed a common trend; interaction was very high at the beginning of the semester and up to mid-semester and then tapered off. Staff management of interaction may, therefore, be different from other delivery modes.

4.7.3 Variable interaction

While asynchronous communication was heavily utilised in the courses in this study, usage was variable for students and teachers. Some students seized the opportunity for interaction with staff and their fellow students while others did not. We have already referred to the categorisation of learner types identified by Postle and Sturman (2000) and it is clear from the data that the 'one type fits all' approach to online education would be simplistic.

With regard to staff variability, we have mentioned the possibility of content differences in courses; however, it is also possible that there are the beginnings of informal protocols emerging that control the extent of interaction that a lecturer is prepared to manage.

4.7.4 The globalisation of cultural norms

The un-researched perceived wisdom of staff in the Faculty of Education has been that levels of communicative engagement would be both gender and culturally related. Specifically, it was believed that female students and students from overseas would participate at lower levels than their Australian counterparts. This is not the case. Is it possible than the relative anonymity and the asynchronous nature of online education removes cultural barriers to participation?

5. Designing online courses

Francis Mangubhai and Ann Carmichael

5.1 Introduction

This chapter returns to the qualitative data that were collected through the surveys to examine course design elements discussed by the staff and postgraduate students teaching and learning in the online courses selected for this study. It begins by noting several key features of online course design, both from literature and from the study, and moves to make explicit the issues associated with designing for communication and subject material interactivity. The chapter also examines ways of addressing the dilemmas raised, although this is not restricted to this chapter. These dilemmas have posed issues that touch upon the teacher's role and that affect the management and administration of online education. Where solutions to the dilemmas go beyond matters of instructional design to include these other areas, they are addressed in either Chapter 6 or 7.

The prolific discussion forum interactions are highly integrated around matters of course content outlined in the various course study schedules and extend to constructing new knowledge, sharing resources and creating sociality in the forums. For the purpose of presenting this chapter, however, we have separated those matters concerned with designing for the communication board and those related to the design and presentation of study material. We conclude the chapter by considering online course design for the future.

5.2 Design elements for online learning and teaching

While the principles and practices that guide designing for effective teaching and learning environments in all modes of delivering educational courses are fundamentally similar, recent writing has emphasised a student-centred curriculum, increased interactive learning, integrating technology into the educational system and collaborative study activities (Ragan 1998). However, the online medium does create new potentialities, particularly for student-centred, interactive and collaborative learning, suggesting a re-thinking of how courses might be designed for online education.

Drawing on an extensive literature base, Herrington and Oliver (2000, pp. 8–9) proposed a practical framework of online design that they suggested could be used to guide the development of online learning environments. It emphasised the following nine key elements: authentic context that reflects the way knowledge will be used; authentic activities; access to expert performance and the modelling of processes; multiple roles and perspectives; collaborative construction of knowledge; reflection; articulation; coaching and scaffolding; and authentic assessment. Instructional designers at USQ (Reushle et al. 1999) noted similar critical elements for designing online teaching: cognitive strategies; structuring and mapping content;

situated learning; meaningful learning; learner-control and interactivity; ease of using interface design and navigation tools; embedding interactive learning objects; authentic assessment; feedback; support for learning online; collaborative learning; social presence; and online course evaluation.

The design elements presented confirm that designing and delivering courses on-campus 'face-to-face', through traditional distance education or through online share similar design features. New design opportunities are present for online delivery, though, and these will be explored through the voices of teachers and students who participated in the surveys conducted for this study.

The survey data placed a significant emphasis on the highly authentic nature of online interaction. While students across the globe study in the convenience of their familiar contexts of home and work, the immediacy of the online technology provides the benefits of interaction with course participants instantly and, further, a record of the conversations is available. Access to current research and resource information, including being able to dialogue with experts themselves, similarly enhances authenticity. Learning online, therefore, can be collaborative and the highly interactive nature of continuous communications enables the formation of intimate learning communities. The following staff comments provide evidence of the significant feature of online immediacy:

The posting of a particular problem on the discussion board can reach many students very quickly.

The major advantage of online education is the aspect of interaction between staff and between students ... proves useful in exploring a wider diversity of issues ... higher level of contact has reduced the communication hassles.

...freedom from the constraints of needing to be co-located with a student in terms of space and time.

Teachers frequently referred to the benefit of accessing the latest resources with students in online education as proposed by Herrington and Oliver (2000):

Online is more flexible...examples are more current and content can be updated if changes have occurred to software, theory etc....ready access to a large body of modern information...broader range of current trends...sense of connection to the world...access to news and information daily...allow students to discuss the daily news events...at your fingertips.

...in areas where there is dynamic change to legislation and practices eg. industrial relations, taxation law etc, the online environment is potentially a major benefit because it enables responsiveness that often cannot be achieved with other modes of delivery.

...ready access to supplementary learning...electronic databases...up-to-date discipline knowledge that you can draw on in a matter of hours is important.

The greater amount of interactivity and collaboration results in teachers and students getting to know each other in socially and academically intimate ways:

...online enables you to develop a more intimate relationship with students...I know more about my online students from discussion groups than I do about my internal students because there is no written record of their class contributions...all the work of online students is able to be accessed long after

they have written things...a function of the capacities of electronic communication forums.

...the team commitment...the personal attributes of learners seem far more exposed in the online environment enabling me to tap into individual expertise, interests etc.

As discussed in more detail later in this chapter, the design focus for USQ*Online* courses makes central the pedagogical principles of ‘good teaching and learning’, but it is the online technology that allows the principles to be applied in ways that enhance opportunities to design highly interactive learning at a distance:

...the potential for learner engagement is substantially higher through discussion boards, real time discussion, use of multi-media enhancements to the teaching materials, connection of web-links, WAV files, and innovative ways of presenting the materials.

Incorporating these interactive features into course design have fitted well with the educational philosophies of the majority of teachers who were surveyed:

Interaction is central to my philosophy...aligned with constructivist approaches ...students accepting more responsibility.

It is not just the material that needs to be developed in a way that provides this capacity for in-depth analysis, but the discussion forums that enable debate have to be structured in a similar way. Here online education, because of its interactivity, has advantages over print-based education, but not necessarily over face-to-face education.

Social presence – being quick to respond to concerns so that students do not feel isolated more than they already are geographically (need to feel part of the learning community).

My beliefs about student centredness, interactivity and collaboration, and authentic tasks were already integrated into the course to a large extent.

Designing for online education can allow us to think radically differently from ways we have conducted education in the past, though it may be hampered by the availability of the appropriate level of technology to all students and costs related to such technology. Some of the more salient issues associated with online design are discussed in the following sections, beginning with the learning management system that is used to frame and facilitate the design of courses referred to in this study.

5.2.1 Learning management system

As already stated, *Blackboard* is the software that facilitates the design of the content of study material and the elements of interactive communication embedded in courses in this study. The functionalities of the main navigation tools are depicted in the following screen frame that students enter initially:

USQ Online

Andrew Sturman 81531_2001s1: Teaching Online

Teaching Online

Announcements
Posted in the Last Two Weeks

Subject: Welcome Posted by System Administrator on Feb 28, 2001

Welcome to 81531 Teaching Online

Help for New Users

Discussion Board

The navigation tools include the ‘Announcements’ (used by the course leader through the control panel to alert students to new information as the course progresses), the course ‘Introduction’ (the material prepared by the course leader to introduce the course); ‘Staff Information’ (which provides the course leader and teacher assistants’ contact details, biographical details, photos, audio welcome), the ‘Study Material’ (links to the course’s interactive study schedule, the modules of content and related resources such as readings, audios, structured overviews, *PowerPoint* slides, computer managed assessment, quizzes and so on), ‘Assessment’ (linked to details of the assessment task requirements, marking criteria, grading policies, sample assignments or exam papers etc), the ‘Communication Centre’ (discussion board which includes the various asynchronous forums, email, virtual chat, group pages—ability to set up sub-groups— student pages and student roster) and ‘Student Tools’ (drop box for assessment, calendar, check grade, edit homepage, change information, and student manual). The ‘Control Panel’ is used by course leaders to manage the overall course site environment while also offering them a functionality to track the engagement of students and assistant teachers.

Software constraints

Blackboard frames the design and works to create an intuitive, transparent and coherent interface. While this is generally so, there are issues related to how the software is used (in the design of courses and in the process of teaching) that affect the achievement of high levels of transparency and seamlessness. Several USQ staff indicated that particular segments of the software did restrict the learner and teacher to actions defined by them, a feature not always approved by these teachers. They suggested that it was ‘technology driving the pedagogy’ arguing that ‘the Blackboard software [has] definitely shaped the design...for example, the use of collaborative learning opportunities through Group Pages, Discussion Board,

Virtual Classroom'. Teachers admitted that the particular technology was consequential in 'the ease by which students "enter" the main body of the content', claiming 'the platform default structure encourages students to head for the discussion area and they sometimes have difficulty "finding" the study material itself!' Such criticisms may have more to do with the way the software is being used to design the courses than inherent weaknesses of the software itself.

Course leaders, coming from many different disciplines, approached the design of online courses with a number of demands for ways in which they would like to conduct the course. Not all of these demands, they maintained, could be accommodated by *Blackboard*, or at least through the options made available to USQ staff, as is evident in what staff had to say:

Online education at USQ allows for a great deal of flexibility in approach although some of that flexibility has been removed by having 'imposed' on this platform, features and course development structures.

The design of the formula-driven USQOnline system as I have experienced it has offered little scope for customising the system to meet the needs of individual academics for teaching their courses.

Additionally, staff reported that the software's core tools were often slow, particularly in the communication area and especially when working from home. This could potentially impact upon the amount of discussion that a staff member might design into a course:

I am frustrated by the lack of access to core tools...the slow and cumbersome discussion areas are probably the worst, but most aspects of the web interface are intolerably slow for frequent use.

The speed of the platform can vary and has been frustrating to staff and students...I rarely work from home through the modem link...despite the ideal nature of online education for working at home.

In Mass Media...having to download sound and vision files etc is time consuming and often not technically achievable.

Once again, this may be more to do with online access from locations where internet support services are poor, rather than the software alone.

Another constraint identified by staff is that the current platform does not meet the pedagogical needs of all disciplines and hence may not be appropriate for all. It was stated that the 'platform does not lend itself to problem-based or case based learning' and that there are a 'limited range of possibilities for dealing with some forms of interaction'. Other staff have commented on discipline specific concerns:

Students undertaking study of highly mathematical and analytical engineering material find the use of online material frustrating and will usually revert to text based study...the study of this type of material does not lend itself to interaction such as online discussion and students generally require large periods of individual study.

Some difficulties I perceive...especially for maths and music concepts to be delivered without the student requiring specialised software or for the course designer to have to have a workaround to get their materials in the correct format.

...the lack of ability to capture sessions for future perusal without the use of specialist equipment...security and virus scanning.

The current state of online materials developed at USQ would present difficulties for students with certain types of disability such as, impaired vision or hearing.

Nevertheless, as one staff member put it, 'it would be unwise to suggest that online approaches may be inappropriate for certain disciplines...we have not yet tapped the full potential of online'.

Another feature that had some impact on design of courses was the incompatibility between systems provided by USQOnline and USQConnect (the student access portal to all USQ online activities). The comments made below are likely to disappear as the University itself moves towards seamless inter-face amongst its teaching-learning components:

For the same course content online and on campus...I have to have two different discussion groups and even materials at the same time...and they don't meet up because of administrative rather than educational imperatives...I would like to have flexibility with this... it creates a lot more work when you have to put the same material in a range of different locations to suit different statuses of students.

Despite the restrictions of designing and operating within the framework of the Blackboard software, its functionalities provide students and teachers engaged in online teaching and learning significant opportunities for interactivity with material and with one another. Such interactivity can be based on a range of materials: written, aural and visual texts that incorporate audio, video and graphic representations to enhance communication (such as audio introductions to the course, PowerPoint presentation of key ideas, interviews with various 'experts', computer-managed interactive learning activities, graphic overviews and concept maps, spreadsheets, links to online databases and so on). As the technology develops and becomes more economical and more readily available to learners, then increasingly learners with a variety of learning preferences, not just visual, are likely to be catered for in the course design. Currently, however, the majority of online courses utilise an educational approach where interaction with written, print-based text (using the system of alphabetic writing and culture) predominates, both in engaging with subject content and in how computer-mediated communication (synchronous and non-synchronous) is managed.

5.3 Interactive communication through written text: issues for design

Blackboard's communication centre mechanism that creates and sustains effective interactive and collaborative social and academic learning among participants is a critical design element according to the data in this study. As discussed in the analysis of interactive communication in online courses in Chapter 4, the overall course statistics showed that there is a high level of communicative engagement between teacher and learner, and learner and learner in all courses. Further,

statistics showing teacher use of the discussion board confirmed that teachers value this asynchronous form of communication, though they used it in different ways.

One of the consequences of the high use of this functionality is that lengthy threads of written text, as part of the highly valued discussion board forums (where messages are read and posted), pose dilemmas for both learners and teachers. This learning context that students are immersed in is a highly textual one requiring them to read and respond to a large number of postings in the process of making sense of the content and its relation to their particular contexts. Other associated dilemmas include adapting to the online absence of physical body cues, present in face-to-face communication, and new ways of ‘conversing’ with each other through written text. For some students, it is a challenge to cope with changes in the nature of communication as it is constructed textually online, while for others the creation of an online social identity appears problematic and may prevent them from active participation. While these dilemmas are interconnected, each will be discussed separately, drawing upon the survey data for their delineation.

We begin by examining design issues related to the (written) text-based nature of online interactivity and follow with issues of design related to interactivity with online study material.

5.3.1 The proliferation of written text

The statistics derived from the USQ*Online* platform confirmed, as mentioned previously, that the course communication centre is ‘interaction heavy’. Teachers were incorporating into the design of the course, not only the structure of the content, but also, among others, social constructivist practices fostering interactions with the discipline knowledge through student-student and teacher-student discussions throughout the course. Teacher philosophies that value collaborative activity, course activities and assessment that require numerous compulsory postings (e.g. in the form of reflections), general discussion of ideas with other students, and students’ high demand for immediate and continuous feedback all contributed to large numbers of communication postings.

Adult learners

The programs in which the courses selected for this study sit are postgraduate attracting, in the main, adult learners with considerable academic and work experience. The characteristics of adult learners, such as their ability to bring life experiences and work practices to learning online, was often taken account of in the course design through building in discussion forums (sharing experiences with others and applying knowledge to their own contexts). Adult learners generally valued this recognition and respected and appreciated involvement in and taking responsibility for their own learning (Reushle 2001). However, taking the nature of these learners into account when designing also means their contributions to the discussion area are likely to be more prolific.

Time

The combination of communicative possibilities online, the experience adult learners have to share and the fact that this learning occurs with increasingly large

classes of students, resulted in large amounts of engagement with, or at least 'keeping up with', the long threads of discussion texts. The large volume of written text to read and respond to can become overwhelming and can create anxiety and stress, leading to less motivated students who are then less likely to participate. As one student revealed, 'I sometimes feel overwhelmed by the number of different boards and the number of messages on them'.

Paradoxically, the very feature of online course design that can provide flexibility can provide the very opposite as this student pointed out:

It contradicts the feature of online being flexible about time, place and pace...it is very easy to feel left behind...if you haven't kept up with the time-rich classmates who may interact daily.

Proliferation of text made demands upon time for reading but, equally, there was a demand in download time such that 'the intensive labour required for the course is sometimes too much for the working students'. This applied also to teachers: 'it was always very obvious how labour intensive the unit [course] was for both student and lecturer alike'. The labour intensive nature of online education can be exacerbated by what might be perceived as unreasonable expectations of staff on the part of some students, such as 'any question is worth asking and will be answered immediately'. A staff member commented that this was 'unsustainable in the long term for teachers and learners'.

Costs

Concomitant with the increase in written text and the use of technologies for online education were costs involved both at the teaching and learning ends. Online can be

an expensive option for students...[requiring] appropriate technology...extended phone calls... internet service provider access and charge[and] printing costs associated with downloading masses of information.

Mayes (2002, discussion board comment) acknowledged that 'e-learning ventures world wide are now failing because the cost of providing individual learners with support through discussion with tutors is simply too high...e-learning improves quality but if done properly is not cost-effective'.

Learner diversity

A related issue is whether the preponderance of written text may not cater for other learning styles that are less print driven. This is particularly problematic when online goes global (as one of its strengths is the globalising possibilities) and has learners drawn from various pedagogic, cultural and linguistic backgrounds. The ways in which these learners approach the production of written texts in English or read such texts can be problematic when assessment is made against the western-English norms (Goodfellow et al. 2001; Mangubhai 1997; Pincas 2001). In addition to differences in literacy practices, students 'studying from their homelands...don't have access to the English language help that on-campus students get'.

Technology novices

At a more technical level, students vary in their ability to use the online technology that can affect how effectively they may participate with large amounts of text. Novices can feel vulnerable and inadequate. Students did comment that for some, 'acquiring keyboarding skills to a level needed in online education is a problem' while another student's comment was similar:

...my biggest problem was trying to understand what some of the basic software components were...plug-ins...my knowledge was less than basic so I felt very stressed about it all in the beginning'.

Staff can also find this problematic; as one commented, 'I am a slow typist and this makes teaching online very time consuming'.

Students can get frustrated at typing out their thoughts. They are also aware that their writing (thoughts recorded) may be misunderstood or change and, therefore, there is a high sense of risk and anxiety about how messages are received. Taynton (2000) referred to a study of university students that found mild computer phobia among undergraduates was as high as 50%, and 42% of students over the age of 35 did experience major stress and anxiety at having to access course and assignment information online. This lack of expertise can be made public online with the consequent feelings of embarrassment, low self worth and even hostility (Taynton 2000). Data from the USQ study provided little evidence to support or reject this assertion, but did make apparent that 'direct teacher support is necessary online for those who do not have reasonably well developed learning skills'. The combination of an unfamiliar tertiary environment with a new environment of online learning may present overwhelming obstacles to some students and prevent their full participation in online discussion. Therefore, the teacher's knowledge of the course levels, contexts and skills of particular learners in a cohort is critical to considerations of how to design for interactivity.

Overall, the problem of vast amounts of written text generated by online education can be summed by these teacher quotes:

...the management of the asynchronous discussion... when to intervene, how to build a learning community with such a diverse group of learners, how to manage a proliferation of text generated with large classes of 40+.

...synchronous communication via chat...the volatility and chaotic nature of the discourse when 20+ students come together to communicate using text.

Online chat sessions can work for a limited number of students but become unmanageable if more than five or six people wish to actively contribute.

5.3.2 Addressing the proliferation of written communication text in course design

Advances in technology, along with the recent emphasis on student-centred approaches, particularly interactive and collaborative learning, combine to create new challenges such as the proliferation of written text.

Designing interactivity and collaboration for learning

It is not necessarily the case, as in the use of a fertiliser, that the more interaction and collaboration there is the better the learning outcomes will be. Teachers have, therefore, attempted to address the issue of excessive text generation through designing for necessary interactivity and collaboration on the pedagogical understanding that there are points at which active dialogic participation are most productive for learning:

I had to develop strategies to create sensible interaction in the discussion board ...interaction that relates to the key concepts of the course without distracting students that may be competent independent learners [and] maximising the value of that interaction in relation to the learning objectives requires careful thought.

Such interactions and collaboration take into account critical thinking and problem solving so that discussions are not simply ‘talkfests’ (Duffy et al. 1998). As was the case in some courses, students were kept focussed on the discussion at hand by judicious interventions by the teacher and, to ensure that discussions did not remain in a somewhat fragmented state, teachers summarised or wrapped them up.

Structuring discussions and collaborations

The major features of online learning essential to good practice, according to Coomey and Stephenson (2001, pp. 38–40), include: dialogue carefully structured into the course; active student involvement and collaboration; support and feedback; and learner control of key activities. The delicate balance between structure and dialogue is critical to online learner success (Murphy & Cifuentes 2001, p. 298). Structuring dialogue was highly utilised in the design of the totally online courses examined in this study. Most teachers structured the discussion area into separate forums by designing different questions, tasks or topics for each to be addressed at strategic stages throughout the course content sequence. These were decided on either at the initial course design stage (in line with the course study schedule which has readings, core outcomes, graduate attributes and so on), or as the course progressed to take account of the nature and interests of the student group. Forums were titled and staff encouraged use of posting headers for ease of locating particular discussions and posting responses.

Outlining key items, or using templates for discussion, to impose order and ‘scaffolding’ was common. Expectations were often modelled by the teacher’s posting at the commencement of the forum. Students might then construct comments, critique each other’s meanings and reflect on their contexts and practice. Some teachers designed certain forum postings to be assessed, for instance as critical reflections. Despite staff expectations that students will interact as they need, most courses incorporated some form of structure to balance the benefits of active learning through discussion with the proliferation of text it may create:

...the discussion forums provide the capacity for in-depth discussions [but they] have to be structured...I prompt discussion on key concepts through periodic ‘interventions’...I try not to give an ‘answer’...I use challenging entries...I make a few controversial remarks...to stimulate debate and interaction.

I do not require discussion except when it is central to the learning objectives...I try to design and implement courses that provide students with the flexibility in their choice of learning pathways and timing.

A variety of forums were designed to suit different purposes. Some courses added, for example, an introductory forum within the first week, useful for getting to know the students' backgrounds, contexts and interests. Murphy and Cifuentes (2001, pp. 299–300) recommend online community building before beginning group work. This includes dialogue to get to know each other (a self-portrait of interests, purposes, jobs, strengths, weaknesses), to determine communication protocols and create an interdependency. Also commonly included in the USQ courses was a forum for sharing resources (students were required to arrange annotations of resources, such as online journal articles, and others might be encouraged to evaluate these which then could be used for course re-development):

The opportunities to track down resources and engage in independent study and exploration is very powerful online...I use strategies such as requiring students to find their own resources that encourage this.

Others designed forums related to assessment and the issues related to each piece of assessment, or a forum for 'Café Chat' or matters not related directly to the course that kept comments outside the course from adding to the lengthy threads. Another method for coping with excessive reading was to set up small groups that discussed similar topics, possibly from different perspectives or contexts. This can be easily achieved in the *Blackboard* environment through the facility, Group Pages, a functionality separate from the main discussion board. Using the control panel, teachers can control which students will actively participate and which can 'view only', on the basis of student decisions and the purpose of the activity. Students may be assigned particular roles as Murphy and Cifuentes (2001, p. 294) suggest, with the leader of each group posting a summary of the key points of the group discussion to the main board by a set time. Collaborative group-based activities, however, do depend on building social cohesion, as the McMurray and Dunlop (2000) pilot study found. Strategies to develop social presence and a sense of community among the learners are discussed in section 5.3.4.

Setting clear guidelines

By setting clear guidelines and protocols about the amount of text posted early in the course, teachers can make explicit the goals and requirements. Such guidelines may deal with the frequency of participation (for both learners and teachers) and the need to notify other students and teacher(s) whenever students are offline for an extended period of time. A limit may be placed on the length of messages, so that communication is kept to the topic, is precise and succinct when appropriate, or outlines when elaboration is acceptable and encourages students to think through what they are planning to post including how the message will be presented (e.g. teachers may suggest different ways to be brief, but give students strategies for enhancing meanings through the use of visual grammars, emoticons, shorthand and arranging text in point form). Teachers usually modelled the communication for their students who were urged to follow the netiquette

conventions built into the design, which advised students, for example, about how to be selective in what is posted.

In one course, the instructions and guidelines that related to controlling the extent of print-based information were quite detailed:

e-mail Do's

- * *Always reply quickly, even if a brief acknowledgment is all you can manage. At least the sender knows you have received the mail.*
- * *If mailing files to more than one person (i.e. mailing list), send text only (i.e. do not send attachments).*
- * *Develop an orderly filing system for those e-mail messages you wish to keep.*
- * *Keep messages remaining in your electronic mailbox to a minimum*
- * *Make sure that the 'subject' field of your e-mail message is used and is meaningful.*
- * *Try to restrict yourself to one subject per message.*
- * *Try to keep e-mail messages fairly brief, a maximum of one or two full screens...*

e-mail Don'ts

- * *Don't reproduce an e-mail message in full when responding. Be selective in the parts that you reproduce in order to respond.*
- * *Don't attach excessively large files as this will result in an overflow of server disk space.*

The same course provided guidelines for the use of electronic mailing lists and newsgroups, recommending that students 'post messages which only relate to the theme of the EML or newsgroup'. The course also recommended the use of emoticons, that is, graphical displays or symbols that are meant to convey a feeling or atmosphere of social presence, and the use of three letter acronyms to avoid overuse of the computer. A number of examples were provided for each.

Vicarious learning as a solution

Mayes (2002), in talking with students during one of USQ course forums in June this year, suggested that online teachers need 'tools that give some of the benefits of dialogue without the expense of conducting individual dialogues with learners'. A possible approach that he proposed is supporting e-discussion and providing feedback more economically by 'capturing real dialogues' and making them available to new learners as an exercise in vicarious learning. While Mayes agreed this is a static resource, it has, nevertheless, been generated from the learners' point of view through questions and discussion from real learners, and new learners should be given opportunities to access and explore such a resource. Thus, it is a different kind of learning resource, a blend of course content, discussion and annotations by learners that can be built into the course design. It may not be as beneficial as active dialogue with tutors, but it does show new learners topics from the perspective of other learners, and is thus similar to peer dialogue (see also McKendree and Mayes undated).

While USQ teachers may not at this point be making full use of the strategies proposed by Mayes, those who have taught online for some time were now building their own personal response libraries by archiving frequently utilised comments. They also made use of the bulk email facility when responding to generic concerns, if appropriate, in order to save time. Others were incorporating advances in technology such as audio feedback and audio discussion.

The use of intelligent tutoring

In a keynote address to the ICDE on fifth generation distance education, Taylor (2001) discussed the developing prototype of 'intelligent object databases' at USQ that would comprise the many valuable comments made in discussion groups by teachers and students and that can be interrogated by students using key words. As Taylor (2001, p. 7) put it, upon receipt of an electronic query from a student, 'the search engine seeks an appropriate match with a previously asked question, which if successful, triggers a personalised response to the current question without concurrent human intervention'. Currently, though, the tutor would need to check the response before clicking the 'send' button. If no match is found for the query, then the system automatically re-routes the query to the relevant teacher for him or her to respond, as is done currently. This intelligent tutor system, when fully operational, may well cut down staff time, but to reduce the time that students need to interact with the excessive amounts of written text, may require some of the strategies discussed above to be considered by course designers.

5.3.3 Dilemmas of the 'body-less' realm of written communication online

Student postings on the communication discussion board are not directed just to the teacher; they reach everyone and participants' social and cultural 'positions' and physical presence cannot be read as easily through online written text as it may be face-to-face. At times, this absence of 'the body' gave freedom to some participants to flout social protocols and etiquette in their 'conversations'. This is a dilemma-in-transition in that ways to read into written text may well be developed by students as they become more accustomed to this form of interaction. However, this was a dilemma with a number of different facets, according to the data, some of which can be contradictory.

Lack of non-verbal cues

An absence of paralinguistic cues in the online communication environment was an issue that seemed especially significant to learners. Reference to this issue included the lack of body language such as gestures and voice tone, stress and intonation as accounting for a valuable part of what is communicated in face-to-face situations. This can be particularly accentuated for learners who come from diverse language backgrounds and bring their own cultural and linguistic conventions to the discussion forums (McLoughlin & Oliver 2000; Pincas 2001; Wilson 2001).

This lack of non-verbal cues was voiced in the following student data:

The ambiguities of the English language and the lack of para-language with the online mode...causes difficulties with interpretations...you miss out on all the non-verbal cues through this mode and considering you derive a lot of meaning from nonverbal communication, this factor has to be considered with online education.

Some staff voiced similar concerns:

The lack of non-verbal communication in this mode of delivery raises significant impediments for the 'teacher' to gauge whether the student understands the content and concepts...there are students who tend to struggle with or do not have a preference for text-based approaches to e-learning.

Face to face explanations are not possible [and] it is impossible to gauge the 'light-bulb' or 'ah-ah!' effect when students actually understand something.

Online anonymity

One facet of discussing (or 'talking') online is that it provides learners with a certain amount of anonymity and perhaps comfort that paths may never cross with one's fellow learners. The former thus emboldens learners to put their ideas in a public (though limited) domain; the latter ensures that, if by posting their ideas they have not presented themselves in a flattering light, the social consequences are limited.

The notion of anonymity was discussed by the Australian National Training Authority (ANTA) (2000, p. 19) which advises students to:

...take advantage of your online anonymity...unless you are videoconferencing, no-one can see you...there are no stereotypes, and you don't have to be affected by raised eyebrows, rolled eyeballs, other students stealing your thunder, or people making other non-verbal reactions to your contributions...you don't have to feel intimidated or upstaged by students who can speak faster than you because you can take all of the time you need to think your ideas through and compose a response before posting your comments to your class.

Luke (1997, pp. 25–6), in her discussion of whether the traditional categories of the social subject and social differentiation are still useful for pedagogical analysis, pointed out how, in virtual communities, since one's identity is wholly textually constructed, 'bodily differences and the social values attached to visible differences are invisible and irrelevant'. She continued, '(computer mediated communication) eliminates a whole range of 'informal' often unconscious assessments educators make of student ability based on visible cues of difference...freeing up a whole range of cultural and gender politics'. However, Luke also pointed out that this absence of physical cues to events occurring in the teaching-learning context can fail to alert teachers to particular circumstances or needs of learners online. In section 5.3.4, we refer to literature that, despite so-called 'anonymity', did point to 'virtual social orders' being maintained (Hodgson 2002; Vallis 2002). It may be debatable, then, that asynchronous communication creates a sense of equality among participants. It has been maintained that each has an opportunity to post a response in his or her own time and there is not the competition 'to hold the floor'. In the main, what is written for online course study may be more 'considered' so that contributions are more likely to be judged for their quality, substance or merit.

However, the survey data indicated that some students can feel intimidated, for a range of reasons, particularly at the beginning of courses. As one of the students commented: 'one feels very exposed at least in the initial stages and it is a little difficult to air ones ideas for fear of making a fool of yourself' and another student indicated that 'in the beginning I was not familiar with the reflections, discussions and critiques...I was scared to comment on anything that I read as I was not sure that it was going to be correct'. Those who are not good writers, or who find the language of communication is not their first language, may not feel like participating (Gunawadena et al. 2001; Reid 2002). Also, some students can dominate or disrupt an electronic discussion as this staff member recognised:

...discussion groups do need to be monitored to ensure that students focus on the topic at hand...difficulties raised need to be addressed promptly as they can escalate quite quickly if there is a delay in dealing with the matter.

This facet of online teaching and learning suggests that personality factors may contribute to the level of student participation, as they do in face-to-face education, and more research needs to be carried out in order to determine whether the online environment assists those who might be more diffident in other learning contexts.

5.3.4 Addressing the 'body-less' realm of written text online in course design

Some teachers surveyed did consider the 'body-less' realm of online education an impediment to understanding whether learning had occurred for all students. Others saw the communication through written text online as the emergence of a new register that would also incorporate non-print based means of communicating.

Establishing a social presence

Most staff deliberately designed for establishing a social presence in their courses. They built into the design an audio introduction and staff photo. Current technology does allow students to post attachments, such as a photos of themselves, though 'Netiquette' guidelines did not recommend doing this through the mailing list since excessively large files create problems of access for students.

Despite the 'body-less' environment, staff consistently claimed that, due to emphasising a social presence, an intimacy emerged among the participants:

The online context makes it easier for me to get to know my students so that I can ascertain their needs...greater awareness of where they are at...opportunities for higher levels of social presence...interact on a reasonably personal level with diverse...individuals.

...online...you can be quick to respond to concerns so that students don't feel isolated.

One student positively endorsed the benefits of online relationship building:

...the younger generation will choose to supplement face-to-face for online relationship building and will consider face-to-face learning without the use of the new media and interactive strategies via the internet as...diluting and shallow.

One of the ways of creating a social presence that USQ teachers emphasised was to build into the design an introductory forum. In her very first posting to the introductory forum, one teacher modelled what was required and set the tone for the course. Teachers and students made comments of a social nature ‘about themselves, their context, their experiences, their interests, their educational background’. These early self-revelations can act as an ice-breaker, and students might decide to work together or form study circles if they are in a same location. Gunawardena et al. (2001, p. 115) suggested encouraging social presence through these online introductions, adding a touch of humour and personalising signatures. The introductory comments were also useful for teachers to form groups, to construct student profiles for further use, or to establish students’ needs and goals early in the course.

Creating a community of learners

One of the key design elements discussed by Murphy and Cifuentes (2001) is the development of a community of learners whose sense of belonging in a virtual community transcends the individual boundaries within which they operate. This can only occur if the conditions for the creation of such a community are built into the design feature and, as discussed in the following chapter, teachers behave in ways that will support and enhance this community. In this environment, learning is socially mediated and facilitated through engagement in practice with others. The *Blackboard* platform, through the ‘Discussion Board’ facility and the ‘Group Pages’ facility provides the infrastructure that allows teachers to engage in such practices. Hung and Chen (2001) have commented on the importance of facilitating structures that actualise the platform’s daily operations. They go on to say that the ‘equivalent of an online facilitating structure is a web site (analogous to the physical space) and the underlying information architecture of the online community (analogous to the physical office where community related transactions are processed). They conclude that ‘due to the possible increase in participants and hence the intensity of interactions, the task of managing these transactions becomes possible, feasible and practical only with technology’ (Hung & Chen 2001, p. 10).

5.3.5 The nature of the online written text communication

It is not simply the proliferation of text communication that causes dilemmas for staff and students; the nature of that communication is equally important. There is much that has been written on the nature of written language (see, for example, Olson 1994). This section will not traverse that territory except if an aspect of writing has a special function in online communication.

Computer mediated communication (CMC) has a number of different features that depend upon the channel of communication that has been used.

Electronic chat

In email between people who know each other, it is common practice to flout conventions of written language and to use abbreviations, acronyms, iconic

symbols and such like (Luke 1997). Similar flouting of conventions occurs in synchronous communication like chat sessions. There is a blend of short, chatty, informal, note form communication. In both these cases, the language has been pummelled and kneaded to suit another medium and the type of language used has begun to develop its own criteria for acceptability with the aficionados pushing the boundaries of acceptability and standards, while those newly inducted into the use of this technology doing their writing using the conventions of pen and paper. One staff member surveyed signalled that ‘we are facing a whole new ball game...demanding new paradigms...for the visually orientated...learners’. Others have also noted how practices are changing:

The online teacher has to be an excellent written communicator using a variety of genres from a more academic approach, to conversational, to formal, to diplomatic etc.

Reflective writing

Due to the design of constructivist activities and students’ needs to think through and elaborate on meanings, writing posted on the discussion board is largely reflective and considered, and more organised in order to be concise. Literature on online communication has frequently mentioned that asynchronous communication allows time for reflection and a considered composition. Writing is, as Applebee (1984) discussed, more permanent than the oral word and unlike personal interaction where intonation and paralinguistic features assist in conveying meaning, writing has to be made explicit as only the printed word can help create meaning. In addition, the discourse conventions assist in organising one’s thoughts, and the process of writing, being slow and recursive, enables one to see implications of what one has written. In oral interactions, time pressures do not allow cognitive processing of the type that can occur in the writing process.

For the reason that the written word is both reflective and explicit, Garrison (1997, p. 5) suggested that ‘asynchronous communication is particularly appropriate for higher education...for higher order thinking and cognitive development’. Similar comments were made in the staff and student surveys:

...the interactivity leads to better teaching and learning...thoughtfulness in asynchronous discussion forums...there is time to reflect and make reasoned comments...both for students and for lecturers.

It is easy to post a message after thinking about something for a while.

Online communication can, however, lack the urgency and excitement of ideas as they are bandied about in oral interactions, as indicated by this student who compared synchronous and asynchronous communication she had experienced in her course:

When we reflect on the discussion board, we may wait a couple of hours, a day, or even a week for a comment to be made, a question asked, an idea challenged. By then the thought has passed. We can pick up the thread, but often it is difficult to retain the nuances of the original point – it has lost immediacy or urgency and a result is just little harder to defend or extend.

New conventions

It seems apparent that computer-mediated communication does offer a new blend of textual forms and conventions that course designers will need to consider. The study of electronic communication ‘chat’ conventions by Murphy and Collins (1997) indicated that students needed to use their communication conventions and protocols to communicate clearly and minimise misunderstandings in their online transactions. In asynchronous communications, the students’ meta-cognitive comments reflected the students’ growing skills in using keywords and names of individuals, shorthand techniques, asking questions and seeking clarifications, and non-verbal cues in texts. Brennan’s (2000) discussion of CMC found the beginnings of a replication of the conversational classroom in written form but, also, postings evidenced negotiation, constant modification, critical reasoning and intellectual growth. Thus, the new communication forms and new mixes of skills and knowledge that is the nature of online communication co-exist with the more traditional forms of written communication.

To summarise, online written communication is re-shaping student and teacher identities through new forms of semiotics. It has brought about, or has the potential to bring about, new forms of literacies that blend in an environment that is at once both ‘safe’, through physical anonymity, and threatening, if one’s control over the language or ability to write clearly is lacking (Gunawardena et al. 2001, p. 90). Online communication can create bonds and social presence that are as strong as those created through personal interactions in face-to-face teaching/learning contexts.

5.3.6 Addressing the changing nature of online written communication in course design

In order to deal with new mixes of online communication, course designers may need to build in expected or negotiated written communication protocols and conventions at the early stages, including activities that target the range of diverse forms of interactivity that can be achieved online.

Protocols and conventions

It is likely that teachers will need to clarify and model what conventions are acceptable, including the level of acceptable infelicities in language expression, requirements with regard to spelling errors, avoiding solid screens of text (using line spaces, dot points or numbering) and so on. Usually teachers do not make correct spelling an imperative, or students will be concerned about typing and spelling and may be reluctant to share in the discussions. Pincas (2001, p. 47) recommended online discussion frameworks that allow conversation to be ‘as natural and free of mechanical constraints as possible’. However, a few USQ staff did suggest students could take ‘greater care with grammar and punctuation... word processing and fluency in written communication’. This ‘good command of English and ability to communicate in writing’ was seen to be particularly important for ‘engaging in intensive dialogue’. If this was the expectation, teachers modelled the communication form and usually encouraged students to compose offline, use a

spell check if necessary, and then upload their document to the discussion board forum. A balance of forms was recommended, however:

The presentation of content discussed online must be concise, balanced conversational and academic styles, use visual grammar etc.

Preparing for synchronous chat

The design of synchronous communication as part of the course requires careful planning, otherwise it can quickly become very chaotic. At USQ, in fact, few lecturers made use of synchronous chat, in part for this reason and in part because of the temporal difficulties associated with it. However, where it was used (for example in TEAC-2), ground rules had been built into the appropriate forum or in the teacher's 'Announcements' prior to the chat session. It has to be recognised, as this student did, that synchronous discussions 'do not allow for careful and thoughtful contributions and it poses problems of temporal coordination'.

5.3.7 The construction of social identities through written text

As a result of the written text-based communication mode necessary for online interactivity, and its associated lack of physical body cues, not only are the forms and conventions of texts taking different shape, but how participants construct themselves, their social and cultural identities and positions, have implications for the kind of interaction that can occur. This identity construction online begins to take shape in the introductory forum, as here the 'selves' are presented textually for the first time. The focus on written text to communicate (as opposed to face-to-face communication), then, brings into sharp focus how participants construct and conduct themselves online—some assume they can 'hide' behind the text to write what they like which may be offensive or dominating, some fear writing and carry inhibitions which may silence them.

Masking and flaming

Tu and Corry (2001, pp. 250–6) discussed online interaction as being symbolic because it involves the manipulation of symbols, words, meanings and languages. Students, they contended, can form multiple identities online (pseudo and real) and 'mask' their identity online through text. Goodfellow et al. (2001, p. 78) remind us of how linguistic difference affects students' presentation of 'selves'. The issue that some USQ online teachers surveyed for this study have had to attend to at times relates to the construction of hostile, racist, sexist or inflammatory language, where styles and conventions are used to flame or provoke others. The research of Gunawardena et al. (2001, p. 114) confirmed that 'too much conflict or "flaming" cuts off the discussion and people drop out of the conversation', in similar ways that denigrating face-to-face communication may affect some. Hodgson (2002, pp. 232–3) has examined the culture of the communities that are created online to suggest that virtual communities can be an extension of real-life social practices and

patterns of interaction that maintain existing (oppressive) social orders. The recent analysis on chat-room talk conducted by Vallis (2002) also confirmed that social orders are maintained in virtual environments.

A number of the staff surveyed noted that what made online teaching and learning particularly challenging included disruptions of the nature of those cited in the following comments. They are not unlike the dilemmas of face-to-face classroom behaviour, but are made more difficult though the immediacy and recorded nature of online written communication:

...coping with disruptive or belligerent behaviour.

...cases of hogging the discussion groups...an aggressive and opinionated student...required more direct action.

...inappropriate behaviour...I blocked the student from the discussion board.

...one student did not agree with my teaching philosophy and demanded a much more structured formal approach...he did not agree with my responses...set up his own mailing list, subscribed all the students without their permission and polled them.

...netiquette issues can be problematic...students 'bullying' or belittling other students or dominating the debate.

...students who display social and cultural insensitivity that have consequences for the learning community...less participation, hurt etc.

One staff member gave an example of the message she had received from a student who apologized for his behaviour during the semester:

Please forgive me...I wrote during the heat of battle...sounded rather arrogant .. I surprised myself at the amount of smugness...we learn something about ourselves that we often keep hidden...not very pleasant.

Demanding more of teachers

Staff did note that students are becoming more demanding because of being online:

...even though parameters for interaction with and by the teacher are set, learners are still looking for a fairly instant gratification response to their queries...even though I might indicate that I will not answer queries immediately, some learners will email every day asking when I intend answering their question...email has enabled this to occur, and from all corners of the globe.

5.3.8 Addressing the issue of social identities that limit participation

A simultaneous universe is created online where reproducible images, texts and ideas (real and imaginary) move across space and time instantaneously. The social milieu of communicating is producing new social skills and behaviours, and new design demands, in order to interact online fairly and collaboratively.

Netiquette

Course design guidelines for social interaction were increasingly being included in all USQ online courses. Rules and protocols in the form of 'netiquette' were included from the very beginning of USQ's online delivery. Students were reminded to read these at the introduction of the course and further 'rules' might be negotiated by the group as the course progressed. Comments are 'read not heard' and, therefore, students were reminded that they must consider what they have written before sending and that respect for others is critical. For example, in one course, the following guidelines were presented with regard to social and academic interaction through email:

- * *Don't extract and use text from someone else's message without acknowledgment. This is plagiarism.*
- * *Don't make changes to someone else's message and pass it on without making it clear where you have made the changes.*
- * *Don't pretend you are someone else when sending mail.*
- * *Don't send frivolous, foul, abusive, or defamatory messages.*
- * *Don't send chain letters.*
- * *Don't use global electronic mail for advertising or promotional purposes.*

Some of these activities are illegal. Action will be taken if you are found to be involved in one or any of the illegal activities.

Please read the Code of Practice, as it is assumed that as soon as you use USQ electronic services, you agree to abide by the terms in this document.

The link to this code of practice is contained in that course's material.

The same course provided guidelines for the use of electronic mailing lists and newsgroups:

- * *Ignore flaming or provoking messages.*
- * *If a message irritates you, reply privately to the author.*
- * *Don't complain about administration to the EML or newsgroup. Contact the moderator or listowner privately.*

5.3.9 Summary

In this section, the focus has been on a number of unique features that pertain to the online environment and how they impact on the design of online courses. Specific mention has been made of the design implications of online education that is strongly text based, in terms of the proliferation of text, the dilemmas of the 'body-less realm' of written communication, the nature of that written text and the construction of social identities through written text. Already, it is clear that online lecturers are addressing these issues (for example, all courses are designed to generate a social presence, provide netiquette guidance that deals both with issues associated with the proliferation of print-based text and with appropriate forms of communication). Nevertheless, the issues dealt with in this section are posing

dilemmas for the management and control of online teaching (these are addressed in Chapter 7) and are re-shaping the very role of a teacher (this is addressed in the following chapter).

5.4 Pedagogy as the key to design

The commitment to good pedagogy, as the key to effective learning, was a central theme in staff responses.

5.4.1 Design with pedagogy at its centre

If pedagogical issues underpin decisions in designing online courses, then there is a greater likelihood that such decisions will lead to enhanced learning for the learners. There is therefore, rightly or wrongly, an underlying fear that ‘the debate about “pedagogy” might get left behind as private industry hijacks the process’. That being so, there is evidence that the teachers of the online courses selected for this USQ study used the online technology to support good teaching and learning principles:

The (Education) Faculty’s courses are well developed and...the student-centred focus of the Department that runs our online courses is well acknowledged and publicly acknowledged by the commercial partner.

One of the major benefits of learning and teaching online, as noted throughout this chapter, was the opportunity the technology allowed for interaction and collaboration with others and the immediacy of this interaction:

I have been better able to understand the needs of the students...In particular, a greater understanding of the context in which students operate has allowed me to negotiate with students to make assessment tasks more meaningful and authentic.

Underlying the push to make pedagogy the central plank in the online course design is an acknowledgement of the type of orientation and skills that online teachers need. It was argued that they must have:

...communicating and moderating skills,...[an] awareness of what the software can do to support teaching and learning...[have knowledge of] instructional design...how to promote interactivity...implement instruction, facilitate learning and evaluate...knowledge of different cognitive tools and how these relate to pedagogical theory...mentoring and collaborating with other online teachers...professional reading and active research.

5.4.2 What drives the design: technology or pedagogy?

A major issue for online course design concerned how effectively the online technology is utilised in the task of taking quality education to large numbers of students globally. The following staff comments raised what they believed needs to be weighed up when designing online courses:

The question of how the technology is employed...Is it simply a fancy tool used to deliver curriculum that otherwise would be print-based...or is the technology woven into the curriculum and used as a teaching strategy?

I suspect a tendency for business studies academics to be subject matter experts and often with little business education training/competency...This tends to restrict the incorporation of sound pedagogy into a lot of the teaching...It is a suck it and see approach...A number of staff see online as being merely a tool for delivering information rather than a challenging and high potential learning environment...I suspect much of the business studies take-up of online instruction is on the basis of technology gimmicks.

I design all the materials myself...so that technology does not drive the learning.

Some survey respondents alluded to the pressure of ‘the marketplace model of e-learning...which puts quality in education at risk’.

When online technology is utilised to deliver courses globally in haste, without adequate staff development (about, for example, how different people learn online, what works in teaching them and why) or technological training, traditional educational paradigms may dominate. This can result in the uploading of on-campus or traditional distance courses without (re)designing them for the online teaching and learning environment. While the advantages and disadvantages of placing lengthy text in online courses have not been closely researched or evaluated, the dumping of traditional course material is not advocated by staff:

Organise content to best make use of the medium...Electronic page turning is a total misuse of the medium...[There should be] effective navigation that facilitates quick and easy access to the content.

Design to take advantage of the online context...not huge chunks of text online...Use interactive facility to share the discussion of knowledge.

Another concern, seemingly related in part to not designing courses effectively for online learning is that, due to the excessive screen reading of text, many students and teachers download printed copies of the course content at a cost that has equity implications. The course material interaction statistics for this study showed significantly less engagement with course material (as opposed to the communication feature), indicating perhaps that many students download the course content and readings:

A number of mature age students have indicated to me that because they use computers a lot in their daily working lives that they prefer to be able to sit down to ‘paper copies’ of their study materials...They like the change from the computer screens and they find it easier to flick back and forward in the materials..Those who travel prefer to throw a book of readings into their luggage rather than hassle with lap tops, modems costs etc.

One of the reasons for such ‘book dumping’ might lie in the lack of knowledge of the technology that is being used for online education, highlighting the need for training for staff. This lack of training was referred to by a number of staff members:

The major disadvantage is...in my Faculty, the dumping of print-based material onto electronic delivery mode...There has not been any serious pedagogical (or should that be 'cybergogical') consideration and development of materials and virtually no training and development of the staff involved.

Continual challenges are posed to staff to develop insight into how to use the technology to assist a learner.

One respondent who assists with the uploading of the online course material onto the NextEd server confirmed somewhat starkly: 'in my experience the majority of online instructors and students have minimal knowledge of current online teaching technologies or how to use them efficiently'.

5.4.3 Design for interactivity and collaboration

Some students claimed that interactivity was a compelling and key feature of online learning so that there must be 'good content that generates student to student interaction...[and] virtual worlds that actually work at an instructional level'.

A staff member pointed out that:

...traditional distance demands 'thick' content as the learner is 'alone' with opportunities to interact with the material...it needs to be structured...However, with online approaches there are significant opportunities for teacher-student and student-student interaction so the content presented as study material need not be as dense or as extensive since the opportunities for interaction present opportunities for presenting/ negotiating content.

Thus, while we have addressed interactivity issues using the discussion board in relation to ways of reducing the amount of written text, reference to interactivity here acknowledges that some courses were designed to present less dense or less extensive study material and address content issues through structuring interactivity forums. In fact, some course content, such as that for the seminar or project course, was constructed predominantly via discussion boards.

As emphasised previously, the majority of online courses were underpinned by social constructivist learning, where new meanings are both 'internally negotiated' and 're-negotiated' with others through dialogue. They also strove to develop a sense of a community, where the students themselves are the resources for learning. Students in the survey stressed that teachers who include this design feature 'empower learners to be active in the learning community...for a more enriching learning experience' and call upon teachers 'to model the online learning environment in instruction and student-centred learning...[and] not just put lecture notes onto the web or make a solitary dip into the cmc'.

On the basis that interaction and collaboration contribute to constructivist learning, a number of design features were suggested.

Grouping students

The online technology facilitates the creation of small group collaboration that can involve any of these specific activities: students sharing ideas around an issue;

reflecting on views of a teacher or a writer; learning from the meaning-making of others; proposing action or transformed practice in problem solving; or a case study activity.

Davis and Meares (2001) identified the issue of management and evaluation of the interactions that are possible and desirable in the online teaching and learning environment. Grouping learners is, therefore, one way to manage the interactions, as discussed earlier in this chapter. However, grouping is a technical action and ultimately the more critical thing is to think through the purpose for using interactivity, the learning outcomes to be achieved, the structure of groups, the level of participation required, whether the group interaction or collaboration is to be assessed, whether technological support is needed, how to monitor interactions and collaborations, and so on.

The 'Group Pages' facility was not used by all course lecturers in the Faculty of Education, but was used by some. In one course, for example, grouping was used to place students with similar work backgrounds together to enhance the authenticity of the learning and assessment experiences. In another, the facility was used to group students such that they can work together on seminar development and analysis of issues.

Setting parameters

As content is constructed through discussion forums, it would seem inevitable to put into the design some parameters that make clear about expectations regarding the level of interactivity. While this was occurring in the Faculty courses, parameters were not always made explicit:

It was not totally obvious how involved one had to be...The lecturer's expectations were not quite clear...There is a fine line between the lecturer simply encouraging participation, or on the other hand indicating that your participation level is not high enough.

The design of the course might also need to consider expected engagement levels at various stages in the course:

The course should be designed in ways that allow learners to participate at the level they feel comfortable...They are not compelled to participate except where a task requires some collaborative activity.

It was noted by one staff member that the effect of silence can produce a 'strange emptiness of not really knowing if messages sent out have been received, or what particular interpretation might have been placed upon them'. While this can be problematic if widespread, as indicated in Chapter 4, there are always students who do not participate or participate minimally. Such 'lurkers' can be vicarious learners who may read the postings, analyse the ideas and generally do many of the things that the more active participants might. Lots of interaction is not, *ipso facto*, good. One might have to provide some space for digesting the material as this student

made clear when the teacher wondered why there were considerably fewer interactions occurring in the forums:

Perhaps what is happening is described in McKendree & Mayes (The vicarious learner). Following conceptualisation (initial orientation, exploration and experimentation in terms of the content), and construction (selection, linking and classifying of information), we engaged in the dialogue stage – ‘the testing of understanding through dialogue’. During this stage we may learn vicariously by observing (reading about) the experiences of others and are busy internalising the knowledge important to us...’the time when we test new knowledge internally’ while moving into the reification stage in which we are reconceptualizing newly acquired knowledge by way of writing the assignments...So we are just reifying.

One design structure, therefore, may not fit all courses and can be best summed up by what this staff member had to say:

I provide opportunities for interaction and sharing but do not require it unless it is fundamental to the learning experience...One online course I teach operates in this fashion, another does require interaction because it is built around an online conference and much of the learning is through interaction...Some students prefer to work independently and others prefer to interact with peers...I am considering the creation of multiple pathways that would support students who can devise and pursue their own projects as well as those who need more structured learning experiences.

Design for different forums

One of the strategies used by teachers to make the forums more focussed is to establish forums that deal with the non-learning aspects of the course, as this teacher did:

I have moved from a single discussion board to four forums...one for general comments on the content, one for a particular assessment item (reflections), one for student social chat, and one for technical issues...I did this to streamline and improve interaction and to assist learners in technical issues that may emerge...there is still some overlap between the forums.

All courses in the USQ study had established a range of forums. In fact, most had begun their early days with only one forum, but had over time added additional forums. These were designed to focus on particular issues in the course, social presence, technical difficulties, assessment requirements and the like.

Inviting experts

One of the potential advantages of online education is the opportunity to draw external experts into the design of the course’s interactive components. Issues of security and access to the forum need to be considered as there can be difficulty with computer systems that ‘tend to be geared to employed staff or currently enrolled students’. While the use of experts has not been a fundamental component of Faculty courses, it was used successfully in TEAC-2 where a UK teaching expert and a USQ Faculty of Arts expert were invited guests into discussion boards.

Arranging course content

Some staff have suggested that the differences in prior knowledge between undergraduate and postgraduate students make the design of course content different for the two levels:

Postgrad learners are self-directed...online is probably more effective as a supplementary tool for undergrads.

At the post-graduate level it might be argued that the online platform allows for discovery learning better than most delivery modes.

Undergrad courses are more about transmission of content...interactive component would need to be more closely monitored...but still appropriate in a constructive learning environment.

Suitable for different levels assuming students have the necessary skills and disposition...independent learning capabilities may be more common among graduates.

While this issue is not currently of importance to the Faculty of Education, as all online courses are postgraduate, the appropriateness of different approaches for undergraduate students is an issue being debated at the current time.

Design for non-linear courses

The online technology offers opportunities for the first time to move away from linear course development, an opportunity that at least in some small degree most courses had used. Such non-linear courses may be hierarchically structured where students move between sections and sub-sections, or, a more networked course using hypertext to create complex documents of interconnected, linked information. The effects of such design, however, seem at this stage to be un-researched:

In a print based world we assume students move through the material in a logical (for the writer that is!) way – in online we have created a whole set of hyper links in the material that encourage (rightly or wrongly) students to leap from one section to another. I would like to know if this helps or hinders.

Design for hybrid delivery

The discussion so far might have given the impression of ‘all or nothing’ in designing online courses, especially as this case study of USQ focused on ‘totally online’ courses. Comments from a whole range of staff, both within the Faculty of Education and outside of it, suggest that the future may see the disappearance of easily distinguishable modes of delivery, as all modes employ aspects of other modes:

I see online education becoming an integral part of all distance education...on-campus as well...with a mixed or hybrid mode evolving to take advantage of all modes...it is imperative that we aim for integration and we avoid polarisation...It is dangerous to have the online camp and the traditional camp as opposing force.

I believe as much as is possible, without undermining the educational value of the course, content should be kept to a minimum but where this cannot be achieved the decision has to be made whether a print package accompanies the online mode or whether the student chooses to print out the online material.

Hybrid is way to go/ see it as a convergence

Hybrid is the way to go/ oncampus students can use online facilities

Cannot offer online indiscriminately; some traditions do not support it and some enrolments do not support it. Future is hybrid.

Hybrid may be the way; fully online may not develop but all will be part of a mix

In the future...traditional print-based education may have to be re-defined to be viewed as hybrid delivery.

I think students are best served by having a mixed delivery mode with larger files (particularly graphics) being delivered on CD rather than having to be downloaded.

The distinctions between online and other modes are becoming blurred as we include increasingly more enhancements using discussions via USQConnect, chats, ancillary materials incorporating things like PowerPoint lectures into external students' range of resources.

In some cases, it might be more feasible to consider a hybrid delivery. There are courses that 'include practical components that could not, at least currently, be taught online', or totally online, and therefore a form of hybrid delivery is already essential.

Design for student-managed learning

Learner independence is another consideration for design and can be achieved through giving students choice and control over the content or learning process, through building into design choices to select content, follow particular areas of interest, negotiate their own methods of learning, and the option to apply cognitive skills to analyse, interpret, evaluate educational issues in their own contexts. Learning can also be situated, authentic, meaningful and relevant to the context of use. Such learning is then linked closely to the environments where the learning will be used.

Most of the courses in the Faculty of Education attempted to achieve some, at least, of these aims. For example, the graduate seminar online course applied cognitive skills to analyse, interpret, evaluate educational issues in students' own contexts; other courses tailored assessment such that students can apply it to their own work situations:

I will occasionally negotiate the nature of the required work where a student can persuade me that an alternative activity will demonstrate equivalent achievement.

Students respond favourably online ...when they can see the usefulness of the courses in their own professional lives.

I attend to assignment feedback online...giving detailed and constructive responses...[and] to weave comments which related directly to their work context, writing styles, locality...[thus] showing how the work could be improved.

One student proposed that in future online courses, ‘students will be working as active, self-directed learners with the teacher as the facilitator and manager of learning, rather than the main source and deliverer of learning’.

Stephenson (2001) has claimed that online learning is contributing to a ‘re-balancing of the range of pedagogies’ and in particular to a move towards giving learners greater responsibility for managing their own learning. He lists the features of online learning, pointing out that the overriding feature is the potential to allow control by learners. He suggests that we need to rethink the idea of the course as the main organising structure for learning, as online learning takes learners beyond the expertise of their professors. The future will support a new pedagogy that embraces a ‘fully learner-managed approach’. Courses as frameworks, he predicts, will give way to ‘shells of support materials’ (pp. 221–3).

Design for quality and timely feedback

It has been argued that there should be a ‘planned check point for communicating progress [and] for evaluating learning’ (Wall Williams et al. 2001, pp. 163–4) built into the design of online courses as in other forms of courses. Teachers can make students aware of the purpose of such checks in a timely fashion because of the facilities available through the online technology. Apart from such planned feedback, there are numerous other occasions when students seek it, either through the more public discussion forums or through more private email. There is no doubt that USQ staff were currently availing themselves of these opportunities:

The prompt reply of the instructors encouraged me and also developed the confidence that I was going on the right track.

Reading and writing becomes a pleasure when the instructor replies positively and in time

I think that the teacher’s role and ability to generate interaction between the group, identify individual expectations and provide significant feedback are very important.

In this discussion, the word ‘timely’ has been used in order to emphasise that such feedback from teachers need not be immediate. In the discussion forums, for example, teachers may well want to wait for other students to respond and, when they do respond, it may consist of a question or a prompt for an alternative perspective in order for the learners to construct their own learning. Where a number of students seek feedback upon the same matter, especially through email, then ‘answers developed for one or two students can be posted on the discussion board if it becomes apparent that wider clarification is required... These clarifications can be used to update and improve the next offering’s materials’.

At USQ, teachers have attempted to monitor the discussion daily and respond with feedback at least within a couple of days, though at least one staff member admitted adopting ‘a minimalist approach to interaction’.

Design for support

Course preparation, design and delivery of USQ online courses are supported by the university's culture and infrastructure. One student stressed that 'organisational learning and the associated cultural change will be critical for successful implementation of online courses university wide', while the same student confirmed that 'my experience with the USQ online team left me very impressed about their professionalism, knowledge and dedication'.

A range of support facilities can be built into the course design: technological, academic, personal, peer, resources support and language support for those for whom English is a second language. Much of this already occurred in the USQ courses, outside of the reputation that the Department staff have for personalised care. There is a technology support facility built into the *Blackboard* platform that allows students to contact NextEd staff directly, *USQ Assist* provides support to all USQ enrolled students and the Faculty of Education Online Administrator offers a support function for all Faculty of Education students enrolled online.

These facilities, it would seem, are needed. As one staff member commented, a 'degree of technical expertise is often wrongly assumed':

Some students are uncomfortable with the technology...they need to know how the platform works, basic technical issues and netiquette...[This is] done on the platform as a standard introduction ..online technical support...online tutorials...use [of] a web browser...word processor...web editor, email.

It may also be necessary to build in technical support for teachers, some of whom may encounter problems similar to those of students. Some of the skills that some teachers would like to develop more were:

Basic skills in the use of the discussion board to generate discussions and address issues of netiquette and other conventions...efficient use of email, web browser, web editor, database, basic word processing skills, knowledge of developing folders, transferring files, attaching files, working online.

Such support is provided at USQ, through face-to-face training, professional development workshops as well as an online manual.

Flexibility in design

At this point in the history of *USQ Online*, there is limited flexibility in the design of online courses. When the online initiatives were implemented, the advice given to course developers was to limit the technological applications; it was anticipated that the courses would be strongly based around the capacity for communication, with appropriate content and some audio, predominantly in the form of an audio introduction to the course from the lecturer. There were some modifications to that, in that one course featured interviews with discipline experts, another incorporated video clips to demonstrate certain aspects of the course and one course on multimedia, not surprisingly, included a fuller range of multimedia

applications. The issue of lecturer flexibility, or even control, is an issue of some importance at this point in the development of online courses and programs at USQ. The design of all courses is under review and it has been acknowledged by staff that changes in design have taken place over time already:

I have moved from a single discussion board to four boards. One for general comments on the content, one for a particular assessment item (the reflections), one for student social chat and one for technical issues. I did this to streamline and improve interaction and to assist students in technical issues that may emerge. This has aided interaction but there is still some overlap between the boards – I get social interaction in all and some academic questions directed to me in the student area where I have told students I will be staying out of!

Become more resource driven rather than content. This suits the constructivist theory better.

More emphasis has been placed on the use of discussion forums for the co-construction of knowledge.

My earliest design for 81530 included substantial group work and open-ended project work. Experience over a couple of semesters and feedback from students suggested that individual work and more structure might be more appropriate.

Current courses include less text and make more use of the web and the resources that it offers.

Another feature that can be used in the design of courses, and has been used in some already, is the use of what are called at USQ interactive ‘COOL Tools’. For example, students can interact with knowledge objects, such as, labelled diagrams embedded into the study material, and receive immediate feedback to guide them to successful completion of an activity. Another example used in some USQ courses at this point in time is the use of electronic quizzes, such as multiple choice questions designed for formative and sometimes summative assessment.

Another feature that can be used in the design of courses, but at this stage is only marginally used, is the provision of multi-sensory approaches to, for example, support comprehension. Using this feature, similar information can be presented in multiple domains simultaneously such that visualisation tools, such as graphics, illustrations and pictures, can be used to make possible associations of new concepts with familiar phenomena more holistically. Alternatively role-plays and simulations can be used, as this teacher points out:

I can present my animated computer simulations... [which is] hard to do with a set of drawings in a printed text.

I try and use a variety of instructional strategies and content representations... group activities, situated learning, authentic assessment, individual activities, graphical/textual representations of the same content....

While staff did criticise the lack of control they have over the design and development process, there was some flexibility offered by the technology, for example, through the discussion groups and announcements, that allowed changes to the course design as students progressed through the learning content. Some teachers currently took advantage of this facility:

[The] advantage of online...includes the possibility of making adjustments or corrections to course materials during the semester.

I have tended to adapt my approaches, strategies, resources, during the progression of the study period (semester) to suit the diversity and characteristics of the particular cohort (including their learning preferences). I have allowed the current situation to 'shape' elements of the course while the course is being delivered...I have adapted to reflect the evaluation feedback which has been a very valuable source of information.

There are opportunities to adapt, modify, and change whole sections of the course, or ways previously planned to proceed, to engage with content, to assess...according to the students' needs, interests, expectations, contexts and prior learning...so long as the course specification objectives etc are being met...Online means being able to truly take account of what students want, re-shaping the environment to make the most of students' collective expertise, mobilising them to construct knowledge for their own purposes.

5.4.4 Summary

This section has analysed a range of instructional design issues that have at their centre consideration of the way that design can hopefully contribute to sound pedagogical principles. The section has considered how flexibility can enhance these aims, the appropriate place of technology, how interactivity and collaboration can be built into the design of online courses and the consequent need to set parameters that govern this interactivity, the potential value of grouping students into coherent subgroups focused around specific aims, the way that discussion forums can be created to serve various purposes, the potential of outside experts, the capacity to design for non-linear approaches, for student-managed learning, for timely and quality feedback to students, and to build into the design features appropriate support structures for students and staff. While this study is about totally online courses, this section also raised a question about the future of educational delivery suggesting that traditional distance, face-to-face and online may eventually blur into a type of hybrid delivery.

5.5 Conclusion

This chapter has examined how the design of online courses is currently being managed and organised. This conclusion attempts to describe the progress that USQ, or particularly the Faculty of Education, has made in coming to a shared understanding of what is required in the effective design and development of totally online courses.

A consistent response from the staff in the research, not just those from the Faculty of Education, concerned a lack of flexibility in the learning management system (*Blackboard*) that is used to frame USQ online courses. It should be commented, however, that this may not be a function of weaknesses in *Blackboard* itself, because not all of the design features of that platform were made available to staff at USQ. What this would appear to demonstrate is that there is a clear intent

on the part of lecturers to let pedagogy drive the technology, but to some extent they are unable to do so because of the constraints in which they work.

As we have already indicated, the Faculty of Education online courses were deliberately structured with a focus on the communication capabilities of online education; moreover, this operates in a text-based manner. The predominance of text has created its own set of issues; it would be fair to say that these are being addressed in an individualistic way, but it would also be true to say that the issues have not been resolved and certainly strategies have not emerged that might form the basis of a shared understanding of the way forward. There has been spasmodic progress made with concepts such as visual grammar, vicarious learning, intelligent tutoring, reflective writing, and communication conventions and protocols.

The analyses have also uncovered some intriguing themes that require further research. For example, the effect of what has been referred to in this chapter, as the 'body-less realm' of written communication online deserves study, in particular a lack of paralinguistic cues in the online environment.

The chapter also addressed how social identities are constructed through written text and raised a number of issues associated with this, such as netiquette, masking and flaming. Once again, staff are dealing with these issues in an individualistic manner, but a shared approach has not yet emerged, although there is currently an attempt in the Department of Further Education and Training to develop consensus on netiquette rules that might assist in this.

The chapter also examined a number of themes that centred on pedagogy as a key to instructional design. While again it could not be claimed that a common view on what comprises effective online pedagogy has emerged, there is agreement about a range of pedagogical strategies that appear effective in achieving a range of learning outcomes. This issue is taken up further in Chapter 8.

6. Online teaching and learning: emerging principles and procedures

Jacquie McDonald, Glen Postle, Shirley Reushle and Bruce Vickery

6.1 Introduction

In this chapter, the focus is on determining whether online teaching and learning involves any significant departure from the way teaching and learning has been offered at USQ. This will involve an investigation into current online practices and procedures as defined and used by a group of practitioners who are experienced in online education, having taught online courses for a minimum of two years.

In this study, the notion of ‘anomalous conditions’ has been used as an appropriate indicator of change. Change does not involve breaking out of a framework because someone or something external to the organisation directs that change should take place. Rather, it requires that those operating within a ‘paradigm’ acknowledge that what they are doing is problematic. When this occurs, there is an accompanying openness about change. A paradigm shift may follow (Imershein 1976).

In the case of online approaches at USQ, the change that is the focus of this study came about through a group’s successful bid for funding to trial online training programs. A group of ‘enthusiasts’ or ‘pioneers’ took up the running and have been involved in teaching a range of courses at the postgraduate level for 3-4 years.

This chapter, then, is about pursuing the way these ‘experienced’ online teachers have developed the concept of totally online courses, given that in Chapter 3 evidence was provided that illustrated that the introduction of online teaching and learning had not been easily assimilated into current teaching/learning practices and procedures. Members of the organisation (teachers and students) had indicated that it had been anything but simple.

The quantitative analysis (Chapter 4) which explored the notion of teacher/student engagement with specific course elements revealed some interesting patterns of interaction, specifically those which arose out of communicative engagement (for example, the ‘Discussion Board’). Measures labelled Student/Teacher Communicative Engagement, Student/Teacher Content Engagement and Student/Teacher Access Engagement were used to conclude that:

- asynchronous communication was a significant component of all interaction with the course elements for both teachers and students;
- the high proportion of interaction attributed to human interaction suggested that a significant component of learning was undertaken collaboratively or was negotiated and involved a significant number of course participants;

- students and teachers made use of course flexibility evident by the fact that engagement occurred on a '24x7' basis throughout the duration of the course; and
- students belonging to specific subgroups (gender, international) were able to use successfully the opportunities presented in the 'Communication Centre' (via the 'Discussion Board').

The quantitative analysis provided 'hard data' concerning patterns of interaction and gave some insights into the nature and status of intensity of such interaction. For example, these data confirmed the importance of asynchronous communication in online settings and provided insight into the frequency with which it was used by course participants.

Chapter 5 explored the unique features of the totally online environment that impacts upon the design of online courses. Specific mention was made of the influence of a predominantly text-based environment, (the proliferation of written text, the 'body-less' realm of written communication, as well as the nature of online text), the influence of the delivery platform (*Blackboard*) on the design of online courses and other design issues focused around what were perceived to be sound pedagogical principles.

This provided insights into understanding just which features of the learning context were having the most influence in shaping the nature of online teaching and learning. It also provided evidence of the emergence of different principles and pedagogical strategies that suggested there may be a range of pedagogical frameworks, not just one, that can apply to online learning.

The issues at the end of Chapter 3 were used as the basis for the development of the 'Questionnaire for Experienced Online Teachers' (See Appendix A) supplied to those teachers at USQ who had been involved in teaching 'totally online' for some considerable time (>2 years). This group was designated the 'resident experts' and their counsel was sought in order to ascertain whether their knowledge of and experience with online teaching and learning reflected:

- (a) little or no change in traditional teaching and learning practices;
- (b) minor changes involving modifications and adaptations of key elements of traditional teaching and learning practices; or
- (c) significant change that may result in the emergence of new and different teaching and learning practices.

6.2 The online teaching-learning environment: re-creating the classroom?

6.2.1 The role of interaction in early 'generations' of distance education

By way of introduction to this section, a brief summary of the role of 'human interaction' (in relation to teaching and learning) in open and distance learning contexts is presented below. The two diagrams provide a simple description typifying the transition from the 'print-based' model of distance education to the 'telelearning' model of distance learning explained by Taylor (1996b) in his framework outlining the various models that accompanied developments in technology.

Figure 6.1 Print-based model

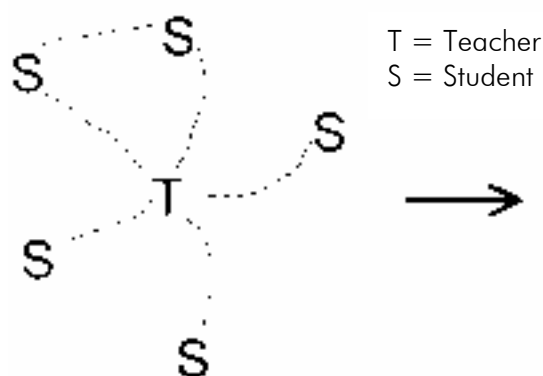
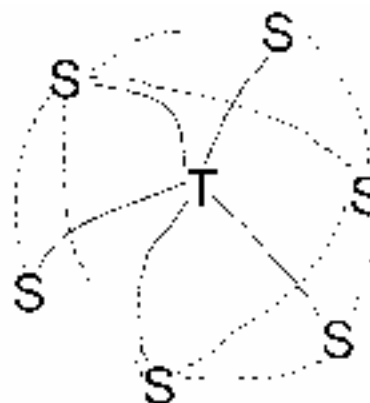


Figure 6.2 Telelearning model



The 'print-based' or correspondence model places the teacher (T) in 'centre stage' and communication between the teacher and student is weak and spasmodic. Feedback on assessment via mail is the dominant form of interaction. The teacher directs the progress of the learner through the content (study material), usually in the same sequence for all and usually at the same pace. The 'telelearning model' provides more interaction (for example, 'teletutorials' or 'teleconferences'), but this is inflexible in terms of timing and location. Once again, the teacher directs the progress of the learners covering the same or similar content at the same pace and in the same order.

In both instances, the model is based upon an attempted 're-creation' of the classroom where the teacher occupies a dominant position and, from this position, directs how and when certain things happen and what content will be covered. Controlling the pacing, sequence and scope of the content is a key responsibility of the teacher. The skills of the teacher are vested in how well he/she can 'represent' the content to be 'acquired'. The transmission model dominates the type of interaction between people.

Of course, what we have focused on here are two models of distance education mentioned in Taylor's framework. Some may suggest that the models we have identified convey a transmissive approach to teaching and learning because they lack opportunities for interaction. However, there is some evidence to suggest that face-to-face teaching has embraced a transmissive approach to teaching and learning and, unfortunately, this seems to have accompanied the rapid expansion of higher education particularly over the last two decades. Mayes et al., in a reference to expansion of higher education in the United Kingdom, note that:

...we have witnessed a gradual shift away from the tutorial dialogues as the cornerstone of the learning and teaching experience towards a notion of teaching through the effective delivery of education, particularly through the timetabled lecture, and then, as hopes for a new efficiency based on technology gained ground, through multimedia presentation. We can observe this trend by noting a subtle shift in the language used to describe education and training...delivery of materials or...delivery of learning.

Mayes et al. (2002, p. 3)

6.2.2 The role of interaction in 'totally online' distance education courses

In this study, we have illustrated that in a totally online environment structured on a *Blackboard* platform, human interaction plays a dominant role in teaching and learning, specifically interaction based upon asynchronous communication. The type of communication was text-based and provided opportunities for teachers and students to discuss issues in electronic forums (post and read messages), contact one another via email or discuss issues in a synchronous manner through 'chat' facilities. The avenues for human communication, while restricted to text, have widened considerably.

Evidence that these opportunities have been taken up has been demonstrated in Chapter 4 (Quantitative Analysis). It has been established that asynchronous communication is by far the most widely used form of communication and that there are variable patterns of usage for both teachers and students. Even given such variability, it is unmistakable that the interaction provided by the online environment was used widely.

Interaction was the focus of many of the responses of the 'experienced online teachers' to the questionnaire they were sent. As it was an 'open-ended' questionnaire, respondents were encouraged to provide as much detail and explanation as possible. A complete set of responses to all questions for all respondents is provided in Appendix D. The following responses provide an indication of how these teachers perceived interaction. While they portrayed increased levels of human interaction, they also focused on engagement with content and internal/external resources:

...speed of communication with students.

...ease of linking to other medium, tools, sites.

...the context makes it easier for me to get to know my students so that I can ascertain their needs.

...in online we have created a whole set of hyper links in the material that encourage students to leap from one section to another.

The value of online is its immediacy. It enables immediate or quick access to current, timely resources and it also supports a more interactive learning environment through email, discussion forums, access to resources, and access to experts in the field.

...it allows interactivity in ways that are not possible in traditional classrooms—for example, ideas/ views can be shared more equitably (everyone can table a response), there is time and space to negotiate meaning, there is time to review and reflect on the contributions of others before and after, the relations of power between teacher and student are more equal...the access to high quality and diverse resources/ guests/ daily events is manageable...the learning group can be more intimate in knowing each other.

Clearly, this embraces a view of interaction that goes beyond 'person-to-person relationships' in the formal group setting to interaction with persons and resources outside that setting.

When asked to comment on the nature of changes they have made to their teaching since adopting online approaches, the teachers indicated that:

I have quite a bit of content in my courses, and at USQ, we have debated about different ways of operating online that might minimise the 'page turning' implications. The question becomes—is it the delivery mode per se that should drive the nature of the content in the discipline that is being taught.

I don't include as much content online courses (try not to—although some course dealing with new content require these concepts, ideas to be transmitted in a more objectivist manner).

As I have become more confident teaching in the environment, I have tended to adapt my approaches, strategies, resources etc during the progression of the study period (semester) to suit the diversity and characteristics of the particular cohort...I have allowed the current situation to 'shape' elements of the course while the course is being delivered.

Online means being able to truly take account of what students want, reshaping the environment to make the most of students' collective experience and expertise, mobilising them to construct knowledge for their own purposes.

This suggests a quite different mindset to the linear approach to course navigation. It reflects a notion of course progress as an 'ongoing process...and (where) the importance of widespread participation by learners in the design of their own learning has been recognised' (Kimball 2001, p.4).

Clearly, these teachers were not attempting to re-create the classroom online. They were endeavouring to provide opportunities for the learner to 'leap' about online, an opposite view to the linear approach derived from representation models of teaching and learning. They were prepared to 'dismiss the script' when it was obvious that alternatives were needed. They seemed to have a much better idea of the 'big picture', where students were at, what they might need and when they might need it. For example, the comment was made that:

Interaction is more enhanced, more substantial, more regular as online (has) changed the extent and depth of what I could offer in feedback and support.

6.3 The learning community: a central exemplar

In the learning environment described by the experienced online teachers, the teacher's role would appear to have become more complex; the teacher and the learner have become partners in the learning process. This is exemplified by the quote referred to earlier:

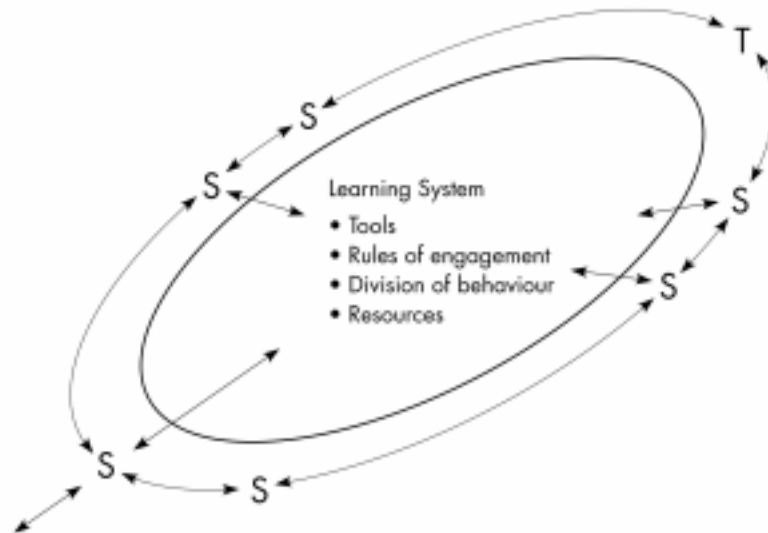
Online means being able to truly take account of what students want, reshaping the environment to make the most of students' collective experience and expertise, mobilising them to construct knowledge for their own purposes.

6.3.1 Conceptualising the learning community

Facilitating the engagement of students in a reflective community of practice may reflect the nature of the pedagogical approach many of these teachers seem to be working towards. Figure 6.3 is an attempt to capture some of the dynamics of the pedagogical approaches mentioned by several of these teachers and used by them in

the teaching-learning activities they have employed. It also attempts to capture the way learners interact within the learning management system.

Figure 6.3 Online model of human interaction



In this model, the teacher's role is one that is predominantly facilitating and managing. The teacher is no longer the 'sage' on the stage, but more a 'coordinator' directing proceedings from the side.

In Figure 6.3, the 'Learning Management System' is what teachers/learners are provided with in order to undertake their respective roles of teaching and learning (*Blackboard* at USQ). The various functionalities (tools) of this management system have been described earlier, but generally entail a communication centre (asynchronous/synchronous facilities), opportunities for hyperlinks between content and resource elements within the course as well as with external sources ('Study Schedule'), and database facilities for storing assessment records and course statistics. The key functionality would have to be the 'Communication Centre'.

As implied in Figure 6.3, the online context, within which teachers work, is not the same as a classroom. The teacher is more a facilitator, or a guide, whose main task is to 'oversee' the learning process, support learners who need advice or assistance, comment where appropriate on discussion, summarise when, or if necessary, and respond to requests for resources or specific learning experiences. This role is constant and demanding.

The changes implied in the model presented in the previous section were evident in the experiences of the experienced online teachers in this study. This is demonstrated in the following comments from those teachers:

I would be pushing toward more 'learner-managed' environments: where what was presented was able to be selected or adapted by students so that the course was relevant to the learners.

...keeping up with available online resources. Because the course is delivered online, there is a student expectation that the materials will be totally current and up-to-date. They are often surprised that they have found an online resource that I have not.

I have also become more professionally mature in terms of learning philosophy and maturity. There is a greater demand to focus on the individual and this is expected by the client. Just in time and just for me.

The changing 'power relationships' place greater demands on my time – students expect more of me – it is constant seven days a week.

6.3.2 An emerging concept of the learning community at USQ

The learning management system provides functionalities that place great importance on peer interaction (for example, 'Discussion Board', 'Virtual Classroom,' 'Group Pages' and 'Homepages'). The learner is provided with opportunities to interact with the course content (readings and other resources), the teacher and with other learners. Learners have, therefore, access to a rich socio-cultural context. In fact, the learning management system provides an environment that on the surface promotes a broad concept of interaction—learner-teacher, learner-learner, and learner-content. The environment has the capacity to cater for a diverse range of learner requests and learner initiatives. The teacher, in such a dynamic environment, must be able to interpret what individuals, and the group as a whole, need and be able to respond accordingly.

At USQ, teachers have made some progress in using the full range of functionalities provided by the system. For example, some teachers see value in promoting opportunities for learners to work more collaboratively and indicate a genuine interest in its potential:

...students are more demanding...expect more...discovered they can learn from one another...demand more of one another...expect colleagues to participate...frown on 'lurkers'.

...students have become more demanding because of the ease and speed of interaction, but not in any unrealistic or offensive way...they have in my view been more willing to see themselves as part of a learning community drawing on other students' work and drawing on the power of the internet for gathering information.

While the first comment is not exactly the way Hung and Chen might maintain a 'learning community' should function (admonishing non-participants), the signs are there that 'interdependency' in learning has been placed on the agenda.

The changes in the role of the teacher that might accompany a more interdependent climate are encapsulated in the following comments:

The discussion board and the other interactions that students initiate have allowed my teaching to be more thoughtfully placed within a context where the long-term goals of the course can be progressively achieved.

I've become more conscientious and student focused.

Sharing of the learning journey and free exchange of ideas is stimulating.

I am a great believer in the guide on the side idea...not leave the learner to his own devices as I believe to set up a truly successful learning environment takes a great deal of planning and preparation. You need to get the environment to a

stage where the learners generate their own strategies and apply them...a move from teacher manipulated strategies.

Some of these teachers are also at a stage in their thinking where they see ‘human interaction’ as more than opportunities to resurrect what interaction might mean in the classroom. Some see human interaction in terms of using psychological and social tools. As Hung and Chen say:

Meanings, tools and goals all necessarily relate the individual and the social world of which the individual is part, for they are all formed in a socio-cultural context. The use of tools in any cultural practice is jointly constructed by the individual and by the culture in which the person or learner is developing with the assistance of those who are already more competent...in the use of those tools and in culturally appropriate goals.

Hung & Chen (2001, p. 6)

An emerging competency in the use of many of the ‘tools’ provided/available in the online setting is seen in the following comments:

I have moved from a single discussion board to four boards. One for general comments on the content, one for a particular assessment item (reflections), one for student social chat and one for technical issues. I did this to streamline and improve interaction.

I have...developed my own database driven system for maintaining grade records and emailing feedback to students because the systems provided are not really suited to the task.

I don't include as much content...try to use cognitive tools (graphic organisers/ concept maps) to present information and try to encourage students to use such cognitive tools and encourage learners to become hypermedia authors.

However, it is interesting to note that these changes in the use of tools focus on a view of human interaction that seems ‘constrained to a view of particular teaching technologies’ (Hung & Chen 2001, p. 6). Hung and Chen indicate that this tends to result in a view of teaching and learning that is ‘truncated and partial’.

The teachers surveyed were probably acknowledging this shortcoming. These uncertainties arose in the comments they made about the nature of facilitation, what appropriate levels of student participation might be, and the nature of learner centredness. Such comments confirmed that they were grappling with how to embrace the potential of this different learning context—how to break out of thinking about teaching and learning that is framed by their past experiences, student experiences and expectations and, of course, the expectation of the education community represented by the institution and the wider general community. As Hung and Chen maintained:

Communities of practice are also connected by socially constructed webs of beliefs and ways of thinking. What we consider real and authentic within a community of practice is framed by its culture and its demands.

Hung & Chen (2001, p. 6)

While these teachers seemed to be able to operate ‘flexibly’ when the course was running (some indicated changes made ‘on the run’), a major frustration seemed to

be an inherent inflexibility of the ‘learning management system’ that was selected particularly the ‘production process’ used for course design and development:

The structure of the learning management system...bit of the technology driving the pedagogy.

The...software has definitely shaped the design.

The production process makes it virtually impossible to review the design of the courses as one would like or educational reasons would demand.

I want to be able to be free to change the materials up until the start of the course.

There were many instances that indicated that, even though teachers have firmly embraced the opportunity to work in online settings, there were aspects of such work that presented inconsistencies and contradictions. For example, while there was general consensus that the interaction provided was a lynch pin in the whole process, there were doubts about doing it well. Some of the challenges mentioned included:

...how to manage the discussion, when to interfere, how to build a learning community with such a diverse group of learners, how to manage a proliferation of text, generated with large classes.

...[with virtual chat] the volatility and chaotic nature of the discourse when 20+ students come together to communicate using text.

...learning how to facilitate, guide, mentor – using Socratic method appropriately.

...how to be an excellent written communicator using a variety of genres from a more academic approach, to conversational, to formal, to diplomatic.

...managing the discussion board to fit student needs is no easy thing. Students move in and out of the board at their own discretion... (partly learning preferences, partly speed of work) and statistics tell us that the use of the board varies throughout the semester; maximising the value of that interaction in relation to the learning objectives requires careful thought.

Many of these comments tend to suggest that these teachers had a view of educational design that placed the emphasis on skills and information. For example, we need to know how to facilitate effectively, we need to improve our written communications.

Fowler and Mayes (1999) quote Wenger (1998) when they argued that:

...the issues of education should be addressed first and foremost in terms of identities and modes of belonging and only secondarily in terms of skills and information.

Fowler & Mayes (1999, p. 42)

As they point out, Wenger’s views do not provide a description of learning, but these views do suggest a ‘design heuristic’ for where we should start looking for design principles using a ‘communities of practice’ framework.

There was hardly any mention within any of the comments made by these teachers which would suggest that they were aware at this stage of the role that ‘identities and modes of belonging’ might play in forming learning communities, where ‘knowledge is created, shared, organised, revised and passed on’ (Wenger 1998, p. 4). The idea

being suggested is similar to what Kimball (2001) calls ‘managing metaphor’ and ‘managing culture’. She mentioned the importance of ‘ambience’ in helping ‘participants evoke images to put them in a mind space conducive to learning’ (p. 4) and the need to ‘state explicitly the kind of atmosphere you hope to create...supportive, deep, reflective, focussed’ (p. 7).

Hung and Chen (2001) called this ‘information architecture’ and maintained it was but one aspect of ‘infrastructure’ that has been relatively unexploited in creating online learning communities. The Hung and Chen paper highlights the nature of the difference between face-to-face learning communities and web-based e-learning communities and they argued for a radical transformation in the way we conceptualise teaching and learning in these contexts.

The point they make concerning the fact that the notion of infrastructure is a relatively unexploited concept in the development of e-learning helps to explain where the USQ teachers are at in relation to making the transformation from working in face-to-face communities to working in web-based e-learning communities.

What has been argued is that these teachers are in ‘change mode’. The quantitative analysis drew attention to patterns of engagement that inferred different teaching/learning practices and procedures were already in place. The initial questionnaires added another dimension by indicating that the adoption of totally online approaches represented a ‘violation of expectations’, while responses from ‘experienced online teachers’ revealed how these teachers were actually changing their priorities in order to address these and other issues.

The preceding chapter illustrated that the ‘online infrastructure’ dimension (nature of written communication, ‘body less’ realm of written communication) provides the impetus for new ways of thinking about teaching and learning. As Hung and Chen suggest:

....we do not need to put old wine (face to face practices) in new wine bottles (online communities).

Hung & Chen (2001, p. 9)

6.4 A communities of practice perspective

Hung and Chen (2001) have suggested four principles that provide a useful framework for defining the nature and extent of change undertaken by the USQ teachers. These are commonality, situatedness, interdependency, and infrastructure and are explained briefly in Table 6.1.

Table 6.1 Selected principles for e-learning

Principles of situated cognition and Vygotskian thought	Principles of online teaching and learning
<i>Commonality</i> Learning is a social act leading to identity formation and associated membership of a community of practice	E-Learning environments should capitalise on social and collaborative communication with others who have shared interests
<i>Situatedness</i> Learning is reflective, metacognitive and embedded in rich socio-cultural contexts	E-Learning environments should enable students to work on activities and projects that demand reflection on authentic practice
<i>Interdependency</i> Learning is socially mediated and facilitated through engagement in practice with others	E-Learning environments should generate interdependencies that benefit from the diverse expertise in the learning community
<i>Infrastructure</i> Learning is facilitated by activity, accountability and associated support mechanisms	E-Learning environments should incorporate facilitating structures, accountability mechanisms, and associated rules of engagement

Source: Taylor (2002), adapted from Hung & Chen (2001).

As referred to in the previous section, at the heart of the changes in teaching and learning made by the USQ teachers is the concept of learning community. Much of the data (quantitative analysis, experienced online teacher questionnaire) pointed to the fact that an emerging concept of 'learning community' best represents the USQ online experience. At this point in time, it is driven by the way that they used the 'management system' provided by the software used. The learning management system has provided the impetus for teachers to think about the organisation and management of teaching and learning quite differently. Their role has become more a manager of the learning environment. The notion of learning community is central to the way they utilise the learning management system. However, there was no obvious common approach other than they seemed to have embraced some of the ideas put forward by Hung and Chen (2001) and encapsulated in the four principles that they argued were fundamental to adopting a 'communities of practice perspective'. It is to these four principles to which we now turn

6.4.1 Situatedness

This principle is defined by Hung and Chen in the following manner:

...when learning is embedded in rich situations and social constructive acts where meaning can be made sense in the contexts of application and use learners pick up both implicit and explicit knowledge.

Hung & Chen (2001, p. 7)

The students enrolled in the courses at USQ can be described as the typical cohort of adult distance education students and included many part-time students working in full-time contexts often related to the area they were studying. The platform used for the courses provided quick and reliable access to study materials, readings and access to teachers and other students through CMC (Asynchronous and Synchronous Communication). Authentic assessment was used widely where students were encouraged to work on authentic projects.

The access to 'rich contexts' of practice through the interaction provided in both asynchronous/synchronous communication contexts, and the access to boundaryless sources of information, brought students into contact with opportunities to acquire both implicit and explicit knowledge (Brown & Duguid 1996).

Where students were encouraged to post reflections integrating 'new' concepts and ideas with their specific work context, opportunities existed for students to share experiences and interrogate one another about individual postings (Taylor 2002).

6.4.2 Commonality

Hung and Chen argued that 'it is important to have a valid reason for participants to work together in a way that makes sense to them' (p. 7). They also suggested it includes 'a common set of genres, signs, tools and speech acts understood by members in the community' (p. 7).

Most of the students enrolled in these courses are teachers, educators or trainers from schools, tertiary institutions and industry. The 'Communication Centre' of the learning management system, through the 'Group Pages' facility, enables staff and students to create sub-groups to work together. For example, in some courses students create subgroups based on similar work contexts (schools, industry trainers, ESL teachers, vocational education teachers). In other courses, this was taken further when assessment schemes demanded project-based authentic assessment (in groups), peer review of one another's work and reflection on action (Schon 1987). Most courses also used an introductory asynchronous discussion forum topic to get students to introduce themselves and to indicate their background, interests and motivations for studying online.

With respect to what Hung and Chen referred to as a 'common set of genres, signs, tools and speech acts', all USQ courses relied on text for communicating content and for discourse between participants. While this reliance on a common tool promoted commonality, it was also a source for concern. First, there was much work to do to generate guidelines for written communication online. Some (teachers and students) used inappropriate genre for working 'from a screen' (wordiness, ambiguity, convoluted expression etc.).

Second, it was becoming obvious that the more successful that teachers were in generating discussion, the more difficult it became for students to cope with the quantity and complexity of threaded discussion in forums on the Discussion Board. There was also further work to be done in determining a shared understanding of the different functions of synchronous and asynchronous communication.

The fact that synchronous communication is not used widely is due, just as much to a lack of knowledge of how it is best used, as to the difficulty of managing the complexity of communicating in text without common protocols.

6.4.3 Interdependency

Interdependency exists ‘when the structure in a community leverages on different demands of the participants in the community’ (Hung & Chen 2001, p. 7). Hung and Chen explained this in terms of the ‘varying demands and expertise of different competency levels where participants can make use of each other’s abilities and narrowing the weaknesses’ (p. 7).

There was considerable evidence that participants were beginning to interact in ways that acknowledged the different levels of expertise and the varying needs and perspectives of the group. Specific tasks, involving reflection on action and associated peer review, were examples of this principle of interdependency. Several courses used these approaches. However, a more concerted approach to promoting this principle required the creation of an ‘atmosphere’ in a course that placed cooperation ahead of competition, negotiation above conflict, and argument and debate around academic not personal issues.

The course participants need to feel sufficiently comfortable to value the varying demands and expertise within a group and capitalise on the different abilities and narrow the weaknesses (Wenger 1998).

The role of the teacher in all of this is complex, but it involves being more aware of the dynamics within a group, getting a better idea of the individuals within the group, watching the stories unfold via the Communication Centre, interacting with individuals on a needs basis to understand those who participate peripherally.

It also involves an acceptance of a change in the power relationships. The creation of a community of learners requires a process of democratisation. If the more traditional power relations between teachers are replicated online, then the community of learners may not develop or may be dysfunctional. That this process of change in teachers is necessary and is occurring was evidenced by these data from the survey:

...teaching is more ‘democratic’...not the emphasis on transmission of content, rather a negotiation of meaning and a co-construction of knowledge.

I have adopted a more mentoring role...power structures have changed...students have more access to the teacher...have greater expectations.

...the changing power relationships...place greater demands on my time...the visibility of my involvement pushes one to perform.

...more time spent interacting on a personal level with learners...sharing the learning journey...exchanging ideas and stimulating...learners are more equals...more confident of their status as fellow travellers...and their learning experience and contributions are valued as competent practitioners rather than novice learners.

Some of the more formal approaches taken to promote this principle included the formation of groups within the ‘Group Pages’ element for problem solving or project management tasks. Roles and responsibilities for completion of these tasks were undertaken by the students. Summaries were then taken to the main ‘Discussion Board’ for further discussion with the whole group. In this way, an individual learns not just from the activities that they carry out themselves, but from different members of the community (Hung & Chen 2001, p. 7).

An acknowledgement of the potential of diversity is just a step towards valuing ‘interdependency’:

The global diversity of students...in many work contexts...attracted to learning online due to its ‘unbounded nature’ means that dialogue is more active, richer and multi-dimensional...Variations in interpretations, in social, cultural and political practices...can take students ‘beyond’ and heighten awareness as social and cultural aspects of learning are encompassed in the collaborations.

The diversity forces students to question their own perspective and, in contesting that perspective, develop a more pluralistic view of the subject matter being taught:

I adopt a pluralist view to teaching and learning...I try to encourage collaborative learning...as the student diversity, nature of the work we do and the online environment combine beautifully for this to occur.

I am deeply committed to making educational opportunities accessible to a wide range of students...This commitment is the reason I am very interested in online teaching and learning.

Designing for diversity, therefore, also caters for various types of learners by building in maximum flexibility, interaction and student choice, but at the same time working within constraints of time and resources. Support for diversity also needs to be built into activities so that ‘cultural diversity and individual differences are supported publicly in forum discussions’.

The notion of interdependency, as proposed by Hung and Chen, suggests that learner diversity can be used as a positive tool in the web environment. To a certain extent, this is endorsed by the manner in which the experience teachers in this study have approached their role. However, the optimism expressed by Hung and Chen may be a little simplistic. The masters programs developed by the Faculty of Education emerged from a graduate certificate program designed for a vocationally oriented client group. In moving to the masters programs, the content mixed courses that might be viewed as predominantly skill focused (but with theoretical aspects to that focus) with courses that were predominantly theoretically focussed (but with practical aspects included). Consequently, the learner groups that lecturers work with do, to some extent, come with quite different expectations and the attempt to meet these expectations through course design mixed with the interactive capabilities of the platform, the use of ‘Group Pages’ and the like has not been viewed by staff as completely successful. Consequently, consideration is being given to program re-structure that might limit some of the diversity that would be expected in courses.

6.4.4 Infrastructure

Hung and Chen (2001, p. 7) noted that ‘in sustaining vibrant communities, there is a need for supporting infrastructure’. This is the principle that differs most from the face-to-face community and that has been relatively unexploited because early attempts at providing online approaches endeavoured to recreate the classroom. Hung and Chen listed these three tenets—‘rules and processes, accountability mechanisms and facilitating structures’ (Hung & Chen 2001, p. 9).

Rules and processes are not to be compared with heavy-handed guidelines and rules about behaviour, although the USQ experience does provide students with ‘rules’ for interacting with others online. All courses introduced students to netiquette requirements (rules for online behaviour early in course implementation). However, this is only one part of what is meant by ‘rules and processes’.

There are also ‘rules and processes’ which convey to students the ‘kind of atmosphere’ teachers hope to create. The following questions formulated by Kimball (2001, p. 7) portray the nature of the rules and processes that surround this concept:

- Is the group to be supportive, reflective, information-intensive, focused, cutting edge?
- What styles and behaviours would help or hinder the atmosphere you want to create?
- Are the participants peer learners? Team members?
- Is the moderator expected to provide expert knowledge? Support and encouragement?

As Kimball argued, ‘different images of roles and relationships will provide cues to different ways of participating’ (Kimball 2001, p. 7).

In the USQ courses, much of this was ‘modelled’ by the teachers and, in some cases, the first week of the course was spent gaining an understanding of the environment and the course expectations for both teachers and students.

Of course, rules and processes can extend to the defining of roles and responsibilities. In the USQ context, there were ‘additional roles’ to be communicated. Some courses used ‘teaching assistants or tutors’. All courses provided access to a ‘Technical Support Mentor’. Some courses provided access to ‘External Experts’. It is not just a matter of identifying these as members of the learning community:

For all roles, virtual learning communities need to spend more time being explicit about mutual expectations (for example, how quickly they can expect responses to online postings) for participants because the patterns of behaviour and dynamics of interaction are unfamiliar.

Kimball (2001, p. 8)

Most courses in the Faculty of Education did have stated expectations about the nature and quantity of interaction.

The second tenet of the infrastructure principle is its ‘accountability mechanism’ and refers to the degree of openness in the environment in respect to the availability all students have to all resources and information. In the traditional distance programs, such access and openness was restricted by time and availability of equipment (for example, only those with telephones could access teletutorials). The online context rates fairly highly in ‘openness’ of the environment.

The design and development of material was undertaken with appropriate information for users (access, bandwidth). Once enrolled, students were ‘talked through’ the technical access they could expect and the ‘plugins’ they might need to participate fully in the course. They were also informed about access to electronic library resources, archived documents and resources, particularly in the areas such

as synchronous chat where different time zones might restrict some from participating virtually.

The third tenet of infrastructure within learning communities is 'facilitating structures'. This is to do with how online approaches are operationalised. At USQ, the 'facilitating structures' were defined by the platform being used. The course elements referred to in the quantitative phase of this study described the 'web site'.

To all intents and purposes, it has been an appropriate structure with which to begin a foray into the online education arena. However, as pointed out earlier, some of the comments of the teachers suggested a growing dissatisfaction with the rigidity of the present structure. Some even went so far as to suggest that the technology was driving the pedagogy.

USQ teachers have made some useful starts in respect to conveying to students the kind of ambience they are trying to create. For example, ideas such as the 'student homepage' or the 'coffee lounge' were created to serve the same purpose as a visit to the refectory serves in traditional courses. However, for some this did not go far enough and could be interpreted as reinforcing traditional practice. As Kimball stated 'it is important to signal to participants that they are not entering a traditional classroom' (Kimball 2001, p. 5).

While the USQ courses acknowledged this aspect of the infrastructure principle, there is much to do to provide students with clear ideas about the kind of learning experience intended. The notion of using 'metaphors' to do this is attractive as it 'can help participants create a richer mental construct about what they are doing' (Kimball 2001, p. 6).

The idea of facilitating structures goes much further than defining 'physical space', however. As numbers of students increase, the task of managing increasing 'transactions' will need to be considered carefully. As mentioned earlier, an issue that is presenting some concern is how to handle the number of postings to the discussion board, how to organise synchronous chat for large numbers and how this can be resourced by staff. The methods currently being used are unsustainable in the long term as students are beginning to find it difficult to keep up with the range and intensity of postings, particularly to the 'Discussion Board', and teachers are finding it difficult to manage their time as the structures that are in place demand constant attention.

6.5 Conclusion

It has been argued in this chapter that the online teachers in the Faculty of Education at USQ are in 'change mode'. They are not trying to re-interpret teaching and learning around traditional structures, principles and practices.

The physical space defined by a classroom has been replaced by a 'virtual' space defined by a 'learning management system'. Initial attempts at using this system have focused on the synchronous discussion board. Whether this was because this was a convenient way to try to re-create the classroom, the result of insights into the potential of synchronous communication, or the difficulties in understanding and subsequently using other communication tools ('Virtual Classroom', 'Group Pages'), might never really be known. What is clear, however, is that these teachers have developed considerable insights into how to use the discussion board to their advantage and have made some progress in establishing learning communities as a

fundamental element of their online teaching and learning experience. In some instances, this has progressed beyond intuition; some teachers combined the 'Discussion Board', 'Group Pages', 'Virtual Classroom' and email to best effect in strengthening the concept of a learning community.

These teachers have become managers of learning and they are comfortable with the notion that they combine this role with another one that defines them as learning partners. This is a situation that not only allows but encourages other members of the group to assume leadership by enabling participants opportunities to change the course direction, share resources or assist the group by proposing initiatives. However, a lot of these actions pertain to individual insights or actions and could not be defined as an overall shared pedagogical framework.

In order to benchmark the progress that USQ teachers have made towards the adoption of different teaching/learning principles and practices, the Hung & Chen paper provided a framework. It was particularly relevant and appropriate to use this framework, as it details four key principles associated with the derivation of the concept of 'communities of practice' (Wenger 1998) and related these principles to the online context.

It was demonstrated that a lot of what these teachers were doing could be linked to specific components of each of these principles. Much progress has been made in getting the best out of the online environment. Nevertheless, it was pointed out that many of the difficulties that the teachers continued to raise focused on 'teaching skills and information'. Such a focus is, according to Hung and Chen, misdirected; they cite Wenger (1998) who claimed that the more substantial questions relate to 'facilitating structures' that aim to create the learning environment and communicate clearly the components and expectations that make up the environment—managing new roles and responsibilities, managing culture, managing ambience and the like. An analysis using the principles developed by Hung and Chen placed the USQ experience somewhat short on this account. There is still a way to go.

However, we are not suggesting here that the Hung and Chen framework is an elusive Holy Grail that once achieved might solve all the problems associated with online teaching and online course design. While the experienced teachers were well aware that there are shared understandings yet to be developed, there was also the acknowledgement that teaching, be it on campus, through traditional distance or online, can be an individual 'battleground' where both teacher and learner actions are concomitant on the unique attributes and characteristics of the specific teaching and learning environment.

7. The management and administration of online teaching and learning

Andrew Sturman and Peter Cronk

Not only do the new forms of education portend a change for student populations, but also they will force faculty to develop new modalities of teaching and administrators to provide a new infrastructure for support. As a result, the advent of distance education is forcing many institutions to review and amend many of their existing policies and procedures.

Parrish & Parrish, cited in Farrell (2001, p.3)

Many institutions introducing distance learning spend a large amount of their resources (both time and money) on training faculty to manage the new technical and administrative aspects of distance courses. Instead, faculty need to learn to manage critical dimensions of the new environment in which their courses are taking place, dimensions like metaphor, meaning, culture, roles, time, awareness, and collaboration.

Kimball (2001, p. 2)

7.1 Introduction

The management and administration of online teaching and learning was one of the categories that emerged in the staff and student surveys that were discussed in Chapter 3. Staff mentioned the problems of resourcing this type of delivery especially when it is perceived that there is an attempt to provide greater educational flexibility for students than might be provided in other modes of delivery, its commercial viability and issues to do with effective and efficient delivery, including the course production process and the role of technology in that process. While perhaps it might have been hypothesised that these issues would not be so important to students, this was not the case. Students also commented on the resource implications of managing a highly interactive online delivery process, the dangers to academic integrity of government cost-cutting policies and problems associated with learning management processes that led to too much standardisation. They also expressed concerns of a more general nature that online education might be viewed low down the pecking order of acceptable delivery modes.

Similarly, Chapter 5 has addressed a range of issues related to the design and development of online courses that also impact on matters addressed in this chapter. These include procedures to manage the extensive interactivity that is a feature of online education and, in particular, the extensive print-based communication that is a feature of USQ's approach to online education, the

features of the learning platform that assist or hinder instructional design and issues related to appropriate course content.

As part of the University's marketing of the appropriateness of online education the slogan, "www - what you want, where you want it, when you want it", has been, and still is, used. This is a catch phrase to appeal predominantly to the adult educational market that is required to constantly up-grade its skills, but may not be in a position to take time away from work or home duties. It is a catch phrase that advocates almost unlimited flexibility and, in the context of USQ, this was accompanied by strong 'encouragement' to the Faculties to be more flexible—to remove prerequisite requirements from course enrolments, to offer online courses in all semesters (USQ operates a trimester system), to remove quotas from courses and programs, and to develop a range of online programs in all Faculties. The link between lifelong education and online education was seen at USQ as an inevitable link and one with potentially huge commercial possibilities.

However, when online delivery is designed to be large-scale, it brings with it many administrative and pedagogical challenges to the fairly conservative traditions of higher education and it brings with it challenges to the way online education can be managed at the 'chalk face' or in this case at the 'computer face'.

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. But to what extent has it been able or willing to challenge the dominant administrative paradigms that guide higher education institutions?

7.2 Administrative paradigms and learner-centredness

The dominant administrative and academic paradigms at USQ, in particular in the way they apply to award programs that form the core of USQ's programs and the online initiatives in the Faculty of Education, as in most higher education institutions, are based upon a number of key exemplars:

- learning takes place in designated time periods and students are obligated to complete their studies within these periods or suffer academic and/or financial penalty;
- entry into programs is based on academic qualifications and/or experience; open entry is not possible;
- progression from one course to the next is determined by program structure and, in particular, the frequency of course offerings;
- the mode of delivery should not affect the nature of study content and assessment procedures;
- academic expertise for course and program delivery lies within the institution; and
- the academics within the University are able to provide for students all the course and program-based support necessary for them to complete their studies.

In other words, the organisation of higher education institutions is not necessarily based around flexible needs or desires of students. In fact, Hall (1996) argued that learner-centred approaches continue to be largely confined to non-traditional

institutions and programs for adults and distance learners. However, Taylor (1996a) suggested that, as distance education moves towards later generations of delivery, the primary benefits for learners are flexibility of access and increased student control over their learning:

In effect, these 'flexible access' technologies have the potential to allow the student to access learning at will, as lifestyle permits...Such flexibility has a major pedagogical benefit — it allows students to progress at their own pace. Thus varying rates of individual progression can be accommodated, unlike typical conventional education practices.

Taylor (1996a, p. 3)

7.2.1 Administrative barriers to successful implementation of online education

Geilman-Danley and Fetzner (1998) and Berge (1998) identified and discussed a range of contextual issues arising from teaching online programs. These authors concluded there is a need to examine current academic, governance, technical, cultural, legal, labour-management and fiscal practises as universities increasingly move to online education. The barriers that currently exist in these areas may well impede the realisation of Taylor's belief in the potential of online education.

Paralleling emerging pressures for change to established teaching/learning practices are pressures to significantly rethink policies and procedures governing the academic management and administration of distance education (and possibly on-campus) programs. An editorial by Michael Moore in the American Journal of Distance Education asked, "What are the barriers to the adoption of distance education?" In his commentary, he suggested that in higher education, part of the answer is that many of the administrative systems were originally designed to service traditional students taught by traditional teachers. He went on to say:

The barriers impeding the development of distance education are not technological, nor even pedagogical. We have plenty of technology, and we have a fair knowledge about how to use it. The major problems are associated with the organizational change, change of faculty roles, and change in administrative structures. Here we desperately need all the ideas and all the leadership that can be assembled. The starting point is to expose the problems.

Moore (1994, p. 4)

Bates (1999a, p. 207) has similarly argued that 'although there has been widespread adoption of new technologies for teaching in the last few years, they have yet to bring about major changes in the way teaching is organized and delivered. Without such changes, though, technology-based teaching will remain a marginalized activity, while at the same time leading to increased unit costs'. He went on to say:

For technological change to be effective, it usually needs to be accompanied by major structural and organizational changes for its full potential to be realized.

Bates (1999a, p. 208)

Kimball (2001) goes even further suggesting that the delivery of online education requires a complete shift in mindset. This is depicted in Table 7.1.

Table 7.1 The changing mindset required for online education

From	To
Face-to-face is the best environment for learning and anything else is a compromise.	Different kinds of environments can support high quality learning. What matters is how you use them.
Learning is what happens when teachers interact with students at a fixed time and space.	Learning happens in an ongoing, boundaryless way and includes what learners do independently of teachers.
Being people-oriented is incompatible with using technology.	Using distance learning technology in a people-oriented way is possible and desirable.
When the learning process breaks down, blame the technology.	When the learning process breaks down, evaluate our teaching strategies, not just the technical tool.
Learning to manage distance learning is about learning how to use the technology.	Learning to manage distance learning is about understanding more about the learning process.

Source: Kimball (2001, p. 3)

Kimball went on to say that ‘the first challenge for a distance educator is to figure out how to harness the power of the new media to support flexibility, parallel processing and just-in-time design’ (Kimball 2001, p. 3).

7.3 The Faculty of Education’s response to the call for flexibility

The notion of flexible provision is not defined in any agreed way in the research literature, nor is there a single, commonly adopted approach to it in practice.

Ling et al. (2001, p. xvii)

The general issue of flexibility is important well beyond the Faculty of Education experience—in fact well beyond the issue of online education. Not least is the fact that we don’t have any agreement on what flexibility means, other than ‘carte blanche to do anything I want to do’. I think that an understanding of what ‘flexibility’ means is a prerequisite to determining (a) if it is a ‘good thing’, and (b) how to achieve it.

USQ senior administrator, response to the initial focus questions

The online programs in the Faculty of Education are administered through the Department of Further Education and Training. The clientele for this Department has traditionally been students with a vocational background wishing to upgrade their trade qualifications. These students have in the main been adult learners with full or part-time jobs, and often students with familiarity with a competency-based approach to assessment where a time-based approach to assessment is viewed as less important in gaining competencies than is usually the case in higher education. Consequently, the Department had a history of applying flexible approaches to

students, at least in regard to assignment re-submissions, extensions and offering support to them. The Department was one of the first to make considerable use of the third semester to provide flexibility in course choice and to provide the opportunity for students to fast-track through their programs. What, therefore, were the Department's responses to the call for further flexibility; put another way, how has flexibility been defined in that Department?

7.3.1 WWW—what you want

While there has been insufficient research into the motivations of students who choose to study online, it was assumed in the Department that they would expect something different from traditional face-to-face teaching and traditional print-based distance education. They might expect that the power of the web, and of information technology more generally, might be an integral component of their study.

The Department attempted to develop its course materials in a way that integrated the delivery mode into the objectives of the course (using tools such as synchronous chat, web search tools, access to online electronic databases and the like). It focused mainly on the interactive capabilities of online education to 'personalise distance education' rather than on the technology of the web capabilities for independent study. That does not deny the fact that a few courses were moved onto the web from traditional distance mode with little modification and that some others were designed in a way that did make more fundamental use of the information capabilities of the web.

USQ's online mission is ambitious, but the University is located in a region where local expertise is not always readily available. One solution to the dilemma of mass program production and limited local expertise is to make use of the information and communication technologies to employ experts from around the world to write and teach online courses and assist in the development of online programs. In a limited way, the Department already does this at the course level and, at the program level, is currently jointly offering an online program with the University of Stirling in the United Kingdom and has plans to extend these partnerships.

7.3.2 WWW—where you want it

One of the perceived advantages of online distance education compared with on-campus and traditional distance delivery, that requires the mailing of material to all parts of the world and the subsequent mailing back of assignments, is that all the learning can take place where the student lives. All that is required is access to the web and computing facilities with designated technical requirements. The cost of computing and the availability and cost of web access is increasingly making this type of educational delivery a possibility for a great many people. It is also likely, given the familiarity of younger students with computing and the internet, that this may become a preferred style of learning for many students who are unable to undertake full-time on-campus studies. However, the reality at this point in time does not quite match the expectations.

Assessment

Approximately 75% of USQ distance education courses continue to employ formal, set-date examinations as a major component of student assessment. A central division of the university manages these examinations and is responsible for organising their scheduling, distribution and supervision. The attraction of examinations to staff in most of the Faculties is partly related to professional association requirements and the perception that only examinations are secure from student cheating, but probably the attraction has an element of minimising workload requirements. While examinations papers have to be set each year, the marking of those papers is generally seen to be less burdensome than providing extensive feedback to project-type assignments.

When students enrol in distance education courses that have an examination requirement, the University has to arrange to provide the appropriate examination centre—where there is only one or two students per examination centre the income return to the University can be considerably reduced. Not taking into account staff labour time, the cost of an examination centre in a more remote location can be as high as \$1000 a student and the cost only reduces when there are larger enrolments in that centre.

With the increasing flexibility afforded by online offerings, students are able to commence and complete courses of study outside set semester time-lines. The challenge is to develop forms of student assessment that complement this flexibility and that are both educationally appropriate and economically viable. There is no doubt that at USQ, there has been encouragement to replace examinations with other forms of assessment. In the Department of Further Education and Training online programs, there are now no examinations, but in other Faculties such change has been minimal.

If staff are not convinced that they can assess effectively without the use of examinations, USQ can continue to use formal examinations, but experiment with processes whereby this can occur in a secure manner through the web. There are many possibilities to this that have been considered at USQ, but at this point in time this matter has been placed into the too-hard basket. Until it comes out of that basket, USQ will not be in a position to offer courses and programs throughout the world in the most cost-effective manner and extension of online programs into other Departments of the Faculty of Education may also be limited.

In addition to the issue of examinations, some of the more practical based courses offered in the University require students to produce a product that has to be mailed into the university in some form. This is the case, for example, with audio and visual assessment where a product is required to certain specifications. Similarly, in the area of music, some assessment takes the form of a demonstration of performance that needs to take place in designated centres with appropriate supervisors. There is no doubt that, as web delivery is refined and the tools available to students and staff become more sophisticated, these issues will no longer become problematic. Until this is the case, however, the extension of web delivery has to operate within certain parameters or, alternatively, certain courses or programs have to be excluded from offer.

Student support

The capacity of a University to attract students from outside the operations of its campus requires that there are appropriate means to offer student support for those students.

One of the features of the more traditional distance education provided by USQ, and a feature that has been universally recognised as leading edge, is its support system. For students outside of its two campuses, but within Australia, USQ has set up, through its Distance Education Outreach Centre, a system of regional liaison officers and centres. For its international students enrolled in those traditional distance programs, overseas agents provide the same level of close contact and support. The liaison officers and agents act as a conduit to ensure that students are directed to the appropriate source of advice. That advice might be from lecturers, the Distance Education Centre (DEC), Information Technology Services (ITS), Student Services, the bookshop, the library or the International Office.

In its move to deliver education online, USQ is attempting to provide a similar level of service. It has set up a *USQOnline* Support Centre as a first point of call for students. Technical advice is available for students on the NextEd delivery platform by NextEd staff (through email and through direct live contact) and, where the advice needed is academic not technical, students are re-directed to the appropriate lecturer. A system of student recruitment has been set up whereby individuals from around the world can become agents of USQ and be paid for recruiting students to *USQOnline*; part of the expectation of that role, however, would involve providing a level of basic support for students recruited.

Notwithstanding this level of institutional support, the Department of Further Education and Training has seen the need to employ its own online administrator. While this role was initially viewed as administrative, the staff member employed has taken on the duties of providing a whole range of support for students. Students in the Faculty of Education would generally be directed to the administrator first and only where she was unable to solve the students' problems would the query be passed on. In all cases, the administrator would ensure that the 'issue' had been resolved and the student informed. One task that the Administrator has completed is the provision online of a short orientation session for students new to the online environment.

Staff support

When the first web program was provided in the Faculty, there was a small number of staff involved and there was ready access to the staff of ITS (at that time the platform was a USQ platform and not one provided by the commercial partner, NextEd). Staff expertise in delivering education emerged through regular contact with all those involved and maintaining that expertise was relatively straightforward. Formal training was not seen as necessary as the more informal approaches worked effectively. Moreover, there was a close relationship between platform modification and lecturer usage.

With the advent of *USQOnline* and the arrangements with the commercial partner, the issues became more complex. There are now far more staff involved in teaching online, most without the advantage of that previous experience on the ITS platform. Moreover, the expertise that they need to draw on exists in many areas:

ITS staff, NextEd staff, DEC instructional designers, other designated staff of the university with responsibilities for training and administration, and the more experienced lecturers.

A formal staff training process has been set up which has a face-to-face component as well as web modules and manuals to work through. While it might be argued that the majority of staff have access to sound training (an evaluation of the training process conducted by USQ in 1999 revealed very positive responses), the same type of training cannot easily be provided for the online tutors that may be employed throughout the world if the USQ vision is to be realised. The Department of Further Education has seen the necessity to go beyond this and to develop a manual for staff teaching online.

7.3.3 WWW—when you want it

If learning is to be really flexible, students have to be able to study when they want to study. Students that are likely to be attracted to online delivery will be adult learners probably up-grading their skills and qualifications. Most will already be working or may have family commitments that make it impossible for them to attend learning institutions full-time and make it likely that unanticipated interruptions will affect their learning at a distance.

Monitoring student entry requirements

Formal entry requirements are set for all degree programs. Applicants are required to establish through hardcopy documentation that they meet entry requirements before (a) they are enrolled in a degree and (b) are allowed access to study materials. Applicants enrol online claiming to satisfy entry requirements for the selected degree. Individual applicants have no way of providing documentation online. With applicants potentially worldwide, submission of hardcopy evidence may take months.

To overcome this issue and provide the flexibility that the student needs, the Department currently enrolls students online with acceptance into the degree and full access to study materials provisional until the university receives and assesses hard copy documentation of the applicant's credentials.

A more radical solution would be to re-write degree requirements to emphasise outcomes as the criteria for student progression and eventual completion. This shifts the major focus from selection at entry to students' ability to meet progression and completion criteria. This approach, of course, has all the earmarks of a competency-based approach to education. Even mentioning such an approach at most universities in Australia evokes a sense of dread and foreboding. A recent attempt to encourage Australian Universities to incorporate the Mayer competencies (a set of generic competencies) into their curricula was not successful despite the fact that these did focus on some of the skills that all universities claim to teach. The very notion of 'competencies' remains an anathema to higher education; it is associated in a somewhat critical way with the vocational education sector.

While the concept of open entry was debated at USQ at the time that online education was being introduced, it was not considered appropriate.

Student enrolment and progression

Degree enrolment periods correspond to established semester time-lines. Thus, students can enrol in a degree at the start of any of three established semesters (February, July, and November). Students submit applications well in advance of the start of semester, but often do not receive notice of acceptance for several weeks. Study materials are available only at the start of each semester.

Courses of study can be dropped or added up to specified periods without academic or financial penalty, but beyond those periods a penalty occurs. If students drop after the specified period and want to enrol again, they have to wait for the next offering of the course.

In line with set semester time-lines, students who complete a course of study in a time less than or longer than the semester of fourteen weeks must wait until the start of the subsequent semester before commencing study in their next course. Additionally, not all courses are taught in all semesters and many have prerequisite requirements, often within quite structured degree study sequences. As well, grades for courses are recorded on university records only at the end of each semester, which impacts on when students are able to demonstrate official completion of prerequisites.

Applicants have year-round access to online enrolment into degrees with university acceptance given within a few working days. Student motivation to begin study is enhanced by this immediacy of the online enrolment process and knowledge that study materials are readily available. However, if students are required to wait until the start of a new semester to fully access study materials, there is the potential to generate frustration and the possible loss of the student.

In addition, with materials available online at all times and individual students able to manage their own study schedules, students tend to complete courses of study at times other than the normal end of semester. Such students often wish to have their grade registered and commence study of their next course as soon as possible, especially if the next course enables them to build immediately on work done in the course of study just completed.

The Department of Further Education and Training has not been able to make radical changes to meet these issues because of University policies and structures, but it has made some changes. It offered its courses across more than one semester (initially across three semesters), removed prerequisite requirements for entry into courses (although it has established recommended enrolment patterns for programs), removed all course quotas (although this was more a University decision related to the contract with the commercial partner than a Faculty choice) and, with the acceptance of lecturers, allowed late entry into courses on the assumption that these students would be allowed to continue through into the following semester.

A more radical solution to ensure maximum flexibility would be to have either (a) continuous enrolments with students permitted to commence study as soon as they are accepted into their selected degree or (b) more frequent set enrolment periods, (e.g., six times a year or perhaps monthly) with full access to study materials at the start of the next minimally delayed enrolment period. While the Department was willing to consider such radical solutions, the University was not at that time able to implement them, even if it wished to.

Assignment extension policies

The University has a standard policy with regard to assignment extensions, a policy that is designed to discourage such extensions. If applied to the letter of the law, it is unlikely that a student could successfully complete the course of study if the assignment is delivered more than a few days late, without approval from the examiner. While individual examiners have the right to relax the university policy, on the whole the university policy remains the norm. Examiners do not have the right to increase the penalties for late assignments otherwise capital punishment would be re-introduced into Australia.

The policy does not encourage the flexibility that many adult learners require and is premised on a view of learning that places competency in a time framework. Students are not encouraged to develop the skills and competencies of the learning objectives, but are encouraged and often obligated to do so within a time frame set down by the University.

The Department of Further Education, for its online delivery, has radically deviated from the university policy and allows students to complete a course of study that would usually take one semester over two semesters. While this was initially implemented to take account of the technological difficulties that students faced when studying online for the first time, the Department has maintained the practice to assist student progression.

Communication between the partners

As indicated earlier, in an attempt to provide the flexibility that students need, the Department of Further Education and Training has tried to offer as many courses of study as possible in each semester of offering. Staff, however, are having to operate within a 'quality assurance process' that does not encourage such flexibility.

The quality assurance procedures evolved from the previous print-based generation of distance education and required course developers to have the final product developed in conjunction with instructional designers in the DEC and the packages of material produced by the other staff in that centre. A liaison committee between DEC and the Faculty was designed to oversee the production process.

If anything, the process is even more intense in the production of online materials. With the introduction of NextEd into the process, materials initially had to go through the usual DEC procedures and then be sent to NextEd where they were loaded onto a staging platform to be proofed by staff. Staff was discouraged from sitting down with the technical staff in the NextEd office to resolve matters that might arise. After proofing, staff filled out a form to return to DEC staff who then liaised with NextEd to initiate the changes. Changes to this process have taken place more recently, allowing totally online interaction between staff and NextEd in the change and proofing stages, and in the future a new system is to be introduced that is word-based thereby allowing staff to make all changes on their own computer before forwarding those changes, in the appropriate format, to NextEd.

7.4 Coping with flexibility

Many universities defined flexible provision of higher education in terms of offering choices to learners. Of these there were universities who understood flexibility to be directed at access. There were other universities who understood flexibility as being about accommodating a range of learning needs and preferences. The third common response referred to the use of new learning technologies to address the quality of learning.

Ling et al. (2001, p. xviii)

As indicated earlier, in the case of the Department of Further Education and Training, all three of these categorisations applied to the way flexibility was being used.

The following sections examine how the experienced online lecturers were coping with the management and administration of online education within the framework of flexibility that was introduced within the Department of Further Education and Training (see Appendix A for the questionnaire items). They also examine the opinions of staff from outside the Faculty of Education, through the initial issues paper (see Appendix A), the interviews with senior administrators (see Appendix A) and the questionnaire for non-Faculty of Education personnel (see Appendix A).

7.4.1 24-hour x 7-day interactivity—Dr Jeckyl or Mr Hyde?

Here is the Catch 22—it is the interactivity that produces both the problems and the benefits.

Faculty of Education online lecturer

USQ's pedagogical approach to online education is predominantly focused on the interactive capabilities of the environment. While it has made some use of multi-media capabilities, it has de-emphasised the 'bells and whistles' approach to the medium and emphasised the capacity for learner to staff and learner-to-learner interactivity.

This, of course, is not the only possible approach as one of the respondents to the issues paper indicated:

I think that the issues paper has focussed on only one component of online learning with which the university has the greatest experience, that is, the use of discussion groups to provide collaborative learning, interaction and personalisation. However, because most of the experiences of this university in online education have been in the disciplines of education and business, disciplines in which this way of learning is encouraged anyway, it has resulted in a biased view of online education. My view coming from the mathematics-science area is that discussion within these areas is important but that online education could and would be more than that if resources were allocated more to the design curriculum component. The design of the course materials in itself allows for a great deal of personalisation and interaction (development of affective domain, use of interactive problem solving structures which are more than multiple choice, allowing students to choose applications of mathematics (say) which they are more familiar with in their work environment are just a few).

The benefits of interaction

The seminar concluded that online teaching and learning can be done with high quality if new approaches are employed which compensate for the limitations of technology, and if professors make the effort to create and maintain the human touch of attentiveness to their students.

University of Illinois Faculty Seminar (1999, p. 2)

Notwithstanding these comments about the interactive focus of the USQ online initiatives, most staff of the university who responded to the initial questionnaires noted the advantages that this interaction could bring. Interestingly, those most strongly advocating these advantages often compared online with traditional print-based education:

The benefit of online teaching in my experience is the opportunity it affords for interaction between staff and students and between students. This proves useful in exploring a wider diversity of issues than can be treated in the more traditional text-based distance education.

...enables you to develop a more intimate relationship with students than with traditional distance modes.

Online offers interaction possibilities and immediacy of contact that external materials don't.

Those coming with a face-to-face background in teaching, while acknowledging the capacity of that interaction, were measured in their praise referring to the lack of personal contact:

A less dynamic format for interaction and contact than that offered in face-to-face contact.

Real human contact such as is offered in face to face is lacking.

Impossible to gauge the 'light-bulb' or 'ah-ha!' effect when students actually understand something.

Hand-waving explanations sometimes required, as in the on-campus mode.

Feels like the student is more remote.

Strange emptiness of not really knowing if messages etc sent out have been received, or what particular interpretation might have been placed on them.

...as much as 70% of what is communicated is done via body language and tone/inflection. Text heavy delivery methods associated with online learning necessarily exclude this.

The comments above came from staff other than those in the Faculty of Education, staff whose experience of online education has, in the main, been of a hybrid form rather than a totally online form. Faculty of Education staff, no matter whether their background was more in face-to-face teaching or traditional print-based distance education, saw strong benefits in the interactive features of the new environment. Comments included:

A reduced sense of isolation for students.

Ability to establish interest and friendship groups quickly and to interact with limited difficulty.

Able to connect with each other more regularly and more intensely.

Opportunities to get to 'know' students.

Getting students to help each other...there is definitely the potential to create a learning environment that is self propelling.

They [students] have in my view been more willing to see themselves as part of a learning community drawing on other students' work.

Managing the quantity of interaction

If you have several members who sign on very frequently they can make it difficult for the rest to engage with the virtual group because it feels to them like the conversation has run away from them. The 'rolling present' refers to differences in participants' perception of what is current. People experience everything that has been entered since the last time they checked in as current. You need manage (sic) the pace of the group and create norms for how much time will be included in the rolling present of the community as a whole.

Kimball (2001, p. 10)

Notwithstanding the positive comments made about the interactive capabilities of online education, all staff at USQ shared a common view. If the interactive capabilities of online education were the Dr Jeckyl side of the equation, the resource intensity of that interaction in a 7-day x 24-hour environment was the Mr Hyde side:

Discussion forums are very time consuming.

Allocating the time needed to be spent participating in the conversations was a challenge.

...takes more time to teach online (if you have communication components)...You feel you have to respond to each individual.

It's immensely time consuming when compared with face-to-face teaching (people speak faster than they type) and has the disadvantage of leading some students to think that any question is worth asking and will be answered immediately.

...increased expectation from students about the rapidity of response. It is not always possible to meet those expectations.

...the very quantity of entries to the board can be time-consuming to read especially if many are lengthy social introductions.

Students have certainly become more demanding because of the ease and speed of interaction.

There is an expectation of high involvement by the teacher in the discussion forums and immediate feedback on emails.

Even though parameters for interaction with and by the teacher are set, learners are looking for a fairly instant gratification (response) to their queries. Even though I might indicate I will not answer queries immediately, some learners will email every day asking when I intend to answer their question. Email has enabled this to occur, and from all corners of the globe.

Two of the University's senior managers made the point that, while it was appropriate that senior faculty academics be involved in course and program design, they were not convinced that it was a sensible use of their time to be managing discussion boards ('...must have our most able teachers as leaders of units but not the best use of senior people if the tasks are menial'). There was a USQ proposal to create a new category of teacher called the 'online tutor' that some faculties did adopt. The Department of Further Education and Training has not gone down this track, in part because it considered the 'online tutor' roles and responsibilities to be close to workshop conditions, in part because it had a different view as to what was 'menial' and what was not, and in part because it has not always been easy to find competent tutors.

Managing the quality of interaction

It is a different matter trying to generate debate and interaction in the a-synchronous environment of a discussion board compared with an on-campus tutorial.

...managing the discussion board to fit student needs is no easy thing; students move in and out of the board at their own discretion (partly learning preferences, partly speed of work) and statistics tell us that the use of the board varies throughout the semester. Maximising the value of that interaction in relation to the learning objectives requires careful thought. It is not the same as a set seminar or tutorial unless of course the board (synchronous or a-synchronous) is set out in a more structured way informing students of set 'tutorials/seminars'. I do not operate this way as I have assumed that students may have different learning preferences and pacing.

Faculty of Education online lecturers

While the experienced online teachers acknowledged that they may require new skills to cope with the interactive capabilities of the environment, a few examples of the strategies that they currently used were available.

The example that follows was an explanation of a strategy used by one lecturer and a description of a repeated contribution to different semester discussion boards to generate what that lecturer thought was a successful pattern of staff-student and student-to-student interaction (by successful he meant contributions that he believed had led to 'deeper' understanding of the concepts):

It is not just the material that needs to be developed in a way that provides this capacity for in-depth analysis, but the discussion forums that enable debate have to be structured in a similar way...In the discussion forums...I attempt to prompt discussion on key concepts through periodic 'interventions' as well as responding to issues that arise through student interaction...I also use challenging entries to attempt to prompt interaction. An example follows:

"Hi all

Every now and then I will suggest that you discuss among yourselves some of the key concepts in the course.

Let us start with competency based assessment (CBA) as I know quite a few of you are obligated to work in an environment that supports this approach. I intend to make a few controversial remarks that do not necessarily reflect my opinion to try to stimulate debate. I will do this through stating a number of possibly controversial statements.

1. *All assessment should be competency based because the only valuable information relates to the competencies that people have or have not.*
2. *Competency based assessment is just another name for criterion referenced assessment and adds nothing to the theoretical debate about assessment.*
3. *In assessment terms there is no such thing as competence; there is only the probability of competence since we cannot assume that someone who performs a task correctly once, twice or even two hundred times will always perform that task correctly.*
4. *A system of CBA that only allows for a distinction of competent and not yet competent encourages the pursuit of mediocrity.*
5. *CBA is strong on validity and weak on reliability because of a potential lack of consistency in work-placed assessment.*
6. *On-the-job assessment has no claim to greater validity and reliability than off-the-job assessment.*
7. *No matter how much we might want CBA to be "holistic" it inevitably leads to the specification of a whole host of assessable tasks which turn the learning environment into an over-assessed environment.*
8. *When we assess, we assess against criteria but also moderate in our own minds against expectations that are norm based.*
9. *Assessment is 90% assessor judgement regardless of whether it is norm, criterion or competency based.*
10. *The refusal of universities and other sectors to embrace a competency based approach to education reveals a reluctance to have university students tested against criteria developed outside universities and ones that might reveal the inability of the university sector to teach the skills that are really needed by the professions.*

What do you think?"

‘Fifth generation technology’—an answer to quantity and quality?

Because high quality online teaching is time and labor intensive, it is not likely to be the income source envisioned by some administrators. Teaching the same number of students online at the same level of quality as in the classroom requires more time and money.

University of Illinois Seminar (1999, p. 2)

While limited attention had been given to controlling or managing interaction at this point in the history of online education in the Faculty, some thoughts had been given to one aspect of what Taylor (2001) referred to as fifth generation distance education, or the ‘intelligent flexible delivery model’. In this model, Taylor referred to things such as automated response systems. One of the senior administrators at

USQ argued that ‘fifth generation technology is not only cheaper but it is better— [it] can increase staff-student ratios without losing the pedagogical benefits’.

To this point in time, fifth generation technology is not playing a major or coherent role in the teaching of online students in the Faculty, but some thoughts are being addressed to it. One lecturer saw it as a challenge to keep ‘files of online responses that might be re-used when responding to students (developing own “intelligent tutoring system”’). The example in the previous section of re-using a challenging set of statements from one semester to the next was an example of this in practice.

At this point in time, it would seem that fifth generation technology has been used mostly to respond in an automated way to assessment items (through the creation of standard responses to those assessment items that allow it, such as multiple choice tests). One lecturer, for example, requires students to complete a multiple-choice test by selecting the ‘most correct’ answer, explaining why it is correct and why the other answers are incorrect. He has developed a model set of answers to the questions that is accompanied by a few comments on how well the student’s responses met the model responses.

Netiquette: managing online behaviour

I consider that it is very much time (overdue) that we formalise exactly what is considered ethical (and unethical) behaviour in the online context. There are a number of areas that we must formalise (for teachers and learners), and make public, such as: unauthorised access; unauthorised use of course data and statistics for research purposes; acceptable student behaviour (and suggested strategies to deal with unacceptable behaviour); when ethics clearance is required for research activities; and so on.

Faculty of Education online lecturer

The management of online interactive capabilities goes beyond the dilemma of stimulating articulate debate or even controlling that debate to manageable blocks and includes a range of ethical matters that, while not peculiar to an online setting, become more marked with this environment. In an instance in one Faculty, where an online student took offence to the comments he received for a piece of assessment, the student created his own web-site entitled ‘USQ sucks’ and invited everyone to contribute. While this instance is extreme, it portrays the potential problems in operating in a global environment and the care that is needed.

Aspects of netiquette or ethical behaviour in the online environment were very important to staff. They included issues of how to control ‘difficult’ students, unauthorised access to discussion boards, and misuse of information on discussion boards.

While netiquette guidelines were provided and students were directed to them, in answer to the question, ‘what features, if any, of the online environment do you find particularly challenging’, one of the experienced lecturers specifically mentioned ‘coping with challenging behaviour such as disruptive and belligerent students’. It would seem that this issue is not at this point central, but it did affect some of the online lecturers:

Being online also calls for a great deal of caution in comments that are made by lecturers ... it is important not to be misunderstood especially where that misunderstanding may be taken by other people to be hurtful.

Netiquette issues can be problematic. Students 'bullying' or belittling other students or dominating the debate.

I have encountered cases of 'hogging' the discussion groups which is no different from face-to-face. I have generally drawn others into the discussions to balance this. The most difficult case encountered was an aggressive and opinionated student. This required more direct action.

...the offensiveness of a few students in their treatment of other students and occasionally their treatment of staff.

On one occasion where behaviour was inappropriate, I blocked a student from a discussion board.

Inappropriate behaviour has been rare (thankfully), but it has happened. A quick email outlining the expectation of the course and appropriate approaches and a warning that any repeated messages will be deleted and the student excluded from the forum. This never eventuated.

I had a student who did not agree with my teaching philosophy...when I responded, and he did not agree with my responses, he set up his own mailing list, subscribed all students (without seeking their permission) and polled them in order to support his case. I dealt with the whole issue privately with him, but unfortunately a couple of students viewed this as 'inactivity' on my part because they did not witness any 'public' responses from me.

...the fact that the forum is open and public (when postings are made they are 'permanent') making intervening re destructive or hurtful interactions difficult.

One other aspect that was offensive to lecturers in the Faculty of Education was the occasional intrusion into their courses and, in particular, into their discussion forums, of people who had been uninvited. Despite a University approved policy that a request to enter the course needed to be made to the course examiner, almost all staff in the Department of Further Education and Training had experienced these problems:

The access rights to the platform are hierarchical and in the past, in my view, these rights have been exploited in unethical ways. Recently a policy has been re-endorsed that any access requires permission of the course examiner.

The area is one of sensitivity—USQ sees its online initiatives as being at the forefront and to market those initiatives it is willing to allow guests into the courses to see for themselves. It has in the past sometimes forgotten the common courtesies. This forgetfulness also applies to our commercial partner. In my view this issue is almost resolved through a process of ethical education.

This is a huge issue and I am concerned that people appear able to gain access to live units[courses] from several different authorities.

[I] resent granting of access to my course (to a visiting scholar) without permission from me.

I have been aware of people from upper management levels accessing my course and demonstrating my course live to international visitors.

It was also reported that ‘students have occasionally made use of discussion forum information for study purposes without seeking appropriate ethical clearance. This has been addressed at an individual level, but may require an institutional review of policy’.

Summary

The conclusion that one would have to draw at this stage of the Department’s experience of online education is that the interactivity is not being ‘managed’ with any agreed protocols. This relates both to the skills in generating effective interaction that can lead to effective learning and to controlling the extent and type of interaction. Staff are coping—or not—with the demands and perhaps trying to delay the inevitable, that is, the time when some strict protocols will have to be introduced to determine an accepted level of both staff and student interaction.

7.4.2 Assessment

As indicated earlier in this chapter, the Department of Further Education and Training had made a decision to remove examinations from its online course in order to remove any ‘place-based’ requirements for participation in the programs. Such an approach, while accepted in the Faculty, would not have universal appeal.

One of the senior academic administrators in the University commented that ‘plagiarism is an issue and therefore I do favour majority assessment by an exam’; however, she went on to say that ‘an exam in Vladivostok is not more secure than assessment online’.

The issue was treated ambivalently by USQ staff. One lecturer from a faculty where examinations were the norm admitted the contradiction in that he was ‘still running a paper based exam at the end of the semester (and that is an oxymoron when you have students online’.

The concern focused on the issue of plagiarism. While one of the University’s senior administrators believed that in the future ‘plagiarism may be more “controllable” (linking of footnotes/key words to actual journals)’, other staff were less convinced. In the Department of Further Education and Training, there had been no great concern about plagiarism in the online setting, but the issue of removing exams and its implications has been discussed:

This has not to date posed problems for the Department as staff are strongly of the view that quality assessment does not equate to examinations. However, issues of plagiarism are causing concerns to the University and there are some areas where examinations are being advocated as the only safeguard against the problem. In the Faculty, we are reluctant to let the few that cheat drive our assessment policies but doubtless the issue will not go away.

I am not aware of any additional problems of plagiarism in my online courses but I know that other staff would not share this statement of faith with regard to their courses. Theoretically plagiarism may increase in the online environment and some would say it already has. We have informed staff of the tools available for tracking plagiarism but at this point I have not delved into the policeman’s role. I may not be able to avoid this in the future.

...use was made of plagiarism.com (now called Turnitup.com) which made very good matches with other works. I informed the student exactly what I had found and the student dropped out of the course.

7.4.3 Entry, enrolment, progression, and assignment extensions

It was in the areas of entry into courses, quota management and progression (including assignment timelines) that the Department of Further Education and Training had attempted to adopt flexible approaches within the limits of USQ policy.

This was a key issue for some of the University administrative staff as well as for the academic staff. One of administrative staff involved in student administration commented on the whole issue of flexibility:

USQ has had significant problems with USQOnline, but the main reason for these problems has been that USQOnline admits and enrolls students outside USQ's student administration system, and there has been a significant challenge in keeping the two systems synchronised. As well, there has been some very fuzzy policy making in the area of USQOnline and many aspects of the agreement with NextEd have been unimplementable. Introduction of a web administrative system (to complement online teaching and learning) has forced a major administrative cultural change upon academic staff. Most faculties at USQ have had a culture of 'looking after students', ie, doing the administrative work for them, eg, changing their enrolment when USQ staff think it needs changing etc. With online student administration, students have complete control and responsibility for administrative matters such as enrolment. Some faculties have not been able to let go, and are still demanding reports and controls within the computer system to prevent students doing certain things, rather than advising students what they need to do, and allowing them to wear the consequences if they don't do these things. Furthermore, some academic staff operate a system of judgement calls, rather than on the basis of clear policy. Such judgement calls cannot be written into a computer system—it can only implement clearly documented policy. This has been a challenge to the culture of some faculties. Example: academic staff waiving pre-requisites in certain undefined circumstances, whereas the computer system applies them uniformly.

An example of the conflict between systems relates to USQ policies for refund of fees to students who drop their course that did not match the contract signed with NextEd. The Faculty has resolved these matters through its own close liaison and good relationship with NextEd—refunds have been allowed where the Faculty has sought permission to have the refunds and the USQ systems have manually been adapted to cope with such matters. Similarly, in the early days of USQOnline manual processes had to be applied to those students who needed to access the *Blackboard* platform but could not be charged (eg, HECS-liable students and students on special contractual arrangements). In addition, recent debate in the Department has questioned the educational soundness of having no quotas in courses (a contractual agreement in which the Faculty had no say) there is a concern that, as numbers increase, it might be impossible to service the students adequately especially where it is hard to find additional tutors.

It is not only the student administrators who have had concerns about coping with flexibility. As one non-Faculty of Education lecturer put it:

Yes this is an issue. I am involved in a unit [course] in which ideally students should start and finish at a time convenient for them and their level of understanding of the objectives within the unit. The university is unable to account for this type of flexibility even in the online situation. Only in the continuing education area would this type of flexibility be possible.

It has already been noted that the Department of Further Education and Training has tried to push these flexibility barriers somewhat. This has not come without its costs and implications. For example, the Faculty's Online Administrator has to negotiate each semester with the commercial partner to provide a discussion board link to the next semester offering for those students granted a full semester extension. In recent debates over this issue, it would appear that the Department has accepted that such links should no longer be the norm. It would seem also that the flexibility is beginning to wear thin with some Faculty of Education online lecturers:

...a willingness to run [course] in more than one semester... This is an issue of flexibility for students but one that the Faculty has always tried to treat seriously although resource pressures may force us to re-think this generous approach to the concept of flexibility.

With regard to the assignment extension policies, online lecturers made the following comments:

At times it has gone close to driving me to screaming point and has caused me to adopt practices including periodic email messages to students to encourage them to move along and insisting that they contact me within a stated period or be failed. The level of flexibility afforded to students can make it very difficult for staff to plan and balance their workload since it is often not possible to predict when work will be submitted for grading. Another problem arises with group work which is essentially impossible if students are working on markedly different schedules. One of my courses... is now designed in such a way that students could progress at their own pace and I do grant extensions of up to a semester but that does create problems with the unpredictable flow of work. The other... uses techniques in which students depend upon each other for progress and on some submissions I will not approve extensions of more than a couple of days. In my view the time has come to abandon the nonsense idea of a due date that is infinitely flexible. There is a cost for that and it is typically paid by the teacher.

I believe the principles that underpin the Department policies and practices (that is the desire to maximise students' chances of success) are still prevalent but resource pressures may force a change in policy. [Course X] is taught in Semesters 1 and 3 but the policy means I always teach in all three semesters. This affects the time I have to re-develop the course and the time I have to do research. At my stage in my career this may not be too critical but at USQ I would have to say that staff prospects require a solid research output and teaching three semesters cannot be sustained.

The issue of flexible entry times into programs is related to the assignment extension issue—if we allow students in at varying times we are almost obligated to allow the extension.

Bringing students from one semester to the next can be difficult.

Currently my online philosophy requires students to interact, reflect, discuss etc issues at particular times—flexible entry and exit points do not enable this activity to occur.

In another sense, if one is trying to capitalise on the diversity and potential of the learning community, then it is helpful if the group works together, completes tasks together etc.

My philosophy is flexibility within equity. I do not allow one student to do something that I would not allow all students to do.

These current problems and solutions notwithstanding, there were some who suggested that even greater changes might need to be made if the University were to adopt a policy of greater ‘flexible entry and exit’ to online teaching and learning:

We may need to provide a far more independent learning focus in our courses...as most courses require students to interact, reflect, discuss issues at particular times.

How feasible this is pedagogically remains to be seen, but it would seem to be the ultimate in flexibility, though as a staff member pointed out ‘there is a cost for the infinitely flexible due date’.

7.4.4 Tapping external subject expertise

The Faculty, and USQ generally, has tried to extend its online capacity through partnership arrangements with other institutions. Such collaboration brings with it many challenges.

Attempts to engage effectively with universities from the UK, Spain and the USA brought with it challenges of a vastly different order. Admission requirements, exemption policies, course length, program length, pricing policies and a whole range of other issues differ substantially from one institution to the next. If a partnership is to be an equal one, students will have to believe they are being treated equally no matter which institution they are dealing with. In attempts to formalise a joint ‘badging’ arrangement with Stirling, USQ staff had to be willing to enter into a system of external examination that is a requirement of the UK system and not of the Australian system. The two universities have had to come to some understanding over course pricing. Australian student fees are slightly lower than the customary fee in the UK and there was a danger, quite appealing to our Vice Chancellor, that all Stirling students would immediately enrol in USQ programs to access the cheaper fees. The two universities have also had to come to a similar understanding over expectations for the completion of the program. USQ students, on average, are able to complete Masters studies by doing less modules/courses than they are required to do at Stirling and, again, this might be an inducement for students to move institution. The issues here are complex and involve the difficulties of engaging collaboratively with institutions that might, in other circumstances, be seen as one’s competitors.

While the obstacles appear daunting, the rewards are obvious. Stirling has its content and delivery expertise, as does USQ. The joint Masters program has effectively linked these two differing types of expertise to provide what could be a unique educational experience.

It would seem that the University has begun to acknowledge the complexity of such joint arrangements. The following comments came from the senior staff of the university:

Joint badging but partners need to have experience in open and distance learning and admin systems need to be compatible.

Badging is good but perhaps only two partners – three's a crowd.

Notwithstanding the difficulties in generating partnerships, the advantages of relationships with subject experts from other universities and within the university are demonstrable. In one Faculty of Education course, the examiner had invited a UK online teaching expert to contribute to the discussion forum and also invited a expert from another faculty who spoke of the possibilities of online approaches to very practically oriented disciplines. Students in this course greatly benefited from such experiences and certainly felt part of a global environment. Nonetheless, as one senior USQ administrator commented:

The pulling power for any program is teaching quality; getting access to the best staff from other universities, if we see this as an option, will not get the best staff – Berkeley won't give us their Nobel winners.

7.4.5 Use of teaching assistants

The previous section has highlighted the complexities of joint arrangements with other universities. Problems can occur nearer to home. Even using online tutors located a thousand kilometres from Toowoomba, which the Faculty already did, can be a frustrating experience. While that tutor could communicate with his or her students effectively through the web even when they were located in the other hemisphere, the University engaged in a traditional paper trail with such tutors to ensure course specifications and student grades were signed off in the 'usual' way. University regulations made an assumption that such tutors were on-campus and only a liberal interpretation of those regulations allowed the Faculty to apply the business practices essential to operate its programs. Nonetheless, more use was being made of these practices especially through the employment of competent and suitably credentialed students who had completed Faculty online courses or programs.

This is becoming an essential strategy for coping with large classes. The employment of extra teaching assistants and the allocation to them of a group of students divides the teaching responsibilities into manageable blocks. This arrangement requires some common understandings between the various assistants and the course leader, but can be achieved through prior discussions and models of interactions from previous courses. Employing additional teachers, working as a team to teach the course, has the advantage that teachers respond, in the main, only to the postings of students in their group, or at least take responsibility for supporting those students. It is a way of economising teacher time, as well as adding to the richness of the discussion. In addition, it has the advantage of

providing improved ‘moderation’ capacities within courses, that is, developing a shared understanding of the aims of the course and the requirements for successful completion. Such ‘moderation’ in one Education course was achieved through the creation of a ‘Group Page’ with ‘Virtual Chat’ facility, accessible only to the teachers in the course. This strategy would answer the concern expressed by one teacher in the survey that ‘class sizes should maintain the best level of support to facilitate learning ... particularly for introductory courses’. However, there is a presupposition that teaching assistants can be identified and are available, as is evident in this quote:

I am trying to discover strategies to work with larger groups [but the] availability of tutors is not easily forthcoming [and so] it may mean less personal contact and less interaction.

7.4.6 Support structures

As already indicated, USQ and the Faculty of Education have been prepared to put a lot of effort into providing support for students.

It has to be acknowledged that the support role is crucial to the success of the enterprise and the support provided is extensive and costly. The nature of online delivery, not surprisingly, has meant that students have many queries and problems—these are predominantly technical and it is expected that as the platform is refined and simplified, the requests will be less onerous. Distance, however, is a complicating factor—it is not as easy to demonstrate to students what they should be doing from afar as it is if the demonstration is occurring in your room on your computer.

Support did not feature as a key issue in the responses to the questionnaires, but the questionnaire to the experienced online lecturers did ask what skills were needed by inexperienced and experienced staff and students when operating online. With regard to inexperienced staff, perhaps not surprisingly, the responses focused on both technical and educational skills:

Basic introduction to the features of the platform. In my view, this is easy to learn. Basic technical expertise in the way the course operates (eg use of Adobe, browsers, real player and the like). Basic skills in the use of the discussion board to generate discussions and to address issues of netiquette, although this might be seen as secondary and later skills. These skills can be provided through training sessions of varying degrees of complexity (USQ provides much of this training).

To be able to question their attitudes and beliefs concerning teaching and learning. To be prepared to challenge the status quo. To be prepared to take the challenge and risk. The skills can not be provided, they are learned and to certain degree part of the character of the individual.

Technical training for platform, and moderating skills. Training F-2-F or online, guidelines for moderating, small classes to start and mentoring from experienced users.

Technical, practical use of the environment, pedagogical.

Facility with online communications is necessary. That includes the efficient use of email and available discussion forum facilities and knowledge of appropriate ‘netiquette’ and other conventions of use.

Even allowing that the approach at USQ is generally to have somebody other than the teacher be responsible for actual development and deployment of web based materials there would be advantage to teachers being able to create some of their own materials. These would be particularly useful where supplementary materials are needed during a semester and would be provided outside of the official materials which are locked down during semester. Unskilled and unknowledgeable neophytes in the USQ Online system create potential problems for all users in that they have little option but to unquestioningly accept whatever systems are offered regardless of their suitability.

A new online teacher needs training/ technological info regarding the use of the learning management system (including access to institutional policies and procedures regarding the use of the system); they need to know how the technical support within that LMS works for students (and what technical support they can access as the course runs); they need to be part of an experienced teaching team that can guide/ mentor/ model alongside them the initial online experience; they need to have 'expertise' or content knowledge and knowledge of the institution's grading system; they need to have excellent communication skills and extensive experience facilitating discussion groups/ student interactions; they need to be prepared to support students academically (and to invest additional time to do this)—so students achieve confidence online and develop a sense of being part of the course's learning community; they need to have pedagogical knowledge and experience and be 'globally competent' teachers. Professional development about teaching and learning, hands-on technological training and mentoring with experienced online staff should help to provide these skills.

(i) Awareness of what the software can do to support teaching and learning. (ii) Knowledge/ skills associated with creating social presence online/ making learners feel relaxed and comfortable in the environment. (iii) Basic word processing skills/ basic knowledge of word and features such as developing folders, transferring files, attaching files, working online.

New teachers need to feel comfortable with the technology and have a thorough understanding of the environment. A period of time with more experienced teachers would be of assistance. The development of a number of 'exemplars' could be useful.

Similar comments were made with regard to more experienced staff although it was acknowledged that many of the skills were learned through the online experience. Staff took the view that students needed certain basic technical skills, skills in netiquette as well as a basic proficiency in English language given the text-based emphasis of communication:

Overview of how platform works, basic technical issues and netiquette. I believe this can be done on the platform as a standard introduction for new students before they access a course or program. Some of this is done at USQ but needs further thought.

Technology access skills, participation skills for online discussion forums. A majority have these skills. Those who don't often articulate their 'newness' and call on others in the group to assist. Advice is provided in the introduction to the course and the Introductory posting is modeled by the course leader. I expect

many new comers just lurk, then model their behaviour on what is already happening in the forum.

Technical knowledge – how to use the environment. Good command of English and the ability to communicate in writing.

At a minimum they would need to be comfortable with the use of a web browser and probably a word processor. Basic knowledge of email and other communications formats, including basic ‘netiquette’ would also be useful. In some classes the use of a web editor is also necessary. Many students appear to be deficient in some of these skills. One possible solution would be a set of common tutorial materials available as part of the complete system for students who need to learn or revise basic skills.

Students need first to know how to access an institution’s offer of online courses and enrol etc; they need basic computing/ keyboarding/ technical skills; basic written communication skills; netiquette skills; interactive skills; collaborative skills (team or group work); negotiating skills; developing skills of critique/ problem solving/ decision making/ application; skills to initiate dialogue and be self-disciplined; awareness or sense of cultural sensitivities including ethical/ moral.

(i) Computer literacy (basic) – most software programs are fairly user friendly.

(ii) Because text is the main medium used, an ability with word processing and fluency in written communication. Many students already have these skills and in most cases, those who are deficient in some can get to an effective standard in a relatively short period of time.

With regard to the more experienced students, the main skill mentioned was the need for communication skills:

If they are to engage in ‘intensive dialogue’ then fluency and skill in written communication is essential. They also need to be ‘cognitively mature’ so that they can capitalise on the potential offered by online contexts.

7.4.7 Instructional design

The challenge with regard to organisational structures is to develop a system that encourages teaching units to be flexible, innovative and able to respond quickly to changes in subject matter, student needs and technology, while at the same time avoiding duplication and conflicting standards and policies.

Bates (1999a, p. 222)

The issues of instructional design and the development process emerged as one of the most important to staff in the University, not just those in the Faculty of Education. The issue was mainly a concern over appropriate control—control over the production process (the instructional design process now involves the Faculty, DEC and NextEd) and control over course content.

The course development process

There has been a shift in the way course materials are being designed, developed and implemented for totally online delivery, from a 'person' culture where the teacher assumed responsibility for the design, delivery and evaluation of a course to a 'team culture'. Certainly, Kearsley (2000) placed an emphasis on the team approach for developing online courses: 'it is difficult for a single individual to have the range of skills and time required to develop online courses' (p. 16), a sentiment echoed by staff:

If a range of tools are available to enable content material to be presented in the most appropriate way and there is sufficient time and expertise available to enable quality development of presentation...all disciplines ... are suitable for online education.

At USQ, specialists in, for example, instructional design, in subject content and in interactive multi-media work together to prepare the course materials. Electronic files of the material prepared by the course team, with a storyboard of the course structure, are forwarded from the Distance Education Centre to USQ's commercial partner, NextEd, for uploading into the *Blackboard* software. As one lecturer commented:

The educator role is being 'unbundled' ... one specialist develops the material, another teaches the course and another evaluates it ... This breaks down the connection between teaching and student feedback and the course development process.

A team culture places great pressures on individuals that do not always exist in a 'person culture'. Each member of the team has to be conscious of the needs, expertise and constraints of other team members.

Next to the issue of unauthorised access to discussion boards and problems associated with heavy interaction on those boards, appropriate processes for instructional design emerged as the most problematic issue. There appeared few people who were happy with the processes even though they had gone through some changes. The issue centred around control as well as incongruous processes for making changes that were directly contradictory to the notion of online education:

Software or operating system incompatibilities have led to a change in my practices. Production processes I find quite irritating but there are hopes that this will change soon and they are now somewhat better than they used to be with direct electronic communication between lecturer and NextEd. At one time this direct communication was 'not allowed' and I used to ignore that instruction and go and sit next to a NextEd staff member responsible for my unit [course] and go through the changes required. Despite the environment within which we operate, at that time and even now lecturers cannot make the changes needed from one semester to the next themselves. The manner by which the changes occur depends on the extent of the changes. In the past, I found the simplest way to achieve change was to print off pages and make changes in red pen and go across to the NextEd building – fortunately they are located at USQ and not in Hong Kong! Now, the new system allows for lecturers to list issues to be resolved on the proofing site with directions as to how to change them. If however the changes are

substantial lecturers have to first ensure that DEC is involved as the master files may require revision (and USQ has copyright of the discipline content). To be honest, I am not sure if the master files that DEC holds for my courses are fully up-to-date given my past practices. Again, in the past I used to do this through red pen on pages or through changes to my own word master files (I do not think I am supposed to have my own master files!) and then forward them to my instructional designer or materials development clerk in DEC. There is no doubt in my mind that the past cumbersome production process has not encouraged changing courses – it seems to encourage getting them to a level of editorial precision and leaving them alone for as long as possible. I suspect USQ is quite happy with this but my own educational feelings suggest that this is not good practice. Even now, the process, while improved, is only better for minor changes.

Online education as defined as USQOnline (delivered via NEXTED) is too rigid and circumscribed by administrative procedures for my liking. For example, I had thought the online mode would make deadlines much later than they are, and I had thought lecturers would be able to change material as the need arose, but this is not so. So I have to have my unit [course] changes (such as new and updated websites) ready about 6 months or more in advance, when obviously websites can change within this time, thus rendering the material obsolete even before the start of semester. I'd like to have more flexibility with this.

...the greatest discouragers are the current materials development process and delivery platform. After external materials are developed and proofed they are transferred by DEC to NextEd which simply content dumps them onto their platform for proofing yet again. There is no intervening stage permitting online material development from the base external materials, and control over the material is taken out of the hands of teaching staff. The only way staff can control online material development is to set up separate websites for their units [courses].

Because NextEd does it all we are not learning how to ourselves (getting behind with the skills relative to academics in other organizations)—feel disempowered. With current system we cannot change our course material during the semester.

In the USQOnline system there is certainly more flexibility than in traditional USQ print material and considerably less than in f2f teaching. The latter is due to the carry over of the systems designed for print development to USQOnline and the inflexibility of long timelines and locked down materials. I have circumvented some of those problems by insisting upon preparing my own online materials to my own timelines and occasionally working outside or around the system.

Putting power back into the hands of academics (acknowledging that consistency in quality may vary).

Need to straighten out arrangements with NextEd and DEC.

Processes for developing print were superimposed over online production; technical people need to respect the needs of the stakeholders.

Production processes are changing and need to change more – replication of print not needed.

As soon as [you] fragment control of production (FAC/DEC/Nexted) problems of disempowerment emerge and staff [are] not 'full professionals'.

Too much THEM and US in development – need more staff ownership.

With face-to-face teaching the lecturer can prepare closer to the time of delivery which gives flexibility in specific content of material presented.

Large and lengthy gestation periods in the development of course resources.

The production of online materials still goes through a lengthy process and staff can still not update it during the semester.

Production processes mean the course is finalized and locked down well before delivery, thus losing flexibility and the facility to up date course material.

The rigidity of the production process and the laborious way any changes have to be made to content materials – this has influenced the amount of change I have made at times because it becomes such a major production process.

The production process makes it virtually impossible to review the design of the courses as often as one would like or educational reasons would demand.

The time lines for production of material are such that staff can be teaching a course in one semester at a time when they are expected to be considering changes that have to be made in the next two semesters. With increased workload, this was becoming an issue to many staff.

When courses were being modified from one semester to the next and where that modification was minor, staff were finding the process frustrating. It was being suggested that most staff have the technical competence to make the changes themselves or to liaise directly with NextEd in a more informal manner. It was also suggested by some that, if the platform has been developed in a manner that makes it difficult for staff to make the changes themselves, then perhaps the platform might be a problem.

Staff accepted the need for a quality product but they did not believe that a process that is painstakingly cumbersome necessarily achieved that quality or, if it did, it might be at the expense of the capacity to offer courses frequently. Staff might simply suggest that it is better to withdraw this course until a later offering to avoid workload pressures.

It would seem that changes may be in the offing either through a new production process that USQ is about to implement (XTML) based) or possibly through the new NextEd publishing system. As one lecturer commented:

I am using the NextEd Continuous Publishing System (CPS) which is enabling me to change course content with the minimum of intervention from institutional systems. However, I have not reached a stage where I can determine the total value of this i.e. I am only changing text, hyperlinks, inserting activities, etc. at this stage. I am not sure of what the potential is for more advanced multimedia elements.

The features of the learning platform

The issues related to instructional design, however, did not focus only on the material development process. There were some reservations about the flexibility of the *Blackboard* platform, especially from the technologically competent:

I did take the group discussions out of USQOnline and into USQConnect newsgroups...because the USQOnline environment is hopelessly inadequate for the purpose. I have also developed my own database driven system for

maintaining grade records and emailing feedback to students because the systems provided are not really suited to the task. Given time I will probably develop further additions and/or substitutes that allow me to teach more effectively.

In the reality of USQOnline I am frustrated by the lack of access to core tools, the requirement to work through levels of technocracy that do not add apparent value and the inefficiency of the web environment compared to dedicated applications for certain tasks. The slow and cumbersome discussion areas are probably the worst but most aspects of the web interface are intolerably slow for frequent use.

Speed of the platform can vary and has been frustrating to staff and students. I rarely work from home through the modem link despite the ideal nature of online education for working at home. My home PC is not state of the art but nor is it straight out of the ark! Students' complaints however appear to be less than staff complaints — is it a case of different expectations or the server that is being accessed?

Online education allows for a great deal of flexibility in approach although at USQ some of that flexibility has been removed by having 'imposed' on this platform layout, platform features and course development structures. These restraints have not greatly impeded me, but, there again, as I am not as aware of some of the possibilities as the more technically competent, I may not know what possibilities I am missing out on.

Blackboard platform does not lend itself to problem based or case based learning. If any particular 'online environment' such as WebCT, BlackBoard or the peculiarly emasculated version of the latter offered by NextEd in the guise of USQOnline is considered, then there are frequently substantial barriers and constraints to applying any philosophically coherent approach to teaching and learning... the systems imposed often appear to be designed by technicians for technicians rather than for teachers and learners.

I feel the platform default structure encourages students to head for the discussion area and they sometimes have difficulty 'finding' the study material itself!

Course content

In addition to these concerns, lecturers in the Department of Further Education and Training were in the process of analysing appropriate content and design of online materials, in the context of attempting to come to consensus over pedagogical principles that might impact on the nature of that content. Opinion was not consistent, but the discussion is central to the development of online education in the Faculty and probably in the University. The issues ranged from the concern over page turning in an online environment and the nature of appropriate resources for that environment:

I have quite a bit of content in my courses, and at USQ we have debated about different ways of operating online that might minimize the 'page-turning' implications. The question becomes — is it the delivery mode per se that should drive the nature of the content or the discipline that is being taught. In the three courses in which I have had involvement, there is a body of material that does not really change substantially as it is standard theoretical material. This material is required by students and, therefore, unless I inform them to seek this material

through the library or through a text book, it needs to be there. Having said that, a colleague and I are considering the possibilities of approaching these three areas through a problem based approach to learning. While this approach does not necessarily emerge because the course is online, consideration of this approach has emerged because of that. Related to this issue is the use of textbooks. While I have one text book in one of the three course referred to, I am attempting to get rid of this. I have done this because in my mind having a totally online course and having a text book is contradictory. In the three courses textbooks are common and in the main there are many good ones. The concern I have is by removing them and creating a quasi text book in the study material, am I re-inventing the wheel and if students choose to print out the quasi text book would they have been just as happy to buy a real one!

If it is deemed inappropriate that too much content (page turning) should be placed onto an online environment, some disciplines or courses within them probably should not go on online. My own view of this is: I do not think that the extent of content should determine whether something is placed online or not. I believe as much as is possible, without undermining the educational value of the course, content should be kept to a minimum but where this cannot be achieved the decision has to be made whether a print package accompanies the online mode or whether the student chooses to print out the online material. At USQ, if the latter is to occur it may require some technical changes to simplify the process (the material is currently in many small packages not one printable package). Content can be minimized if the teaching approach takes on different forms (problem based or seminar based). While each of these has merits I do not believe that because we are online we should have to approach our teaching that way. The discipline and the aims of the course have to determine the approach. I do believe that in a totally online environment course designers need to think about the appropriateness of certain resources – is it totally online if someone has to have access to a library or a post office to receive a text book? I also believe that in a totally online environment course designers need to think about the appropriateness of certain types of assessment – is it appropriate that students have to find their way to some examination center? At USQ, examinations are not taken online as the security issues associated with that have not been resolved at this point. This raises the question of whether there are ANY circumstances where we should be thinking in a totally online manner or whether we should think more in terms of hybrid delivery modes. I have no doubt that some areas can operate totally online, but I suspect the hybrid approach is the more logical way of the future if we are to successfully marry competing demands. Being online allows the use of all the technical bells and jingles. But we have little research to know what bells and jingles support learning and what may be a hindrance or at best neutral. As one example... do hyperlinks distract students from learning by shooting them to areas that might be better left until the other areas are totally covered or does it assist them by allowing a thorough investigation of concepts as they arrive?

Electronic page turning is a total misuse of the medium (eg. effective navigation that facilitates quick and easy access to the content).

Not huge chunks of text online.

...making more of the references for this course electronically available.

I won't include as much content in online courses (try not to – although some courses dealing with new content require these concepts, ideas to be transmitted in a more objectivist manner) – try to use cognitive tools (graphic organizers/ concept maps) to present information and try to have students use such cognitive tools and encourage learners to become hypermedia authors.

I would rely less on web addresses which were critical to my curriculum as information sources. In several cases, web pages I thought were stable (ie. pages with large organisations) disappeared.

I may also consider getting permission to save some of the more 'valuable' online resources to a local server, given negative comments from student about broken links and our inability, at this stage, to go in and fix them ourselves during the course of a semester.

As stated in Chapter 5, while staff at USQ had concerns about inappropriate use of the online environment and were prepared to suggest that some approaches were misguided, these views were acts of faith rather than carefully evaluated critiques. There was a belief that an online pedagogy supported by appropriate online instructional design existed at least partly distinct from face-to-face or traditional distance education, but what it was has not been articulated. It remains the 'holy grail', an elusive, but cherished prize that will solve the dilemmas and contradictions of online education.

7.4.8 Commercial viability—the dilemma of scaling online education

Flexible provision tends to make marginal additional demands on infrastructure costs. In most cases it makes additional demands on support services and academic staff time. The additional demands on the resource academic staff time are not usually reflected in additional budget allocations. The demands on academic staff time are satisfied in part at the cost of time spent on research and in part by staff working longer hours...For institutions with established off-campus or multi-modal arrangements and which make allowance for design and development demands, flexible provision is not costly, though communication with students is increasingly demanding on academic staff time.

Ling et al. (2001, pp. xix-xx)

The issue of cost effectiveness in online learning is a clouded one and difficult to assess. Depending on the sophistication of the online course, the cost can be enormously different. If materials are merely transferred to the web so that students can download and print them at home, the cost is low and the educational experience is little different from buying a text book or being sent printed materials by mail. The possibilities of online education, on the other hand, relate to the potential complexity of the type of educational experience that can be provided.

Bell et al. (2002, p. 28)

The Gartner study of online higher education institutions (2001) found that only 7 per cent believed that online delivery reduced costs—42 per cent believed the costs increased. While this study did not focus on the economics of online education at USQ—the data were not available in terms of the USQ institutional commitment

even if that had been the purpose of the study—the responses of University staff inevitably touched on these matters. The issues related to the costs of resourcing the initiatives and to the attractiveness of online education to students. In particular, responses raised real concerns that there is a view in the community that this is a ‘cheap’ form of educational delivery.

Resource intensity of online education

In a previous section and in previous chapters, we have reported on the intensity of interaction that occurred in the online environment and, unless protocols are established in the future to place controls over that interaction, there is no doubt that the USQ approach to online education will remain resource intensive. In the Faculty of Education, it was suggested that a staff to student ratio of at the most 1:30 was all that was sustainable and ideally it should be less than this:

This is a significant issue in my experience. The myth that it is a cheap method of instruction prevails despite all the evidence that a system which supports online teaching and learning requires sophisticated computing solutions and highly trained technical and support staff—and that is expensive. That is without consideration of the costs of any increased demands on academic staff time.

In areas where there is dynamic change to legislation and practices, eg. industrial relations, taxation law etc., the online environment is potentially a major benefit because it enables responsiveness that often cannot be achieved with both distance and face-to-face modes of delivery. This also presents a resource challenge because keeping the material up-to-date requires time and capacity.

...several processes in Multimedia Design and Development require far too much preparation of materials to be cost-effective.

Seems to be resource intensive and therefore very expensive.

Query how cost-effective it really is.

It is NOT low cost unless you just dump materials online and it is a stressful mode because of interactivity. Our ‘model’ may be sending us bankrupt because of staff to student ratios needed.

The current emphasis on the use of fifth generation technology to automate responses and thereby assist staff in the teaching process is an acknowledgement of the intensity of current approaches to online delivery. Taylor (2001, p. 4) argued:

...it is worth noting that prior to the advent of online delivery, variable costs tended to increase or decrease directly (often linearly) with fluctuations in the volume of activity. For example, in second generation distance education delivery, the distribution of packages of self instructional materials (printed study guides, audiotapes, videotapes, etc) is a variable cost, which varies in direct proportion to the number of students enrolled. In contrast, fifth generation distance education has the potential to decrease significantly the costs associated with providing access to institutional processes and online tuition. Through the development and implementation of: automated courseware production systems, automated pedagogical advice systems and automated business systems, the fifth generation of distance education has the potential to deliver a quantum leap in economies of scale and associated cost effectiveness.

Not all practitioners of online education are currently sharing that vision and it would seem that fifth generation technology, while gradually featuring as a player in online education with the possibilities of further future developments, was not seen as the panacea; it would also appear that no-one was arguing that fifth generation technology can remove the need to read discussion forum contributions and to read student assignments! Bates (1999a, p. 208) also cautioned that ‘while labour costs can be reduced by applying technology, unless done sensitively and carefully it can also lead to a large decline in the quality of learning’.

Market attractiveness of and economic returns from online education

The responses to the various surveys indicated that the commitment to online education at USQ is uneven and discipline based. It was even argued by one senior administrator that ‘we did some damage by passing on messages that we were a virtual university—we have to sell similarities of online not differences’. A range of comments suggested that enthusiasm for online initiatives did not spread evenly across the University:

The resistance to the use of online education comes mainly from the clients (students). In particular students undertaking study of highly mathematical and analytical engineering material find the use of online material frustrating and will usually revert to text based study. The study of this type of material does not lend itself to interaction such as online discussion and students generally require large periods of individual study.

Not a great potential in online for Arts – partnerships maybe, as it broadens the expertise in content.

Paper still important (hybrid is the way to go—on-campus students can use online facilities). Bricks and mortar won’t disappear—Uni campuses provide structure; distance ed. will become a hybrid (students are social beings).

Rhetoric runs ahead of reality—need to have proceeded more slowly.

Doesn’t seem to be any interest by students (although we are not certain about that) and staff. Like getting ‘cows off the ground’; many engineers spend all day in front of computers and don’t want more of it.

Conclusion: cannot offer online indiscriminately; some traditions do not support it and some enrolments do not support it. Future is hybrid.

Exponential growth in student numbers is a simplistic view of economics—economies of scale don’t add up.

USQ was out of step with both market and local support.

Back away not philosophically but because of the numbers.

Politically expedient rather than visionary—15 years ahead of time.

Not all parts of the University shared that pessimism:

Huge market out there but has to be developed.

2020—organisation which will be using technologies—lifelong learning. Niche market which is global.

E-learning will generate a revolution not evolution—economies of scale will drive this. Professional development will grow in this mode (small bites of professional development) [with] articulation into awards.

However, there was a common belief that the financial incentive systems that operated at the moment quite simply discouraged the Faculties from being involved:

Incentive not there as opportunity costs are high.

Current return from NextEd is not an incentive and interactivity of online is very time consuming.

Value for money from NextEd needed.

Seen as Luddite if not fully in it but no incentive financially to do it.

Bad contractual arrangement and OL [online] is not cheap.

7.5 Changing teacher roles

What seemed to emerge from the analyses of the USQ move to online education was that the lecturers were experiencing a change in their roles as teachers even though not all believed that this change was fundamental. These latter experienced teachers took a view that might be best described as ‘good teaching is good teaching’:

My practice has not changed over the 4 years of online teaching. The basic philosophy, which applies to all mediums, is that students come first.

I am not sure that my practice has changed significantly as I have always believed in the essential qualities of a good teacher.

However, most experienced teachers did believe that their roles and responsibilities were changing and that the skills they needed to do the job had also changed:

I may even need to learn more skills and get more knowledge about how best to design the content. In a print based world we assume students move through the material in a logical (for the writer that is!) way—in online we have created a whole set of hyper links in the material that encourage (rightly or wrongly) students to leap from one section to another. I would like to know if this helps or hinders.

At the moment I am trying to discover strategies that will enable me to work with much larger groups of online students as there does not seem to be any quota imposed on online enrolments; numbers for my course are growing each semester (83 in semester 1 2002), availability of tutors with the necessary knowledge, expertise and skill to teach are not easily forthcoming, and I recognize I need to find other ways of addressing this. This may mean I will need to adapt my own teaching philosophy to accommodate the restrictions imposed by larger numbers of learners. This may mean less personal contact and less interaction.

I have been prepared to provide assistance outside my discipline expertise—in fact I no longer see myself as solely expert in research, evaluation or assessment but also having levels of expertise in the technical aspects of online delivery.

USQ has tended to treat online teaching as a variation of distance (print) teaching. Over the past couple of years I have come to believe that is a fundamental error in both understanding of the genre and in strategic terms. My initial efforts at online teaching were consistent with the official view. The effort went into preparing materials and getting those to students. Then it was to be a matter of dealing with assignments as they arrived with a little communication when required. In fact, online should be treated as much more similar to face-to-face teaching. As I have realized that, I have become much more active in my dealings with students and more insistent upon controlling my own materials as I do for face-to-face classes.

I have adopted a more mentoring role—power structures have changed...I try to encourage more collaborative learning (learning communities).

The roles have extended to cover other areas of expertise. Without really knowing how, I have also become fairly technically competent and I find that I rarely need to call on the University's technical assistance for matters that in the past would have bemused me. Whether this has led to increased effectiveness in my core role I am not sure but I suspect it has not damaged that core role. We also have to be prepared to accept that our roles may have expanded to areas where we may not think ourselves expert. This covers the technical and the instructional design areas. Expertise is in the eye of the beholder and to a student that does not know what a browser is, what a plug-in is or what Adobe Reader is, I am a real expert.

I realise that I can't 'do it all myself—need others to assist in putting the program together (team culture).

Online leads into the need to develop new skills as teachers such as being able to provide students with critical judgments of what makes for quality.

Need to look at the parameters in which we should grow and break down the 'silo mentality'.

7.6 Conclusion

This chapter has examined how online education is currently being managed and organised. In the case of the Faculty of Education, this analysis has taken place in the context of a philosophy that has historically been supportive of flexibility in educational delivery for adult learners and supportive of the concept of lifelong learning (it should be remembered that the courses included in this study are part of graduate programs attracting, in the main, experienced adult learners).

This conclusion attempts to describe the progress that USQ, or particularly the Faculty of Education, has made in coming to a shared understanding of what online education entails and how it can be managed.

One of the most important issues that has emerged from the analyses is a fundamental paradox. Staff accepted that the move to online delivery has brought with it a need for differing levels of expertise. In one sense, the team culture was acknowledged, but in another it was not accepted. Staff, for example, expressed concern over losing control of what they perceived to be their roles and even their rights. As one example, the current instructional design and production process was almost universally viewed as impinging upon their roles in teaching and learning.

There was also concern that the team culture could lead to decisions about appropriate content that might be taken out of the hands of the academic staff. For example, there was a strong view expressed that online courses should not lead to page turning.

The view had been expressed by senior management that any attempt to impose consistency and conformity on academics was akin to herding cats, but the issues raised above would appear to go beyond traditional stereotypes of academic culture. The comments, however, are placed in a pedagogical vacuum where the proponents and opponents seem to be arguing without a theoretical base, without the views of students who may have experienced different types of courses and without any clear notion of what makes online education distinct.

This comment, however, needs to be modified to the extent that there was one element of online education that was accepted as crucial and that was the interactive capabilities that were available through email, discussion, chat and the like. It is here, however, where a second paradox emerged. Certainly, in the Faculty of Education this interactive capability was viewed as a powerful pedagogical tool, but equally certainly staff had not yet come to terms with the demands that were being placed on them through the 24-hour a day x 7-day a week capabilities of online education.

Mayes et al. (1999) may provide an escape from this theoretical vacuum in their work on the Vicarious Learner project. He and his colleagues indicated the need to place the treatment of content within a three-phase learning cycle—conceptualisation, construction and dialogue. This issue is addressed in more detail in the final chapter.

The analyses reported in this chapter also raised what might be viewed as a third paradox. As indicated, the Department of Further Education and Training had tried, as far as possible within USQ rules and regulations, to be flexible in dealing with adult learners. We have referred earlier to assignment extensions, flexible enrolment and progression, the offering of courses across a number of semesters and the like. These practices had until recently almost universal support among staff in the Department. Coupled with the interactivity demands that online education was creating, flexibility (however defined) was emerging as a key issue and one that might lead to a more individual approach as opposed to a Departmental philosophy. In other words, the person culture might yet again take precedence over the team culture.

While evidence of these paradoxes made it clear that the Department of Further Education and Training had not embraced a totally new paradigm with shared assumptions about how that paradigm operated, there were indications that changes had occurred that were supported by staff. For example, the analyses indicated that the role of teachers had necessarily changed as a result of online education. For example, teachers had been obligated to become managers of a learning environment and not solely content managers. Staff in the Faculty of Education had, it would appear, accepted this change in a supportive and consistent manner. Some even seemed to have welcomed it.

8. Summary and conclusions: the beginnings of a pedagogical framework for online education in higher education

Glen Postle and Andrew Sturman

8.1 Summary

This study involved an investigation of the practice of online teaching and learning in the Faculty of Education at the University of Southern Queensland. It examined this context at a particular point in USQ's history, namely at a stage where it was grappling with the emergence of online education. It is a case study involving postgraduate courses offered totally online in one discipline, that is, education.

8.1.1 The theoretical framework

The general theoretical framework that guided this project centres on how change occurs in organisational settings. It is based upon a specific theoretical approach to the issue of changing teaching/learning paradigms, developed by Imershein (1976) (see Theoretical Appendix). This framework is particularly valuable in understanding the circumstances that might be expected to lead to change in an organisation. The Imershein theoretical framework was used to determine whether a 'paradigm shift' had occurred at USQ as a result of the move from on-campus and print-based distance education to online education.

8.1.2 Research design

As indicated above, the research method employed in this research is case study. One university's approach to online education and, in particular the approach taken in one Faculty of that university, is the focus of the case study. Eight courses delivered totally online were selected for detailed analysis. The rationale for their selection, other than being totally online, was that they had different purposes (graduate seminars, projects, and the like) and they reflected a range of different content structures—from theoretically based courses (such as those emphasising principles of teaching and learning) to skills-based courses emphasising core skills needed to work in an online environment.

Table 8.1 provides an overview of the research design used in the study.

Table 8.1 Research design

Aims	Methods
<ul style="list-style-type: none"> To establish the nature of the critical elements of the current teaching/learning paradigms 	<ul style="list-style-type: none"> Document analysis/literature review/historical account
<ul style="list-style-type: none"> To determine the effects of the introduction of totally online approaches 	<ul style="list-style-type: none"> Quantitative analysis of course statistics Survey—staff/students
<ul style="list-style-type: none"> To determine the nature of totally online approaches in the future (reinterpretation, little change, new models?) 	<ul style="list-style-type: none"> Questionnaires to ‘totally online’ practitioners Questionnaires to other online practitioners/administrators Interviews with senior administrators

8.1.3 Major issues and dilemmas in online education

The responses to the questionnaires sent to staff and students suggested that the introduction of online education had produced anomalous conditions, that is, a violation of their expectations surrounding teaching and learning. These related to three major areas: curriculum design, curriculum implementation, and teacher and learner roles.

Staff and students expressed concern that pedagogical imperatives might be taking second place to commercial interests. They also raised the issue of whether a text-based approach to both content and communication was the only way to approach online education.

When online education began at USQ with its communicative emphasis, it was seen as a potentially powerful tool to overcome some of the perceived weaknesses associated with the limited interactivity of traditional print-based distance education. Staff acknowledged the power of the tool, but have become aware that it has brought with it issues that have to be resolved; the quantity of interaction that online education generates, at least in some quarters, has imposed demands and possibly unreal expectations on staff and to some extent students. The interactive focus of *USQOnline* also caused some concerns about the commercial viability of this type of operation. Unlike face-to-face delivery, USQ is not at this point in time imposing constraints on the way lecturers approach delivery; there are no set times for lectures and tutorials and no set student-staff interview times—it is a 24-hour x 7-day delivery mode.

It was acknowledged that online education provided a powerful pedagogical tool—its communicative capabilities—but this same tool had increased demands and expectations on staff and students that focused on the appropriate role of the teacher and learner in the online environment. Students have questioned whether their flexibility is being violated by ‘forced’ communications and a predominance of text and staff were unsure if the quantity of interaction is sustainable. The issue

touched on appropriate levels of ‘teacher control’ in any teaching setting. Staff also raised the issue of what type of skills might be required of the ‘online teacher’ who cannot make use of the visual cues available on-campus.

8.1.4 Identifying anomalies

The analysis of the course statistics suggested that the introduction of online education had produced anomalous conditions, that is, a violation of student and teacher expectations surrounding teaching and learning. These related to the following major areas: treatment of content; managing interaction; variable interaction; and the globalisation of cultural norms.

The very high teacher and student communicative engagement, in particular in the case of students, compared with content engagement (accessing study materials), suggested that a significant percentage of course content was generated through communicative interaction.

It was suggested that ‘content-heavy’ courses may not be appropriate for the online environment if communication is viewed as a crucial component of the pedagogy. It was also suggested that, because there was no obvious relationship between content heavy courses and other types of courses with regard to final student grade, and as students had an ambivalent reaction to the advantages and disadvantages of print-based material, it might be the case that content heavy courses are more suited to independent learning contexts.

The data indicated that students and staff working in the online environment operated outside of traditional temporal norms. The 9 to 5 day, Monday to Friday was replaced with a 24-hour day Monday to Sunday. The pattern of interaction between staff and students revealed a common trend; interaction was very high at the beginning of the semester and up to mid-semester and then tapered off.

While asynchronous communication was heavily utilised in the courses, usage was variable for students and teachers. Some students seized the opportunity for interaction with staff and their fellow students while others did not. There were the beginnings of informal protocols emerging that controlled the extent of interaction that a lecturer was prepared to manage.

Levels of communicative engagement for gender and different cultural groups were similar, indicating that the relative anonymity and the asynchronous nature of online education might remove barriers to participation.

8.1.5 Design of online courses

A consistent response from the staff in the research, not just those from the Faculty of Education, concerned a lack of flexibility in the learning management system (*Blackboard*) that is used to frame USQ online courses or a lack of flexibility in how the platform has been adapted for use at USQ. What this appeared to demonstrate was that there was a clear intent on the part of lecturers to let pedagogy drive the technology, but to some extent they were unable to do so because of the constraints in which they worked.

The Faculty of Education online courses were deliberately structured with a focus on the communication capabilities of online education, operating in a text-based manner. The predominance of text created its own set of issues; it would be fair to

say that these were being addressed in an individualistic way, but it would also be true to say that the issues had not been resolved and certainly strategies had not emerged that might form the basis of a shared understanding of the way forward. There had been spasmodic progress made with concepts such as visual grammar, vicarious learning, intelligent tutoring, reflective writing, and communication conventions and protocols.

The analyses also uncovered themes that require further research. For example, the effect of what has been referred to as the ‘body-less realm’ of written communication online deserves study, in particular the lack of paralinguistic cues in the online environment.

With regard to how social identities are constructed through written text and associated issues, such as netiquette, masking and flaming, it was found that staff were dealing with these issues in an individualistic manner, but a shared approach had again not yet emerged.

Similarly, it could not be claimed that a common view on what comprises effective online pedagogy had emerged; there was, however, agreement about a range of pedagogical strategies that were considered effective in achieving a range of learning outcomes.

8.1.6 Online teaching and learning

Online teachers in the Faculty of Education at USQ were in ‘change mode’; they were not trying to re-interpret teaching and learning around traditional structures, principles and practices.

The physical space defined by a classroom has, in an online environment, been replaced by a ‘virtual’ space defined by a ‘learning management system’. Teachers had developed considerable insights into how to use the ‘Discussion Board’ to their advantage and had made progress in establishing learning communities as a fundamental element of their online teaching and learning experience.

Teachers had become managers of learning and they seemed comfortable with the notion that they had to combine this role with another one that defined them as learning partners.

In order to benchmark the progress that USQ teachers had made towards the adoption of different teaching/learning principles and practices, the Hung and Chen paper was used as a framework. It was demonstrated that a lot of what teachers were doing could be linked to specific components of each of the principles in the framework. Progress had been made in getting the best out of the online environment; nevertheless, many of the difficulties that teachers continued to raise focused on ‘teaching skills and information’. With regard to what Hung and Chen considered were more substantial questions relating to ‘facilitating structures’, the USQ experience was perceived to be somewhat lacking.

8.1.7 Managing and administering online courses

One of the most important issues that emerged from the analyses was a fundamental paradox. Staff accepted that the move to online delivery had brought with it a need for differing levels of expertise that suggested the need for a team

culture, but they expressed concern over losing control of what they perceived to be their roles and even their rights.

There was one element of online education that was accepted as crucial—its interactive capabilities that are available through email, discussion, chat and the like. It was here, however, where a second paradox emerged. This interactive capability was viewed as a powerful pedagogical tool, but staff had not yet come to terms with the demands that were being placed on them through the 24-hour a day x 7-day a week capabilities of online education.

The analyses raised a third paradox. The Department of Further Education and Training had tried, as far as possible within USQ rules and regulations, to be flexible in dealing with adult learners. The practices adopted had until recently almost universal support but, coupled with the interactivity demands that online education had created, flexibility (however defined) was emerging as a problematic issue. In other words, the person culture was emerging and could take precedence over the team culture.

It was clear that the Department of Further Education and Training had not embraced a totally new paradigm with shared assumptions about how that paradigm operated, but there were indications that changes had occurred that were supported by staff.

8.2 Conclusion: the beginnings of a pedagogical framework?

One of the clearest findings to emerge from the study is that there does not exist at this time a shared pedagogical framework for online education. As stated in Chapter 7, while staff at USQ had concerns about inappropriate use of the online environment and were prepared to suggest that some approaches were misguided, these views were acts of faith rather than carefully evaluated critiques. There was a belief amongst some that an online pedagogy supported by appropriate online instructional design existed, at least partly distinct from face-to-face or traditional distance education, but what it was has not been articulated. It remains, to those who believed that such a pedagogy exists, the ‘holy grail’, an elusive, but cherished prize that might solve the dilemmas and contradictions of online education.

As elaborated in Chapter 6, the Hung and Chen (2001) paper provided a framework by which we have attempted to gauge the extent to which the Faculty had adopted a pedagogical framework that these authors considered appropriate for online education. This framework detailed four key principles associated with the derivation of the concept of ‘communities of practice’ (Wenger 1998) and related these principles to the online context. While online teachers in the Faculty were adopting some components of each of the principles, they had not made the radical transformation from traditional approaches to teaching to what Hung and Chen perceived to be the ideal approach for online education.

However, as stated in Chapter 6, we are not suggesting here that the Hung and Chen framework is the elusive ‘holy grail’ referred to above that once achieved might solve all the problems associated with online teaching and online course design. In fact, we are not even convinced that the search for such a grail is constructive; it might well be that the challenge for online teachers lies not at the

conceptual level of a pedagogical framework, but at the procedural level that deals with strategies and tactics that enable online teachers to cope with the new learning environment in which they are placed. This becomes even more critical if the hope of university administrators is to use online delivery to attract a global and extensive student market, especially given what we had to say in Chapter 4 about the communicative demands that the USQ approach to online education entails.

8.2.1 A 'pedagogical framework for networked learning design'

In order to elaborate further on the assertion above, the 'pedagogical framework for networked learning design' proposed by Steeples et al. (2002) is used. The authors made similar assertions concerning the difficulty in arriving at adequate prescriptions or recipes for online education:

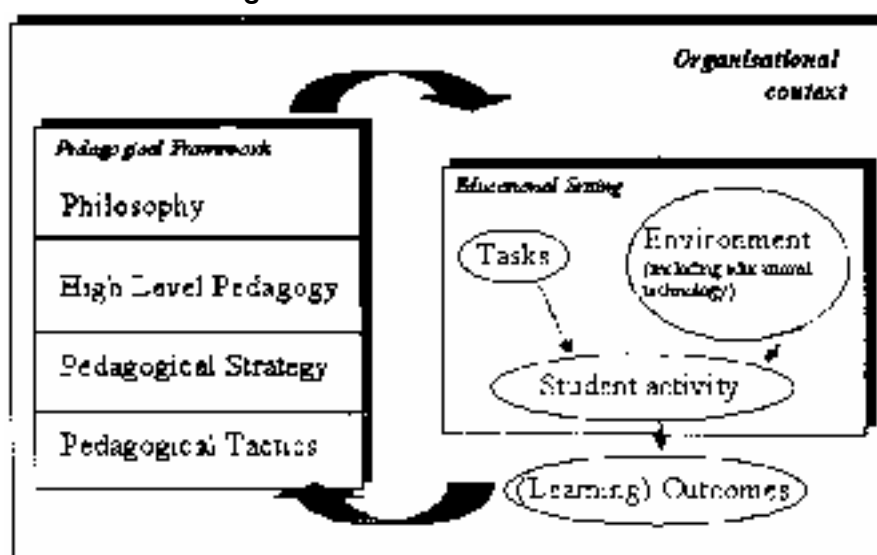
While there is a developing set of fundamental principles about networked learning, it still seems to be true that what seems to work for one group of learners is not of itself necessarily guaranteed to translate to another course or another group of learners.

Steeples et al. (2002, p. 331)

In talking about their pedagogical framework, they took a similar view to that proposed in this report; they were not trying to pursue an 'ideal' pedagogical framework, rather 'the point is to suggest the kind of architecture that such conceptual entities ought to have' (p. 331).

Figure 8.1 shows the conceptual entities of their framework and the discussion below elaborates on these entities and relates them to the USQ online experience.

Figure 8.1 Pedagogical framework, educational setting, organisational context



Source: Steeples et al. (2001, p. 331)

Figure 8.1 falls into three main components. As Steeples et al. (2002, pp. 331-32) commented:

The pedagogical framework itself is on the left hand side. It needs to be understood in relation to concrete educational activity in a real world setting. On the right hand side of the figure is what we have called the educational setting. This is a way of describing the real-world, concrete activities, processes, people and artefacts involved in a learning activity. Both the pedagogical framework and the educational setting exist within an organisational context such as a university.

Philosophy

As Steeples et al. stated, the top elements of their framework are composed of a number of sets of belief: about the nature of knowledge and competence; about the purposes of learning in higher education; about how learning occurs; about how people should and should not be treated (p. 333).

Experienced online teachers were asked to comment on the philosophical underpinnings of teaching and learning to which they subscribed as part of the questionnaire they were asked to complete. The statements varied from the essential qualities of a good teacher, learner centredness, constructivism, to pluralism; some respondents even suggested that they were reluctant to term their approach to teaching as a ‘philosophy’. The one area that could be viewed as ‘philosophy’, and where the respondents shared a common view, lay in the need to be flexible in the manner in which teaching and learning is delivered to adult learners.

Steeples et al. acknowledged that philosophy is often ‘left implicit...or is held to be too remote from the day to day problems’ (p. 334). This, in fact, raises the question as to where philosophy emerges. Is it, and should it be, an individual ethos or is it, or should it be, a collective ethos? If the latter, can it be imposed from above, or can it only emerge through shared beliefs and understandings? When the USQ Vice Chancellor tried to distinguish USQ from other institutions through the catchphrase ‘WWW—what you want, where you want it, when you want it’—a call for considerable flexibility in educational delivery, to what extent did he ‘carry’ the academic staff of the university with him? In the case of the Department of Further Education and Training, he was merely putting into words a belief that the Department that runs most of USQ’s online courses already held; that could not be said of all sections of the university and it may well contribute to the mixed response to the introduction of online education that we have referred to in earlier chapters.

Wenger (1998, p. 4), in discussing the concept of a ‘communities of practice’, depicted a relationship between this concept and the organisation that is helpful in understanding the relationship between philosophy related to online education and the university organisation. Wenger referred to five types of relationship: ‘unrecognised’, where there is a lack of awareness of the value of the concept; ‘bootlegged’, where the concept is visible informally to a circle of people; ‘legitimized’, where the concept is officially sanctioned, but may be over-managed and under scrutiny; ‘strategic’, where the concept is widely recognised as central to the organisation’s success; and ‘transformative’, where the concept is able to be redefined. The Department, but not the whole Faculty or the wider university community, initially recognised both the ‘strategic’ and ‘legitimized’ aspects of the Vice Chancellor’s philosophical catchcry; however, even this circle of people was

having to re-consider the concept of flexibility in light of the experience that online education brought.

In sum, we would argue that success in introducing an innovation such as online educational delivery does require a shared philosophical vision. It does not have to be shared across the whole university community but, if it is not, adoption is likely to be regionalised.

High level pedagogy

In the terms used by Steeples and her colleagues, it might even be suggested that most of the experienced teachers' responses to the question on philosophy rarely touched upon the philosophy of teaching and learning; rather, they fell more into aspects of high level pedagogy, the next layer of their framework. High level pedagogy is defined by Steeples et al. as 'being at a level of abstraction which is intermediate between philosophy and action. They are a way of turning a philosophical position into a space of commitments and possibilities' (p. 334).

The data that were gathered from the study suggested that, implicit in their comments and actions, was a commitment to concepts such as a learning community, co-construction of knowledge and constructivism. Of course, such concepts do not distinguish online education from any other form of education, but the manner in which they can be operationalised (strategies and tactics) may be different for online educators compared with their face-to-face and traditional distance education counterparts. In fact, it might be argued that it has been almost impossible to operationalise such concepts in a traditional distance setting where human interaction either did not exist, other than through assignment marking, or where that interaction was minimal.

Strategies and tactics

It is, in our view, in what Steeples et al. described as pedagogical strategies and tactics that the fundamental uniqueness of online education reveals itself:

Strategies are directly concerned with action...a broad depiction of plans...The point is to promote a shared understanding of intentions and permit coordinated action...The only difference between pedagogical strategy and pedagogical tactics is one of grain size. Tactics are the detailed move through which strategy is effected.

Steeples et al. (2001, p. 335)

It was suggested by some of the respondents to the questionnaire that the main effect of online education, when compared with print-based education, was to make it more similar to face-to-face delivery. In one sense, this is true. Both face-to-face and online education can share philosophy and can share high level pedagogy. However, not all strategies and tactics to achieve these aims can be the same—online education operates through a learning management system and the infrastructure and facilitating structures needed are quite different in this situation from those needed in a traditional classroom (Hung & Chen 2001; Kimball 2001). We are not making any statement about the relative value of either delivery method;

rather, we are hinting at the different means by which quality education can be achieved in each type of delivery.

The following represented some of the strategies used by the teachers at USQ:

- Graphic organisers, designed to assist learners to navigate around a web-environment and around the content provided.
- The use of less prescribed content and use of interactive elements to generate content.
- The use of communities of practice where students were encouraged to share information, negotiate meaning and co-construct knowledge.
- The creation of more responsive teaching/learning activities where students were encouraged to take leadership roles.
- Concept maps, designed to provide a framework and assist students to structure knowledge contained in the web environment.
- The use of the 'Resources' area of the platform where both staff and students can share strategic and current resources relevant to course content.
- The use of what Jonassen (1998) refers to as cognitive tools, for example, problem/task representation tools (such as graphic organisers), static and dynamic knowledge modelling tools (such as databases and spreadsheets), performance support tools (such as spreadsheet templates or notetaking) and information gathering tools (for example, Webliographies or electronic library resources such as Ebscohost).

It was identified in this study, however, that there were gaps in strategies. The major area of concern, and one acknowledged by staff in the Department and currently subject to review, concerned the concept of diversity. While Hung and Chen (2001) suggested that diversity of student background can be used positively in the online environment and while staff had successfully used some strategies (such as 'Group Pages') to achieve this, it had become clear that the programs offered by the Faculty were attracting students with at least two very distinct expectations—one with a strongly vocational, skill-acquisition emphasis and another with a more theoretical interest. This has led the Department to believe that some program re-design is necessary because strategies alone appear to be insufficient.

A related issue concerned diversity in terms of student expertise, especially if the intent is to offer online programs to undergraduate as well as postgraduate students. Students in this study were postgraduate, but the Faculty's long-term aims were more ambitious. The strategies used for the postgraduate students may be inappropriate for undergraduate students. Mayes et al. (2001, p.2) cite McKendree et al. (1998) who argued that 'dialogue is central to the learner's enculturation into the patterns of language and thought, discussion and criticism, that are characteristic of an academic discipline'. Mayes and Fowler (1999, p. 489) maintain 'it is helpful to describe the basic unit of conceptual learning as a cycle'. This cycle integrates three kinds of learning that they described as: conceptualisation ('the users initial contact with other people's concepts...an interaction between a learner's pre-existing framework of understanding and a new exposition'); construction (a 'process of building and combining concepts through their use in the performance of meaningful tasks') and dialogue ('the testing and tuning of conceptualisations in applied contexts'). They (p. 490) link each of these kinds of learning with different types of courseware: primary courseware ('intended mainly

to present subject matter...and typically authored by subject matter experts’) with conceptualisation; secondary courseware (‘mind tools or cognitive tools...to encourage users...to think conceptually about the subject matter being manipulated’) linked to construction; and tertiary courseware (‘reification...emphasises the value of...discussion between peers’) linked to dialogue.

Undergraduates entering a discipline would focus more on the conceptualisation/construction end of the learning cycle and postgraduate students, such as the ones in this study, on dialogue. That may help to explain the dominance of asynchronous communication as a strategy in the courses studied.

To conclude this section, we provide some examples of the ‘tactics’ that staff revealed they were using as a result of the demands of online teaching:

- Placing challenging questions into discussion forums to stimulate debate about key concepts in the course.
- The use of the ‘Discussion Board’, in particular the creation of different forums to meet different needs (student lounge, technical support, sharing information).
- The use of ‘Group Pages’ to assist in collaborative learning tasks, for example, problem solving and project management.
- The use of what has been called ‘reflections’ in order to situate learning.
- The use of multiple choice tests where students are not only required to provide the ‘most correct’ answer, but also to explain why that is most correct and the other answers incorrect.
- The distribution of regular and brief online evaluation forms to gauge learner responses to aspects of the course.
- The use of email to enquire about learners who have been silent.
- Netiquette guidelines.
- Interaction guidelines to place parameters over the quantity and type of interaction.
- Protocols for synchronous chat.
- Copying discussion items or threads from one semester’s offerings into another where that item or thread appeared to be successful in generating productive interaction (a move into Fifth Generation Technology).
- Developing pre-structured responses to assessment items that might assist in reducing workload when providing feedback to students (a move into Fifth Generation Technology).
- Allowing private email for those students who feel uncomfortable in the more public arena of the ‘Discussion Board’.
- Posting early entries into the ‘Discussion Board’ and/or the ‘Announcements’ to provide guidance to students in how best to structure their learning.
- Putting requirements into assessments (such as reflections) that students should track down new relevant resources via the web or through electronic library links (or suggesting this should happen in discussion forums) in order to familiarise students with the ‘power’ of the web site.

The educational setting

The framework used by Steeples et al. (2002, p. 332) placed the pedagogical framework within an educational setting that they defined as ‘a way of representing the coming together of tasks, activities and environment’.

The educational setting provides the framework through which philosophy and high level pedagogy are implemented. The environment in online teaching and learning is by definition different from that which occurs on-campus or through traditional distance education; it is the learning management system that we have referred to throughout this report that distinguishes online education from other delivery modes. Tasks and student activities may or may not be the same in different delivery modes. We have referred in previous chapters to some discipline constraints that occur in online education but, equally, access to a wide range of resources opens up opportunities only available online.

The organisational context

The organisational context is the final component of the framework proposed by Steeples et al. In the context of USQ, this has been crucial to the development of online education. We have referred to the institutional support for this type of delivery, but we have also hinted at the commercial imperatives for that support; whether the two are compatible remains to be seen. We have also talked in earlier chapters about the introduction of a commercial partner, the online design and production process associated with that and the organisational controls that have been imposed that have not always been appreciated by staff. We have suggested that online education may require a ‘team culture’, but that the ‘person culture’ still dominates academic thinking.

In summary

We have described the components of the pedagogical framework for networked learning design, presented by Steeples et al. (2002), as a coherent and linked structure. However, as the authors noted the elements of that framework need not be tightly coupled; in fact, they suggested that loose coupling is ‘both real and advantageous’ (p. 336). They further maintained that the relationship between the elements ‘is not a deductive process or one that we can see ways of automating. But neither are the elements/layers free floating. External forces cause us to account for our activity and intuitions in rational terms: high value is placed on coherence’ (p. 336).

The framework presented by Steeples et al., therefore, is no more a ‘holy grail’ than any other framework, as they acknowledged. Moreover, they suggested that the flexibility inherent in the framework is desirable not problematic.

8.3 Online delivery and higher education

At no point in this study have our respondents suggested that online education is inappropriate for higher education. While there are doubtless some discipline restrictions that limit the extent to which a totally online delivery mode can apply at

this point in time, the interactive capabilities of online education and its capacity to make use of extensive and current resources, especially in comparison with traditional print-based distance education, provides educational experiences that we would suggest are ideally suited to higher education.

We make no claims about the relative merits of online teaching and learning compared with face-to-face teaching; rather, we accept the view of Ragan (1998, p. 5) that 'good teaching is good teaching, and technology is an instructional tool'. As indicated earlier, the difference lies in the strategies and tactics available to achieve that good teaching.

The experience at USQ has revealed the resource intensity of a highly interactive approach to online education. Whether this model is economically sustainable without tighter management controls is also an open question at this time. We make no claim that an interactive approach to online delivery is the only effective delivery approach, but we are strongly committed to the belief that pedagogy must be placed before technology and before simplistic economic beliefs.

Theoretical Appendix

Glen Postle, Lesley Richardson and Andrew Sturman

Background

The general theoretical framework that guides this project centres on how change occurs in organisational settings. Within this, two interrelated areas are the focus of attention. The first is on more general literature on educational change and, in particular, the factors that inhibit the implementation of change and, as mentioned in Chapter 1, the second is on a specific theoretical approach to the issue of changing teaching/learning paradigms, developed by Imershein (1976). This framework is particularly valuable in understanding the circumstances that might be expected to lead to change in an organisation.

General theoretical approaches to educational change

Reform is not putting into place the latest policy. It means changing the cultures of the classrooms, the schools, the districts, the universities, and so on.

Fullan (1991, p. xiii)

As quoted in Richardson (2001), Askew and Cornell (1998, p. 1) noted that innovations are common in education, but that most of these reflect change at a 'surface level because they are (a) imposed externally rather than being congruent with the values of those affected by the innovation, and (b) not based on the personal understanding and meaning of the learners'. They suggest that such innovations would not have lasting effect; for that to occur, there needed to be a 'deep approach to change', one related to 'changing the meaning of experience' (Novak & Gowin 1984, cited in Askew & Cornell 1998, p. 2).

Huberman, in his critical introduction to Fullan's (1992) book, *Successful School Improvement*, argued that a handbook for planning and implementing change was not yet available and may well never be possible. Huberman indicated that the implementation of educational change is 'a damnedly complicated business' because there are so many moving parts and so many unanticipated happenings.

The difficulty in predicting change led Fullan (1991) to move his attention away from the study of individual change to an institutional capacity for change.

In the case of USQ's introduction of online educational delivery, the phrase 'a damnedly complicated business' takes on a real meaning in that the innovation (online education) has been launched alongside tried and tested delivery methods. Moreover, the innovation focuses on organisational not individual change to the extent that USQ has encouraged adoption of online education as part of its mission statement.

An overview of the history of educational change

Fullan (1991) identified four phases in the evolution of the study and practice of planned educational change that he labelled: *adoption* (1960s); *implementation failure* (1970–77), *implementation success* (1978–82); and *intensification vs. restructuring* (1983–90). Similar stages are discernible in Australia (McBeath 1994), although the dates of the stages were perhaps less distinct than in North America.

Large scale innovations, such as Nuffield Science (1969) in the UK, were the hallmarks of the *adoption* (1960s) phase. Innovations were seen as imposed from above and the main preoccupation was with how many innovations were being adopted. If an innovation was adopted then change was assumed to have occurred.

Fullan's *implementation failure* (1970–77) stage highlighted that innovations could and did fail (Goodlad & Klein 1970), but that change still took place. It was during this time that researchers began looking at the problems of educational change and at what happened to innovation after its adoption (Fullan & Pomfret 1977).

Compared with the preceding phases, Fullan (1991) argued that the *implementation success* (1978–82) phase produced 'more pockets of success' (p. 6). Results from research into implementation and practice revealed key factors and processes associated with that success. By the end of this phase, the literature indicated that, to be successful, planned educational change passed through three stages: adoption, implementation and institutionalisation (Fullan 1982).

The fourth period of change, termed *intensification vs. restructuring* (1983–90), represented two concurrent waves of reform. Referring to the school sector, Fullan indicated that the *intensification* wave was characterised by an 'increased definition of curriculum, mandated text books, standardised tests tightly aligned to curriculum, specification of teaching and administrative methods backed up by evaluation and monitoring...to intensify as exactly as possible the what and how of teaching' (p.7). He suggested that the *restructuring* wave 'involves school based management; enhanced roles for teachers in instruction and decision making; integration of multiple innovations; restructured timetables supporting collaborative work cultures; radical reorganisation of teacher education; new roles such as mentors, coaches, and other teacher leadership arrangements; and revamping and developing the shared mission and goals of the school' (p.7). In the tertiary sector, centralising pressures (the intensification wave) may have had until recently less impact on the work of academics, but the introduction of the Australian Universities Quality Agency might yet provide that pressure. Tertiary institutions, however, have not been immune from the restructuring wave; there has been radical re-organisation of institutions (including amalgamations, Faculty mergers, and the establishment of remote campuses), the introduction of Enterprise Bargaining, changed funding arrangements and the like with resulting changes to the work of academics.

MacDonald (1991) commented that, in this period in the UK, the term reform replaced the term innovation. McBeath (1994) observed that in Australia this phase was more a feature of the 1990s than the 1980s with many of the same reforms occurring in school education and the tertiary sector.

Successful improvement: lessons from history

Much has been learnt over decades of research into educational change. Fullan (1992, p. 25) suggested that there were four main insights that were not predictable, but have turned out to be important:

- active initiation and participation;
- pressure and support;
- change in behaviour and beliefs; and
- the overriding problem of ownership.

Fullan argued that there is no evidence that widespread involvement at the initiation stage is feasible or effective; 'it is more likely the case that small groups of people begin and, if successful, build momentum' (p. 25).

At USQ, in fact, despite the institutional pressure for widespread adoption of online education, it has been the case that enthusiastic individuals, or in case of one Faculty, an enthusiastic Department, has made the running.

He indicated that both pressure and support are necessary for implementing successful change. Although pressure is often seen as a negative element, it can have a positive role in providing a catalyst for change. Successful change projects always include elements of both pressure and support. Pressure without support leads to resistance and alienation; support without pressure leads to drift or waste of resources (p. 25).

Fullan warned that there is a need for a careful consideration of the relationship between changes in behaviour and changes in belief or understanding: 'most people do not discover new understandings until they have delved into something' and 'changes in behaviour precede rather than follow changes in belief' (p. 25). At USQ, there has been a change in behaviour, but whether that reflects a change in belief patterns is uncertain.

Finally, Fullan noted that a sense of ownership of something new implies understanding what it is, skill in using or applying it and a commitment to it. He suggested that, while deep ownership of something new is required for real change, ownership is not acquired easily—it is a progressive process, 'a process of mobilisation and positive contagion' (p. 26). The issue of ownership, in the USQ context, is central; the adoption of a centralised approach to delivery, along with the introduction of a commercial partner, has to some extent taken control away from lecturers and placed that control in the hands of other stakeholders.

Huberman also commented on some of the lessons from research and practice. He argued, for example, that the use of the term 'meaning of change' that runs through the work of Fullan was indicative of an acknowledgment that change is about perceptions; 'significant changes have virtually no reality outside of what local actors think they are' and that 'perceptions are often a function of the phenomenal world in which actors are living and that, as a result, the administrator's world may be very different from the teacher's world' (Huberman 1992, p. 8).

Huberman (p. 9) commented on a change of thinking that has occurred:

Initially, we had conceived of 'planned changed' as an elaborate, 'up-front' exercise of marshalling resources, training key practitioners, mapping out strategies in advance and setting timelines for the introduction of more complex components. We have now learned that the resources, the training, the strategies, the timelines are all forms of liquidity, which we would be better to spend as we

go, leaving as much slack as we can for monitoring where we have come from and anticipating what is around the next corner...The metaphor is not the orchestra, with its methodological rehearsals, but rather the jazz group, improvising continuously within the bounds of implicit understandings, even rituals, among its members about melodic progression.

The metaphor rings true of the USQ experience. Despite the attempt to plan change in a structured and ordered manner, issues arose on a day-by-day basis requiring constant re-appraisals of the approaches taken. This is similar to what Imershein refers to as dealing with anomalous conditions.

Huberman reminded us also to be cautious about the belief that participation in reform or change will lead to ownership of that change and a clearer understanding of what the components of the project actually entail. Transposing Huberman's ideas to the field of tertiary education, he suggests that research tells us that commitment comes when academics can master changes and, prior to that mastery, commitment is very fragile.

As Huberman contended, research has told us that a study of change is incomplete without an analysis of the process of implementation of that change. Intentions, it is known, do not always match reality. From there, the research suggested that 'institutionalisation' of the change is required—some longevity is required if change is to have durable effects but, as Huberman warned, dismal projects as well as laudable ones can become institutionalised.

A further pointer from the research concerns what Huberman referred to as the 'bottom line' of the balance sheet. He suggested that, while change is ultimately aimed at improving student skills and attributes, these are rarely measured when the impact of change is judged. He also commented on the unevenness of technical mastery following the introduction of change; not all staff will move at the same pace. At USQ, the 'bottom line' for some would seem to focus on student enrolments, while for others it is a considered evaluation of what value might be added in online delivery.

Huberman concluded by suggesting that there are other facets of the change process that need analysis. He noted that implementation is a political process and can be conflictual. People may end up doing things that they are not committed to. Implementation can then become a process of bargaining. In making these comments, Huberman could have been talking about USQ's introduction of online education.

The political context and the internal dynamics that change involves are also central to Taylor, Rizvi, Lingard and Henry's (1997) analysis of *Educational Policy and the Politics of Change*. Providing examples from a range of policy initiatives in Australia, the authors highlighted the weaknesses of planned organisational change, and the importance of contextual factors (economic, political, social and cultural), internal organisational dynamics and the 'operationalisation of ideas and more importantly their institutionalisation in structures, cultures and practices' (p. 171).

Huberman also cautioned us to remember that most organisations faced with implementing change are neither exceptional nor appalling; they are 'garden variety ones—with weaknesses and strengths, with a few virtuosi and many more humdrum staff, along with some fairly problematic people' (Huberman 1992, p. 18). This, he suggested, has to be the starting point for talking about change.

While Fullan and Huberman draw our attention to particular features of the change process, Imershein provides a model for investigating that process.

The Imershein theoretical framework

The framework developed by Imershein (1976), in his study of health care services in America, is eminently suitable for studies in the field of education, particularly where knowledge (culture) in institutional settings is the major focus. Imershein extended Kuhn's (1970) ideas about progress in science to change and progress in organisational settings. Just as Kuhn indicates that membership of a paradigm implies adherence to particular ways of 'doing' science, Imershein believes that membership of organisations can be explained in the same way. Just as Kuhn points out that advances in science occur because scientists as a group perceive a need for a paradigm shift, Imershein believes that organisational change requires shifts in the 'world views' of those involved in the change.

As Smith (1980, p. 391) indicates, Imershein's framework presents researchers with 'a methodology which taps the interstitial level of knowledge shared by participants and *actually used* by them in their affairs'.

Imershein shows that it is only through an examination of the 'structure of native knowing' that it will be possible to gain an understanding of the 'structure of native knowledge' (Imershein 1976, p. 17). The manner in which this might be accomplished is to try to relate 'knowledge structures' to 'patterned activities'. However, he warns that:

One cannot focus solely upon individual activities without falling into a subjectivist account of meaning that is ultimately inadequate ... one must look as well to the background knowledge that individual participants rely upon to accomplish their activities ... (such) knowledge, while it may be typically assumed as given by participants, cannot be so assumed by an investigator, but must become a focus for analysis.

Imershein (1976, p. 16)

The 'focus' that Imershein indicates here must lie within the context of group members' everyday usage, for it is in this way that one can understand the relationship between knowledge and behaviour. What he is inferring is that usage and meaning are closely related as long as an explanation of such a relationship is bound to a particular context, one in which participants conduct their ongoing activities. The usual method for such an explanation to be attempted is through what Imershein refers to as an 'exemplar', a central element in his ethnoepistemology. Imershein maintains that exemplars enable a given group to function as a group because these provide the members of the group with concrete models for their activities. Although Imershein points out that rules are components of a paradigm, exemplars are more than rules for they are a 'way of knowing' for members. They indicate to members what is 'proper' for membership of a paradigm or alternatively what is 'improper'.

Although Imershein argues for an epistemological priority of exemplars, he points out two basic assumptions in accepting this as a basis for a research framework. First, he maintains that it must be assumed that 'overarching exemplars' held by all in a culture is not feasible. Rather, investigators should be aware of how knowledge is 'available' to members of a culture by knowing who to ask to find out about

specific details. In effect, specialised knowledge is ‘available’ by knowing those who have been designated certain roles. This is a most important point where the notion of ethnoepistemology is adopted to study organisations. Second, Imershein points out that not all exemplars used by a culture can be given equal status. Some, called by Imershein ‘central concrete exemplars’, can serve as a basis for a broad range of activities and are equally applicable in a range of situations. The acceptance of these assumptions in respect to the notion of an ethnoepistemology does not diminish the importance of the exemplar as a central element. ‘Exemplars’ in the sense outlined by Imershein describe culture as an ideational system where members are at least ‘minimally competent’ in the culture.

This framework is attractive in the USQ context because the driving force for the implementation of online education has been a relatively small group of people and it is their view of what online education entails that this study investigates.

Paradigms and ethnoparadigms

While Imershein acknowledges that some disagreement persists, he believes that ‘exemplars’ form the basis of what constitutes a paradigm. He does admit that other components exist, particularly rules and assumptions, but the exemplar is crucial for the existence of a paradigm. He says being able to recognize particular activities as being part of a set of accepted patterned activities is:

... not a matter of rule following, but of perceptual skills which have been acquired by exposure to certain shared examples. Group members learn to recognize familiar resemblances rather than engage in a deliberative process of applying rules or criteria.

Imershein (1974, p. 27)

It is the role of exemplars that makes Imershein’s framework so attractive for studying change in education, because it is through this concept that it might be shown that there is a relationship between the way academics engage in particular activities and the knowledge structures on which they rely.

Organisational change as paradigm shifts

While Kuhn talks of ‘paradigm shifts’, Imershein focuses on competing paradigms. Imershein also uses the idea that the presence of anomalies (or anomalous activity) directs the particular knowledge community to some form of resolution. This follows Kuhn’s ideas precisely, for he says of anomalous activity in science that:

Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science. It then continues with a more or less extended exploration of the area of anomaly. And it closes only when the paradigm theory has been adjusted so that the anomalous has become the expected.

Kuhn (1970, p. 53)

If a paradigm guides activities along particular directions then

The possibilities of change are directly dependent upon the relation between problems which arise in continued implementation and extension of the paradigm and the resolution or non-resolution of those problems under the guidance of the existing paradigm.

Imershein (1977, pp. 37–8)

These ‘problems which arise’ are what Imershein calls anomalies and are identified by organisational members as ‘violations of expectations’. Imershein maintains that the need for change is perceived by members themselves, because what they are doing is problematic. The identification of anomalies requires an account of the ‘common history’, as far as it is possible to do so, of the organisation’s members who have perceived such anomalies.

In education, the notion of anomalous conditions seems an appropriate indicator of change. A number of studies have adopted Kuhn’s scientific framework to study difficulties associated with organisational change (Cairl & Imershein 1977; Warren, Rose & Bergunder 1974; Alford 1975). However, there are some important differences. Where Kuhn indicates that the basis for differentiating paradigms in scientific communities stems from the way knowledge is used in a ‘systematic manner’ by members to complete their day-to-day tasks, Imershein argues that knowledge use provides members with ways of undertaking organisational tasks and procedures, but adds that it also dictates roles to be enacted in particular settings.

Another difference involves the way anomalies arise. In the scientific community, these tend to result from the discovery by particular members of new ways of thinking about methods of solving particular problems. In organisations, anomalies arise when members of an organisation endeavour to implement change that has been developed by some central body of the organisation. This difference, while perfectly admissible, presents particular difficulties for researchers wishing to use Imershein’s framework. This comes about in Imershein’s use of terms to describe the existence of competing paradigms, namely ‘reigning paradigm’ and ‘challenging paradigm’. When explaining the existence of anomalies, he seems to refer to the reigning paradigm as the one that members use following the introduction of the change from the central body and the challenging paradigm as the one adopted by members in response to this change. Again there is nothing to prevent Imershein from doing this. However, for researchers using his framework a problem arises in reporting the results of a study for the terms ‘reigning’ and ‘challenging’ have particular connotations and can be confused. The concept of competing paradigms is preferred to reigning and challenging paradigms in the studies by Warren et al. and Alford, and is used in this study.

Conclusion

The framework based on Imershein’s notion of paradigm shift was considered suitable for guiding this study because:

- The USQ environment provided an organisation whose activities are guided by a shared way of knowing derived from a Place-Based Model of education and influenced by the later Mixed-Mode Model.
- The introduction of totally online approaches (the Flexible Delivery Model) into the established environment (paradigm) could be seen as creating anomalous conditions.
- The opportunity existed for the development of new exemplars in teaching/learning practice that in turn may have led to a change in the teaching and learning models used at USQ.

Appendix A Data collection instruments

Appendix A1 Initial staff/student questionnaire

This appendix contains each of the instruments that were used to gather the data. They include:

- the letter accompanying the questionnaire;
- the issues paper; and
- the staff/student survey.

Letter accompanying the questionnaire

Hello _____,

USQ has been commissioned by DETYA (through its Evaluation and Investigations Program) to investigate online teaching and learning in higher education with a view to:

- formulating models of online teaching and learning in higher education which will assist academics and learners function effectively and efficiently in these contexts;
- establishing the extent to which there have been changes in teaching and learning in higher education as a consequence of the adoption of web-based instruction;
- delineating the implications of adopting online approaches in higher education for changing teaching practice; and
- assessing the potential impact of online teaching/learning on the way the sector provides quality education at a distance.

A research team of USQ staff is basing the study on the USQ experience in online teaching and learning and as a result will be sourcing information from those who have participated in some way in the design, development and implementation of online teaching and learning at USQ.

The first phase of the study involves the identification of critical issues in online teaching and learning in higher education as they apply in the USQ context. The research team has established a tentative list of issues derived from the literature and the online teaching experience of several members of the research team.

However, this list needs to be confirmed before the study proceeds to Phase 2.

Such confirmation will involve:

- (a) *An analysis of 'course statistics' available through the Blackboard software used for the design and delivery of online courses at USQ.*
- (b) A survey of selected groups (academic staff, students, administrators) to the list of issues generated by the team thus far. (You have been identified as having knowledge of or involvement in the development and/or implementation of online approaches at USQ).

A brief paper ('Issues Facing Online Teaching and Learning') is attached which lists the issues generated by the research team. It would be appreciated if you would peruse this paper and then respond to the questions, which appear on the attachment titled 'Questions Regarding Issues'. Please record your responses in the space provided after each question. **If there are questions, which you cannot respond to then please leave, them blank.**

Following analysis of the responses it maybe be necessary to seek further clarification by way of 'focus groups' made up of representatives of the groups we have identified (academic staff, students, administrators).

Should we need to do this, it would be appreciated if you could indicate whether you would be available on the attached form titled "Questions Regarding Issues". This would involve no more than 30 minutes of your time.

Thank you for your assistance. Upon completion of the questionnaire, please return your responses by **return email** or via internal mail to (*research assistant*) Distance Education Centre.

Glen Postle
Project Leader

Issues paper

Issues Facing Online Teaching and Learning

ISSUE 1:

Resourcing Online Teaching and Learning

While predominantly anecdotal at this point in time, the experiences of those who teach online (particularly those of teachers of adults in higher education, where 'text transfer' is the dominant form of communication) would seem to imply that teaching online is a very 'labour intensive' activity. Some teachers involved in teaching online have even suggested that teacher-student ratios of 1 : 25-30 appear to represent the limits if we are to capture the potential offered by online approaches in 'personalising teaching and learning'.

Like any 'product', online education is not a cheap alternative if it is done well. The personalisation of education is very resource intensive and it is that personalisation that is seen by the clients of online education as the hallmark of the quality of teaching and learning that they can now access. As Garrison so aptly puts it

In an attempt to reach mass audiences in an open and cost effective manner, distance education may risk the diminution of essential educational processes.
(Garrison 1993: 209)

The major successes of online teaching and learning to this point in time are linked to the improvements made in 'personalising' distance education. Developments that might negate these gains would seem to be a retrograde step. In fact, Mayes & McEndree gets at the crux of this issue when they argue for the work in this area to proceed on the basis that we set out –

... to understand both at what it is that makes the human contribution so enduring and appealing, and also how it is that educational technology can support these elements in the face of growing student numbers and shrinking resources. (Mayes & McEndree 1998: 2)

ISSUE 2:

Coping with Flexibility in Online Teaching and Learning

Initial work on addressing the concept of flexibility in online environments has tended to focus on responding to an apparent mismatch between the flexibility offered by open and distance learning (and now extended by online approaches) and the administrative and

organisational features of institutions that belong to supporting on campus models of teaching and learning.

If we examine the nature of flexibility in online contexts and how it sits within current administrative frameworks we begin to get an idea of some of the existing tensions. Taylor (1996) suggests that as distance education moves towards later generations of delivery the primary benefits for learners are flexibility of access and increased student control over their learning.

In effect, these 'flexible access' technologies have the potential to allow the student to access learning at will, as lifestyle permits... Such flexibility has a major pedagogical benefit — it allows students to progress at their own pace. Thus varying rates of individual progression can be accommodated, unlike typical conventional education practices. (Taylor, 1996: 3)

However, Gellman-Danley & Fetzner (1998) and Berge (1998) identify and assess a range of contextual issues arising from teaching online programs. These authors conclude there is a need to examine current academic, governance, technical, cultural, legal, labour-management and fiscal practices as universities increasingly move to on-line education. The barriers that currently exist in these areas may well impede the realisation of the potential of on-line education.

Paralleling these changes to established teaching/learning practices are pressures to significantly rethink policies and procedures governing the academic management and administration of distance education programs. Moore (1994) suggests that, in higher education, many of the administrative systems were originally designed to service traditional students taught by traditional teachers. He goes on to say:

The barriers impeding the development of distance education are not technological, nor even pedagogical. We have plenty of technology, and we have a fair knowledge about how to use it. The major problems are associated with the organizational change, change of faculty roles, and change in administrative structures. Here we desperately need all the ideas and all the leadership than can be assembled. The starting point is to expose the problems. (Moore, 1994:4)

Even if it is possible for universities to change/modify their administrative structures and procedures to cope with the flexibility inherent in the online environments, is it educationally desirable to go down the path which fails to acknowledge the educational significance and value inherent in utilising learning relationships to facilitate the development of learning networks. It is obvious that by following the commercial line there will be little need to 'learn in groups'. However, the educational benefits, particularly in higher education, may be lost by pursuing this path.

ISSUE 3:

Inclusivity and Online Environment

Cultural Difference

Some writers (Gunawardena and Zittle, 1996) indicate it can be argued that the social equality factor may not extend to participants who are not good writers and who must communicate primarily in text-based formats. There are others who maintain that the very nature of the activities in computer mediated communication contexts (eg. reflections, critiques, debates) are unfamiliar to many who have educational backgrounds and experiences in culturally different settings.

Learning Preferences/Learning Styles

Online approaches as they are currently represented can pose significant problems for some learners who find the environment 'unfriendly'. For example, the use of the term 'lurker' to describe those who do not participate online as frequently as the teacher would like, does not acknowledge the fact that there are those who prefer to work more independently. The fact that text transfer is the dominant form of communication in current online contexts is certainly a problem for those who find reading and writing a more difficult process.

Level of Expertise (novice and expert learners)

A survey of programs that are currently offered online reveals that most are offered at the postgraduate level. At the undergraduate level, there are many more online programs which can be described as 'supplemental/adjunct' or 'mixed mode' programs where online approaches are combined with face to face or traditional distance education programs. Moodie (1998) suggests that the 'online phenomenon' is not for everyone. He maintains that online teaching-learning contexts are appropriate when students possess 'the necessary independent learning skills'. He is clearly of the opinion that mature age students with some successful study behind them and work experience are more able to benefit from 'e-learning'.

CONCLUSION

It is possible to claim that online education has already made its presence felt in higher education and offers obvious advantages to those who, through situation or circumstance, choose to study at a distance. Some of these advantages include:

- the opportunity for students to study and interact with others from different cultures and backgrounds;
- the ability to participate in teaching/learning experiences which promote the highest ideals of higher education (open & distance learning is now not necessarily an inferior experience to face to face);
- the opportunity to experience the benefits that quality interaction brings to teaching and learning (enhanced social presence, more personalised teaching methods, access to rapid and personalised feedback); and

- opportunities for contact with ‘experts’ in other countries (by way of collaboration ventures between institutions or guest appearances in courses).

However, in order to capitalise on what has been started and to further establish online education as a key element in higher education, we will need to be wary of how we approach the following propositions that:

- online approaches are an inexpensive way to offer courses to large numbers of students;
- online approaches are appropriate for ‘novice’ learners; and
- capitalising on the flexibility offered by online education can be achieved by changing administrative and organisational structures, policies and procedures.

Staff/student Survey

Name:

Available for follow up discussion

Yes

No

QUESTIONS REGARDING ISSUES

1. Is the description of each issue clear and sufficient?

2. Do you believe these to be significant issues in terms of their current and future impact on the development of online teaching and learning? Why? Why not?

3. Are there other issues that you believe to be as important or more important than any of those listed? If so, please list them and provide a reason why they should be included.

Appendix A2 Experienced online teacher questionnaire

This appendix contains each of the instruments that were used to gather the data. They include:

- the letter accompanying the questionnaire; and
- the staff survey

Letter accompanying the questionnaire

Dear

As you may/will be aware, the Federal Government through its Department of DEST have commissioned USQ to undertake an EIP (Evaluations and Investigations Programme) in the area of online teaching and learning in higher education. The focus for the study is concerned with an analysis and investigation of what is happening at USQ in terms of the design and delivery of education, which is **totally online**.

We are interested in getting a better understanding of how teachers who have had considerable experience in working in totally online contexts have approached issues surrounding teaching and learning in such contexts. You have been identified as a staff member in USQ who has had experience teaching in the area. We believe you have information, which is valuable for the success of this project. We have chosen not to structure the survey in a way that would have you “tick boxes”. While that may be more economical in terms of time for both collecting and analysing data, it has the potential to miss important ideas and issues, which the team needs from people such as you.

We realise that the completion of the survey may take a little time, but we are anxious that you are given the opportunity among other things to:

- tell us how you have made the transition to online teaching;
- dealt with the issues and concerns you have faced in making the transition;
- explain how you work with your students;
- indicate what you know and think about online teaching and learning.

Because it is a relatively new area there is a dearth of substantive theory and principles on which to base future developments in the area. This study represents a wonderful opportunity for us to gain valuable insights into online teaching and learning and we seek your cooperation in helping us to do this.

We would appreciate it if you could return the questionnaire to me by Monday, 11 March via email or internal mail.

Thank you for your assistance.

Glen Postle (for the EIP Team)

Staff survey

ISSUES IN ONLINE EDUCATION STAFF QUESTIONNAIRE

SECTION 1: BACKGROUND INFORMATION

- Q1 Which USQ online course(s) are you currently teaching?
.....
.....
.....
- Q2 How long have you been teaching at the tertiary level?
.....
- Q3 How long have you been teaching in a tertiary online environment?
.....
- Q4 How long, if at all, have you taught in a tertiary face-to-face environment?
.....
- Q5 How long, if at all, have you taught in a tertiary print-based distance environment?
.....
- Q6 Indicate, by ticking the appropriate box, the type of tertiary teaching in which you have been involved?
- | | |
|---|--------------------------|
| Mostly undergraduate or preservice | <input type="checkbox"/> |
| Mostly postgraduate | <input type="checkbox"/> |
| Roughly similar amounts of involvement in each type | <input type="checkbox"/> |
-

SECTION 2: THE TEACHING AND LEARNING ENVIRONMENT

This section of the questionnaire is concerned with various aspects of what might broadly be viewed as the pedagogy of online education. It is divided into several parts: teachers' philosophies; environmental structure; teachers' roles and responsibilities; interaction; students' experiences; academic support; inclusivity; flexibility; and "virtual behaviour".

Philosophies about Learning and Teaching

The term teacher philosophies is used to refer to the beliefs, values, and epistemologies that might influence the way teachers teach online.

Q1 Do you hold particular philosophies that consciously guide your approach to teaching and learning and, if so, what are they and how are they implemented in your approach to online teaching and learning?

Q2 Are there any barriers to implementing your philosophy of teaching in an online environment and, if so, what are they and what are the effects of these barriers?

Q3 If you answered NO to Q2 above, does the online environment provide opportunities for your teaching and learning philosophy to be more easily put into practice? How? or in what ways?

Q4 Do you have any other comments related to this section of the questionnaire?

Environmental Structure

The term environmental structure is used to refer to the design of the teaching and learning context and the way this is used by teachers and learners.

Q1 In what ways, if any, should course content, its nature and the way it is organised in online courses, differ from other delivery modes?

Q2 During the period that you have been involved in online teaching, in what ways, if any, have you adapted your course learning environment? If you have adapted the environment, please explain the reasons for this.

Q3 What external factors, if any, have influenced the way you have designed your course environment? (For example, the program structure within which the course sits, production processes, software. etc)

Q4 If you were planning to change your course, what would you do and why?

Q5 What features, if any, of the online environment do you find particularly challenging and why?

Q6 What features, if any, of the online environment do you find particularly beneficial and why?

Q7 Do you have any other comments related to this section of the questionnaire?

Teachers' Roles and Responsibilities

This section addresses whether online education is in any way changing the roles and responsibilities of teachers.

Q1 During the period that you have been involved in online teaching, in what ways, if any, has your teaching practice changed? If those practices have changed, indicate why.

Q2 In what ways, if any, has teaching online affected your academic roles and responsibilities?

Q3 What, if any, are the key challenges to teachers' roles and responsibilities associated with online teaching when compared with other delivery modes?

Q4 When compared with other delivery modes, what, if any, are the key responsibilities that online teaching requires with regard to student learning?

Q5 Do you have any other comments related to this section of the questionnaire?

Interaction

This section is concerned with issues to do with student and staff interaction in an online environment.

Q1 Through the opportunities provided by online education for interaction with your students, what, if any, have been the advantages and disadvantages for you as a teacher?

Q2 Through the opportunities provided by online education for interaction between students, what, if any, have been the advantages and disadvantages?

Q3 What factors enhance or hinder interaction and the quality of that interaction in online contexts? Please give examples.

Q4 Do you have any other comments related to this section of the questionnaire?

Student Experiences

This section is designed to tap teachers' perceptions of students' online experiences.

Q1 With regard to those students who appear to be responding favourably to online education, what do you believe are the reasons for this?

Q2 With regard to those students who appear to be responding unfavourably to online education, what do you believe are the reasons for this?

Q3 To what extent, if any, do you take account of different student learning preferences in your online teaching? Explain how you do this.

Q4 To what extent, if any, do you take account of the diversity of student cultures in your online teaching? Explain how you do this.

Q5 Do you have any other comments related to this section of the questionnaire?

Teaching and Learning Support

This section refers to issues related to support (such as academic and technology skills) that might be required for teachers and students to teach or learn in an online environment.

Q1 What skills, if any, does a NEW online teacher need to effectively teach on line? What might be done to provide these skills?

Q2 What skills, if any, do you as a teacher need to effectively teach on line? Do you currently have these skills? If so, how did you acquire them? If you do not have them, what might be done to assist you?

Q3 What skills, if any, do students NEW to online education need to effectively learn on line? In your opinion, do the majority of these students have these skills? If not, what might be done to assist them?

Q4 What skills, if any, do more experienced students need to effectively learn on line? Do they currently have these skills? If they do not have them, what might be done to assist them?

Q5 Do you have any other comments related to this section of the questionnaire?

Inclusivity

This section refers to the way the online environment can provide, or not provide, access to and participation in educational opportunities.

Q1 Do you think online approaches are appropriate for all learners across all disciplines? Please elaborate on your answer..

Q2 Do you think online approaches are appropriate for all groups (for example those differentiated by gender, age, ethnicity, disability)? Please elaborate on your answer.

Q3 Do you think online approaches are appropriate for all academic levels (eg, undergraduate and postgraduate)? Please elaborate on your answer.

Q4 Does the on-line environment influence the way you cater for individual and group differences (for example, students with differing levels of academic expertise, students from diverse cultural backgrounds, students with a range of learning preferences)? Please elaborate on your answer.

Q5 Do you have any other comments related to this section of the questionnaire?

Flexibility

This section refers to the way the online environment can provide, or not provide, flexibility in approaches to learning.

Q1 The Faculty of Education has adopted a fairly flexible approach to teaching and learning online. For example, there is a reasonable degree of flexibility in the timing of student entry and progression in courses. To what extent, if at all, has this impacted on your approaches to teaching online?

Q2 To what extent, and in what ways, if at all, do you try to be flexible with students online?

Q3 Does online teaching offer more or less flexibility compared with (a) traditional print based distance education and (b) face-to-face education? Please elaborate.

Q4 To what extent does the online platform allow you, if at all, to implement your preferred teaching strategies? Please elaborate.

Q5 Do you have any other comments related to this section of the questionnaire?

Virtual Behaviour

This section refers to the way the online environment may have contributed to changes in the way teachers teach and learners learn.

Q1 In what ways, if any, has your teaching practice changed by teaching in the online environment?

Q2 In what ways, if any, has the practices and expectations of your students changed by learning in the online environment?

Q3 Do you have any other comments related to this section of the questionnaire?

SECTION 3: ETHICS IN AN ONLINE CONTEXT

This section is concerned with various aspects of ethical behaviour that might emerge with online education.

Q1 What, if any, issues of “netiquette” have emerged during your time teaching online? How have you addressed them?

Q2 What, if any, issues of “plagiarism” have emerged during your time teaching online? How have you addressed them?

Q3 What, if any, issues of confidentiality or unauthorized access have emerged during your time teaching online? How have you addressed them?

Q4 Do you have any other comments related to this section of the questionnaire?

SECTION 4: OTHER COMMENTS

Q1 Do you have any other comments related to this questionnaire?

Appendix A3 Faculty questionnaire

This appendix contains each of the instruments that were used to gather the data. They include:

- The letter accompanying the questionnaire
- Staff survey

Letter accompanying the questionnaire

Dear ,

Glen Postle and I are in the process of completing the data collection for the DEST Evaluation and Investigations Program study into *Online Teaching and Learning in Higher Education*.

We have at the beginning of this study sought input from outside the Faculty of Education but most of the data collection, as DEST knows is focused within education. We would, however, like to ask a few very simple open-ended questions of targeted staff in the other Faculties to widen the discipline base of the study.

Your name has been supplied by your Dean as one who might be interested in responding to a **brief survey** (should take no longer than 15 minutes to complete). Could you let me know as soon as possible if you are willing to complete the survey and we will forward it to you?

Regards,

Andrew Sturman

Glen Postle

Robyn Davies

Research Assistant

EIP Project

davies@usq.edu.au

X2060

Faculty questionnaire

Questions

1. In your opinion, are there any discipline specific factors that either encourage or discourage the use of on-line education in your Faculty?
2. Could you suggest what you consider to be the major differences in teaching on-line compared with teaching in other modes of delivery with which you have experience.
3. What do you consider to be the major advantages that online education provides?
4. What do you consider to be the major disadvantages of online education?

Appendix A4 Senior administrators – interview schedule

This appendix contains each of the instruments that were used to gather the data. They include:

- the letter requesting an interview; and
- the interview questions.

Letter requesting an interview

Dear ,

We believe it is essential for the EIP project to get what might be called a more global perspective on where on-line education is heading worldwide and specifically where it may be heading at USQ over the next few years. I realise that we may already have some of this knowledge, but we think it would be remiss if we did not have the opportunity to spend a short amount of time talking to the senior administrators such as yourself who have such an important role in these matters.

Would you be willing to give half an hour of your time to provide your perspective on these issues. If so, Robyn Davies our research assistant will contact your secretary to arrange a convenient time.

Regards,

Andrew Sturman

Glen Postle

Robyn Davies

Research Assistant
EIP Project
davies@usq.edu.au
x2060

Interview schedule

- | | |
|----------------------|--|
| 1. Future Directions | What is the future of online education? At USQ? In higher education? |
| 2. Current Situation | Where would you place USQ in terms of what it's done in the development of online education? What's gone well? What were the problems? |
| 3. USQ Development | What needs to be done at USQ to develop further the online are? (In your faculty? In your sphere of influence?) |
| 4. Vision | What is your vision for online at USQ? Where will we be in 5–10 years? |

Appendix B Course elements

This appendix contains the descriptions for all elements of the learning management system.

Table B1 Key map for staff/student course elements

AGA	Access Group Assessment	Where students work as a group and receive a grade for an assessment item, they can get access to the grade for group members.
Ass	Assessment	This directs students directly to assessment details – assessment items, marking guides, weighting and any specific guidelines.
CG	Check Grade	Students can check grades given for all assessment items - they can access their grades only.
DB	Discussion Board	Site where asynchronous discussion for whole group takes place. Teacher is the only one who can write the forums and can control the options (eg editing, anonymous submissions, removing items). Students can visit this site to read only, initiate a new thread in a forum or respond to an editing message.
EH	Edit Homepages	Sites where student can go to create/update homepages.
GH	Group Pages	Teacher is the only member of the whole group who can create or modify a group. When groups are created, only those who are members can access the group. Groups have access to their own Discussion Board Virtual Classroom, Email and File Transfer facility.
GVC	Group Virtual Chat	Site within the Group Pages where students who are members of the group can use a Virtual Classroom. All facilities available in the main Virtual Classroom are available in the Group Virtual chat facility. Students can organise their own chats and all chat sessions are archived.
MP	Main Page	When students log on to the site, the first screen is the main page, which displays current announcements and all navigation buttons.
PM	Post Messages	When students visit the Discussion Board, they are able to 'start a new theme' within a forum and/or respond to messages already in forums within the Discussion Board. These are recorded as messages that have been posted.

Sch	Search	This facility provides opportunities for course participants to locate information quickly about course documents, staff information, assignments, external folio, course information.
SE	Send Email(s)	Students have the facility to send emails to the teacher/s, individual students, groups of students or the whole class group.
SFG	Send File to Group	This facility within Group Pages, allows students assigned to a group to transfer files.
StI	Staff Information	Site containing information about staff members. This usually consists of brief CV outlining current teaching/research interests. The location for staff homepages are usually located with staff information.
SH	Student Homepages	Site where students can provide personal and professional information. A structure for the homepage is provided for the sake on consistency.
ST	Student Tools	Student tools is a site where students can go to send and receive assignments (Student Drop Box), edit their homepage, change personal information, check their grade, use the student calendar or access the student manual.
SM	Study Material	Site where students can access course study notes, readings & assessment details. Access is through a study schedule which has a week by week outline of topics, readings, due dates for assessment etc. All key reading are hotlinked.
SI	Subject Introduction	Subject Introduction is a site where students can find information about the structure of the course and content of the course. In some instances this is supplied in multimedia format.
VCA	Virtual Chat Archives	All discussion (text) is archived by date. There are archive facilities in the main Virtual Classroom or in the Virtual Classroom within the Group Pages.
VCR	Virtual Chat Room	In the Communication Centre, students can arrive both synchronous and asynchronous communication. The Virtual Classroom contains an instructive whiteboard while discussion is carried out by text transfer.
TAH	Total Action Hits	Teachers/students can link the internal and external sites, study materials and can use PowerPoint slide facilities. All discussion is archived.

Appendix C Data collected

This appendix contains the actual data collected through an analysis of the course statistics. This includes:

- Table C1: Teacher engagement with all elements of the learning management system for each course.
- Table C2–C9: Student engagement with all elements of the learning management system for each course.

Table C1 Teacher engagement with all elements of the learning management system for each course

	AGA	Ass	CG	DB	EH	GH	GVC	MP	PM	Sch	SE	Stl	SH	SR	ST	SM	SI	VCA	VCR	Total
Eval-1	–	9	–	133	–	–	–	61	38	–	–	–	–	–	–	14	2	–	7	264
TEAC-2	98	44	–	1246	1	95	15	596	271	–	48	4	16	3	5	97	28	4	51	2622
FLEX-3	1	10	2	445	–	3	–	50	116	–	–	1	3	1	1	18	6	–	–	657
GRAD-4	–	3	–	484	–	2	–	384	49	–	–	5	7	16	2	46	9	–	–	1007
WEBD-5	4	28	1	851	10	14	–	801	65	9	7	50	97	10	23	46	12	57	3	2088
PROJ-6	–	1	–	94	–	–	–	242	17	–	7	2	–	9	–	4	1	–	–	378
DSGN-7	5	9	–	425	1	14	–	479	192	11	–	22	1	7	7	96	15	–	–	1827
MULT-8	138	10	–	627	–	135	–	360	42	–	46	5	8	7	3	9	2	–	1	1393
Total	246	126	3	4836	12	263	15	2973	790	20	108	89	132	54	41	330	75	61	62	10236

Note: Refer to Appendix B for the description for all elements of the learning management system.

Missing data is represented by ‘–’

Table C2 Student engagement with all elements of the learning management system for EVAL-1

Student	Gender	Age	Country of birth	Participation type	DB	PM	SM	Total interaction (hits)	Grade
2	F	48	WA	Proactive	85	8	35	290	B
5	F	33	Malaysia		128	5	47	544	B
8	F	49	Vic		105	8	20	410	A
3	F	50	SA	Parsimonious	15	1	14	152	B
4	F	53	USA		21	1	38	169	A
10	F	28	Aust		18	2	26	126	A
1	F	41	NT	Peripheral	21	2	10	139	B
6	F	33	Malaysia		37	1	21	268	C
7	F	50	Qld		34	1	37	179	I DM
9	M	52	Qld		22	3	55	272	C
11	M	42	Aust		29	2	19	118	I DM
Total					515	34	322	2667	
Average					46.82	3.09	29.27	242.45	
Average (M)					25.50	2.50	37.00	253	
Average (F)					51.56	3.22	27.56	195	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials

Table C3 Student engagement with all elements of the learning management system for TEAC-2

Student	Gender	Age	Country of origin	Participation type	DB	PM	SM	Total interaction (hits)	Grade
12	F	41	UK	Proactive	96	35	36	404	C
13	F	44	NSW		126	21	30	410	B
18	F	38	Canada		102	28	49	349	B
21	F	48	UAE		136	30	39	492	B
22	F	37	Qld		321	20	34	951	A
43	F	44	NSW		141	19	47	554	A
6	M	29	Germany		196	20	11	787	A
7	M	57	Canada		523	49	40	1200	B
10	M	39	Colombia		83	30	30	299	B
14	M	46	UAE		325	179	47	992	A
16	M	43	Japan		93	24	87	476	A
35	M	43	NSW		184	26	44	652	B
38	M	50	New Zealand		267	23	30	817	HD
42	M	41	Qld		105	31	22	521	B
2	F	41	NSW	Parsimonious	31	6	13	203	B
5	F	52	Vic		81	6	33	411	B
8	F	37	Qld		10	4	3	25	IDM
25	F	55	UAE		30	3	48	268	IDM
28	F	29	Malaysia		39	7	16	169	C
31	F	29	Philippines		86	4	25	293	IDM
40	F	44	Vic		36	5	81	310	IDM
44	F	22	Qld		12	3	26	111	IDM
4	F	0	Tas		16	3	45	52	F
23	M	43	Act		20	3	4	28	IDM
27	M	36	UK		-	-	14	91	IDM
30	M	34	Malaysia		23	1	26	343	IDM
34	M	28	USA		40	4	27	235	B
37	M	43	New Zealand		33	8	23	383	B
39	M	39	Qld	42	6	60	153	B	
1	F	49	Scotland	Peripheral	153	14	28	759	A
3	F	25	Qld		80	13	28	401	A
11	F	49	UAE		191	17	26	532	B
15	F	56	Japan		182	12	33	648	B
20	F	33	Malaysia		113	8	47	720	B
24	F	46	UAE		180	8	32	729	C
29	F	41	Vic		83	15	29	406	HD
36	F	31	Hong Kong		142	13	34	700	A
41	F	31	Qld		81	17	33	376	B
33	F	0	Qld		250	9	49	324	B
9	M	32	Vietnam		81	9	16	1019	A
17	M	43	UAE		218	17	78	407	A
19	M	43	England		185	16	45	265	A
26	M	35	Vic		57	16	16	552	A
32	M	30	Scotland	131	14	26	581	B	
Total					5324	796	1510	20398	
Average					121.00	18.09	34.32	463.59	
Average (M)					137.16	25.05	34.00	497.00	
Average (F)					108.72	12.80	34.56	438.20	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials
Missing data is represented by ‘-’

Table C4 Student engagement with all elements of the learning management system for FLEX-3

Student	Gender	Age	Country of birth	Participation type	DB	PM	SM	Total interaction (hits)	Grade
8	F	0	WA	Proactive	124	29	21	156	A
12	F	0	Qld		73	16	20	545	A
19	F	37	Qld		36	29	14	333	HD
30	F	24	Canada		116	11	41	265	C
32	F	40	Qld		129	17	24	476	A
38	F	35	Scotland		61	11	36	297	B
41	F	40	Act		120	16	29	299	B
1	M	52	Qld		233	13	29	553	C
3	M	32	Portugal		70	15	30	207	C
6	M	48	H/Kong		592	120	14	1205	A
7	M	43	Qld	94	13	55	481	HD	
13	M	51	Vic	34	19	13	179	HD	
14	M	42	Qld	200	12	32	627	B	
17	M	35	Qld	43	14	41	241	B	
25	M	55	Canada	78	24	6	195	HD	
29	M	46	UK	119	24	21	294	C	
11	F	44	USA	Pasimonious	21	3	12	100	F
15	F	52	Qld		40	2	3	146	HD
21	F	52	Macau		52	3	15	157	B
22	F	31	UAE		11	3	4	39	F
23	F	0	Kenya		12	1	18	180	F
40	F	46	Qld		37	1	18	159	A
43	F	44	Scotland		57	1	10	71	F
44	F	54	NSW		19	2	8	91	F
2	M	43	NT		39	3	15	147	A
4	M	28	Korea		21	4	24	264	B
9	M	42	USA	20	4	7	124	B	
16	M	0	NSW	44	3	37	182	A	
18	M	25	Malaysia	50	4	10	249	F	
26	M	35	Brunei	45	2	28	211	HD	
27	M	48	Sth Korea	20	1	43	22	C	
28	M	36	USA	3	–	11	227	F	
31	M	55	UAE	43	2	29	71	HD	
33	M	0	NSW	32	2	58	192	B	
35	M	25	NSW	15	2	7	96	F	
37	M	48	Korea	52	2	6	79	A	
39	M	38	Qld	22	3	6	261	F	
45	M	40	NSW	4	–	8	282	B	
10	F	29	Qld	Peripheral	20	8	43	180	F
36	F	52	UAE		66	6	39	257	B
42	F	51	UK		83	7	28	247	F
5	M	40	UK		85	9	12	202	C
20	M	47	UAE		18	12	13	193	B
24	M	54	Qld		47	8	22	289	B
34	M	34	Greece		83	7	40	369	HD
Total						3183	488	1000	11440
Average					70.73	10.84	22.22	254.22	
Average (M)					78.00	11.93	22.85	275.63	
Average (F)					59.83	9.22	21.28	222.11	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials
Missing data is represented by '–'

Table C5 Student engagement with all elements of the learning management system for GRAD-4

Student	Gender	Age	Country of origin	Participation type	DB	PM	SM	Total interaction (hits)	Grade
3	F	39	UAE	Proactive	184	34	17	410	HD
12	F	43	Qld		289	32	18	786	HD
1	M	27	Malaysia		192	33	35	609	HD
5	M	38	UAE		74	29	24	231	HD
7	M	52	Korea		247	28	25	499	HD
10	M	43	UAE		258	32	21	599	HD
13	M	0	Act		149	24	36	241	HD
16	M	37	Hong Kong		93	26	9	968	HD
18	M	65	Qld		518	64	7	405	A
8	F	33	Malaysia	Pasimonious	61	5	20	308	A
11	F	23	Singapore		82	5	22	385	A
6	F	32	UAE	Peripheral	179	22	17	372	I DM
14	F	32	Qld		140	16	38	403	HD
17	F	39	Barbados		255	16	19	446	I DM
2	M	34	UAE		63	15	5	303	A
4	M	46	Japan		84	23	17	272	HD
9	M	46	NSW		92	13	24	244	A
15	M	30	NSW		77	15	15	274	HD
Total					3037	432	369	7755	
Average					168.72	24.00	20.50	430.83	
Average (M)					167.91	27.45	19.82	422.27	
Average (F)					170.00	18.57	21.57	444.29	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials

Table C6 Student engagement with all elements of the learning management system for WEBD-5

Student	Gender	Age	Country of origin	Participation type	DB	PM	SM	Total interaction (hits)	Grade	
5	F	–	Qld	Proactive	88	21	30	420	HD	
6	F	25	NSW		160	38	49	538	HD	
7	F	46	NSW		130	42	27	458	HD	
10	F	27	Singapore		135	87	35	463	A	
16	F	36	NSW		236	39	22	774	HD	
23	F	–	Oman		56	21	24	249	HD	
26	F	50	Oman		82	29	19	324	B	
30	F	46	UAE		210	20	59	719	A	
32	F	47	NSW		281	25	55	818	A	
35	F	59	USA		118	18	44	652	C	
49	F	49	Qld		73	23	32	359	A	
56	F	36	Qld		132	22	21	533	A	
59	F	29	Tas		95	21	17	437	A	
60	F	37	Japan		126	20	31	431	A	
1	M	–	Vietnam		239	35	19	742	A	
12	M	32	UAE		117	29	19	404	A	
13	M	38	Japan		132	19	16	434	IDM	
27	M	40	UK		72	20	15	323	A	
34	M	43	Qld		716	93	74	1891	HD	
36	M	40	Korea		103	23	28	436	A	
38	M	32	Korea	315	44	60	888	HD		
43	M	43	UAE	73	22	28	397	–		
48	M	37	Qld	48	20	14	210	A		
58	M	43	NSW	53	26	36	334	A		
62	M	–	Korea	62	39	23	307	HD		
63	M	48	Tolga	74	22	21	274	A		
65	M	43	Qld	185	22	21	397	A		
67	M	0	NSW	257	37	10	535	A		
3	F	29	Qld	Parsimonious	29	2	17	246	A	
8	F	58	Qld		1	1	6	18	IDM	
9	F	42	USA		24	6	6	171	A	
29	F	47	Vic		44	4	47	385	A	
33	F	28	Tas		27	6	34	334	A	
54	F	54	Qld		17	9	28	168	A	
69	F	51	Qld		2	–	9	54	B	
71	F	–	Qld		–	–	–	0	IDM	
11	M	49	NSW		61	4	25	298	IDM	
22	M	32	Belgium		20	6	24	204	A	
25	M	30	UAE		6	2	4	35	A	
46	M	38	Qld		23	6	11	126	A	
50	M	50	WA		71	4	16	295	C	
51	M	48	Malaysia		14	2	8	165	F	
55	M	30	UAE		–	–	4	9	IDM	
64	M	55	Qld		20	7	8	172	A	
68	M	–	Hong Kong		26	6	11	117	IDM	
2	F	38	Hong Kong		Peripheral	60	6	24	358	IDM
4	F	–	NSW			72	8	32	257	–
14	F	35	NSW			35	15	12	168	B
15	F	36	Canada	70		8	39	290	A	
17	F	33	UAE	44		11	30	215	B	
18	F	44	Vic	117		9	16	396	IDM	
24	F	47	WA	112		16	18	593	B	
28	F	23	UAE	106		11	30	345	B	
31	F	46	Korea	166		16	8	621	B	
37	F	45	Vic	31		21	20	166	–	
40	F	41	Qld	64		12	21	328	A	

53	F	44	Vic	341	9	15	746	B
61	F	40	Qld	43	14	18	257	HD
66	F	0	Qld	43	17	23	356	A
70	F	22	UAE	47	14	10	243	A
19	M	38	UK	93	17	19	317	HD
20	M	48	Qld	113	14	17	380	IDM
21	M	28	UAE	66	13	18	206	A
39	M	38	Macau	42	14	15	222	A
41	M	25	Qld	66	9	24	234	IDM
42	M	31	Canada	128	16	69	446	HD
44	M	32	UAE	26	17	19	157	A
45	M	44	Sth Korea	36	12	34	219	A
47	M	43	UAE	31	9	50	205	IDM
52	M	0	Japan	83	13	13	336	A
57	M	38	Qld	144	11	25	397	A
Total				6932	1274	1726	25605	
Average				97.63	17.94	24.31	366.23	
Average (M)				103.38	18.62	23.47	281.79	
Average (F)				92.35	17.32	25.08	443.81	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials
 Missing data is represented by ‘-’

Table C7 Student engagement with all elements of the learning management system for PROJ-6

Student	Gender	Age	Country of origin	Participation type	DB	PM	SM	Total interaction (hits)	Grade
8	F	50	Canada	Proactive	132	11	4	412	HD
1	M	44	NSW		61	11	1	210	A
4	M	43	Qld		134	6	1	269	HD
6	M	41	Canada		73	10	1	281	HD
2	F	47	Canada	Pasimonious	50	2	1	103	IDM
3	F	47	Canada		26	6	2	72	IDM
9	F	42	UAE		25	1	7	106	B
5	M	47	Qld		1	-	-	12	A
7	F	49	NSW	Peripheral	41	8	3	266	A
10	M	65	Qld		81	5	2	267	B
Total					624	60	22	1998	
Average					62.40	6.00	2.20	199.80	
Average (M)					54.80	5.60	3.40	207.80	
Average (F)					70.00	6.40	1.00	191.80	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials
Missing data is represented by '-'

Table C8 Student engagement with all elements of the learning management system for DESGN-7

Student	Gender	Age	Country of birth	Participation type	DB	PM	SM	Total interaction (hits)	Grade
3	F	46	Qld	Proactive	140	23	39	339	B
4	F	48	Japan		187	20	29	371	A
9	F	44	UAE		260	20	70	610	HD
11	F	50	Oman		65	18	44	263	A
24	F	30	USA		79	16	25	192	B
32	F	52	Vic		486	52	61	979	HD
35	F	35	PNG		124	15	27	307	B
39	F	42	NSW		100	23	37	371	A
43	F	42	Malaysia		152	24	70	558	C
53	F	43	UAE		235	39	59	531	B
13	M	51	NSW		60	17	20	207	A
34	M	51	UAE		171	47	17	391	IDM
37	M	59	UAE		180	40	29	474	IDM
57	M	24	Qld		96	19	71	284	A
1	F	50	NSW	Pasimonious	16	8	21	102	B
10	F	29	Qld		32	4	50	213	B
22	F	28	Vic		25	6	25	107	F
27	F	0	Qld		30	5	32	141	IDM
41	F	26	Qld		28	1	19	87	A
48	F	54	Tas		26	5	38	161	A
50	F	53	NSW		21	3	19	77	F
51	F	50	Qld		39	2	40	161	IDM
54	F	0	Qld		31	4	26	104	A
7	M	36	Canada		52	3	42	268	B
16	M	27	Qld		16	3	24	104	F
25	M	35	SA		43	6	26	185	A
38	M	43	St Korea		23	7	71	221	IDM
40	M	25	Qld		37	4	30	198	B
47	M	46	H/ Kong		15	1	73	218	F
2	F	53	NSW	Peripheral	33	6	18	101	A

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6	F	44	UAE	148	10	19	310	A
8	F	42	Barbados	45	11	37	148	IDM
12	F	24	ACT	56	10	47	242	A
14	F	36	NSW	40	10	46	252	A
15	F	30	Qld	81	5	77	336	A
18	F	47	Vic	39	8	56	347	A
19	F	38	NSW	95	10	45	290	A
20	F	46	USA	154	9	45	493	C
23	F	40	Qld	77	6	82	425	A
28	F	0	NSW	65	12	32	277	A
30	F	41	Vic	49	6	34	205	HD
42	F	43	Scotland	47	14	14	129	F
44	F	40	Malaysia	147	10	57	482	B
45	F	41	Qld	91	6	29	268	C
46	F	0	Qld	95	6	52	283	HD
52	F	44	NSW	29	18	21	133	A
5	M	47	Qld	44	10	23	190	A
17	M	47	Sa	55	12	33	171	HD
21	M	28	WA	115	8	63	576	B
26	M	44	Qld	174	11	69	568	HD
29	M	40	WA	75	10	44	256	B
31	M	54	Qld	56	9	38	381	B
33	M	48	Canada	97	7	22	322	C
36	M	41	Mexico	99	11	40	274	A
49	M	38	Japan	61	5	9	142	F
55	M	53	USA	60	14	8	119	A
56	M	26	Fiji	48	8	33	198	F
Total				4944	697	2227	16142	
Average				86.74	12.23	39.07	283.19	
Average (M)				75.10	12.00	37.38	273.67	
Average (F)				93.53	12.36	40.06	288.75	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials

Table C9 Student engagement with all elements of the learning management system for MULT-8

Student	Gender	Age	Country of origin	Participation type	DB	PM	SM	Total interaction (hits)	Grade	
4	F	39	Singapore	Proactive	133	37	20	454	B	
7	F	39	UAE		262	54	21	706	B	
10	F	40	Qld		138	25	19	391	HD	
12	F	44	NSW		318	48	40	938	B	
22	F	42	Qld		96	37	25	451	A	
26	F	44	UAE		185	35	12	513	B	
31	F	53	USA		160	51	16	562	C	
32	F	38	Canada		83	29	31	313	B	
34	F	46	Scotland		598	35	24	1370	C	
36	F	48	SA		214	50	35	671	A	
37	F	24	ACT		99	30	31	366	A	
42	F	48	NSW		97	26	31	365	B	
43	F	27	Qld		160	25	27	444	B	
46	F	43	UAE		290	40	31	726	HD	
47	F	49	Qld		167	28	17	423	A	
48	F	48	Qld		106	24	15	384	B	
57	F	39	Qld		66	44	12	247	HD	
58	F	31	Qld		65	34	30	303	B	
59	F	25	Qld		90	35	15	252		
3	M	34	UAE		114	31	5	511	B	
9	M	51	Qld		153	25	26	509	B	
11	M	30	Qld		84	25	20	395	B	
14	M	34	Hong Kong		183	32	15	392	B	
20	M	39	Colombia		112	37	19	394	B	
23	M	46	UAE		122	61	27	466	HD	
24	M	28	Hong Kong		147	36	19	575	B	
33	M	49	Taiwan		69	28	18	325	B	
56	M	55	Singapore		316	27	20	827	B	
15	F	50	SA		Parsimonious	57	5	8	191	B
19	F	31	Qld			15	16	11	110	A
52	F	26	Qld			3	2	7	50	B
1	M	54	Qld		9	–	7	99	C	
8	M	42	Qld		26	9	9	144	B	
17	M	43	Portugal		28	5	6	192	B	
29	M	51	Oman	6	4	6	62	F		
30	M	43	Singapore	18	6	2	55	HD		
40	M	30	Hong Kong	13	–	22	213	F		
41	M	46	Qld	40	7	7	124	A		
2	F	41	WA	Peripheral	49	12	17	228	B	
6	F	44	Qld		141	2	11	371	HD	
16	F	33	Singapore		141	21	38	365	C	
38	F	0	NSW		160	17	16	446	B	
44	F	38	Qld		58	12	7	194	B	
45	F	40	New Zealand		125	21	11	285	B	
50	F	43	Qld		35	12	4	126	B	
5	M	33	Qld		74	10	24	374	C	
13	M	0	Japan		71	12	23	261	B	
18	M	49	UAE		69	25	23	356	B	
21	M	46	Japan		72	18	13	297	A	
25	M	51	Singapore		82	19	17	230	A	
27	M	38	UAE		95	15	31	412	B	

28	M	32	UAE	96	11	11	402	B
35	M	51	VIC	32	15	11	112	HD
39	M	41	Spain	123	16	34	396	C
49	M	45	Qld	25	18	6	125	F
51	M	48	Korea	92	18	21	301	F
53	M	52	Canada	51	26	33	226	B
54	M	55	UAE	62	21	6	249	A
Total				4944	697	2227	16142	
Average				86.74	12.23	39.07	283.19	
Average (M)				75.10	12.00	37.38	273.67	
Average (F)				93.53	12.36	40.06	288.75	

Note: DB = Discussion Board, PM = Post Message, SM = Study Materials

Missing data is represented by ‘-’

Appendix D Raw data collected

This appendix on the attached CD, contains the raw data collected via course statistics, questionnaires and interview. This includes:

- Appendix D1: Student statistics for each course for all course elements.
- Appendix D2: Teacher statistics for all courses for all course elements.
- Appendix D3: Initial staff questionnaire data.
- Appendix D4: Initial student questionnaire data.
- Appendix D5: Experienced online teacher data.
- Appendix D6: Online teacher (Faculty) data.
- Appendix D7: Senior administrators interview data.
- Appendix D8: Staff participation on the Blackboard platform by each course: accessed over the semester.
- Appendix D9: Staff participation on the Blackboard platform by each course: accessed by day of the week
- Appendix D10: Staff participation on the Blackboard platform by each course: accessed by hour of the day.
- Appendix D11: Student participation on the Blackboard platform by each course: accessed over the semester.
- Appendix D12: Student participation on the Blackboard platform by each course: accessed by day of the week
- Appendix D13: Student participation on the Blackboard platform by each course: accessed by hour of the day.

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