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Chapter 6

E learning: Issues of Pedagogy and Practice for the Information Age

Nicola Yelland, Stravroula Tsembas & Lowell Hall

Introduction

It is evident that information and communication technologies (ICT) have transformed our lives and reshaped the nature of everyday activities and contemporary times are often called the 'information age' or the 'knowledge society'. From banking to watching television, from wars to computer games, ordering groceries online and booking holidays, we employ the use of ICT to communicate and facilitate a myriad of pastimes. However, in the educational arena the advent of new technologies seems to have had a minimal impact. Indeed, there are many educators who have attempted to rethink the nature of their work and reconceptualize their curricula and pedagogies in light of the ways in which ICT can enable them to transform their practice. Yet, it is apparent that much of the education sector often seems to be in denial about the relevance of ICT and its implementation in educational contexts is tokenistic and introduced to appease stakeholders who demand access and innovation as their educational right. Clements, Nastasi and Swaminathan (1993) stated a decade ago that we were at a crossroads in terms of our use of computers in education. They noted that we could use them to reinforce existing practice or for catalysing educational innovation. This chapter is about taking the path of innovation. It is about reconceptualizing curricula and pedagogy and about transforming educational practice via the use of ICT in higher education contexts.

E-learning, online learning and flexible options

Taken literally elearning refers to electronic learning and incorporates all learning contexts that use the new technologies. According to Trinity College, Cambridge (<http://www.tcd.ie/CLT/elearning/definition.htm>) elearning can be viewed as 'supporting a learning experience by either developing or applying Information & Communication Technology (ICT)'. It could be contended that one of the primary roles of elearning within the University sector is to enable students to access, investigate, analyse, construct and evaluate concepts and ideas encountered in their courses.

The need for elearning is often justified in terms of the fact that it affords students the opportunity to tailor their own learning experiences in a flexible way and thus the term has been synonymous with flexible delivery of programs and courses in the higher education context. The Australian National Training Authority (ANTA) has defined the terms flexible delivery, online and elearning, and articulated the subtle differences between them. They consider **elearning** to be a broader concept than online learning since it encapsulates electronic devices that are separate and not dependent on being on line. These may include, for example, CD ROMS, the use of video, slides and photographs, which for ANTA may all be used to deliver vocational education and training more flexibly. They also contend that Flexible learning expands choice on what, when, where and how people learn. It supports different styles of learning, including elearning. **Flexible learning** is seen as a philosophy and an approach of which the use of technology is only one of a set of resources that allows for the flexibility to occur. Finally, they regard **Online learning** as a technical term, that encompasses a range of technologies such as the world-wide-web, email, chat, newsgroups, and text, audio and video conferencing delivered over computer networks (local area networks, intranets or the public Internet) to deliver education.

The quest for flexibility of learning has meant that 'both elearning and online learning have become preferred modes since they provide greater opportunities to place students at the centre of the educational decision making process and the learning environment'. Teachers act as facilitators rather than transmitters of content knowledge, and ICT are regarded as resources that enhance the learning experience of students. Flexible learning is provided since learning can occur in multiple settings, which will include on and off campus locations. (<http://www.dsv.su.se/~klas/Learn/Elearning/elearning.html>.)

Education in the information age

The rapid growth in the use of technologies, not only for educational purposes but also for everyday uses in the workplace and in homes has resulted in an increased demand and interest in the use of online technologies for delivering training and educational programs to adult learners. The notion that learning is lifelong, throughout the lifespan, and life wide, occurring in multiple sites, has challenged many organizations and educational institutions to establish programs that meet the needs of a wide variety of adult learners. Policy directives from governments in Australia have advocated a shift in emphasis to multisite learning that incorporates the use of a range of new technologies. This has been evident in documents such as 'Converging Communications and Computer Technologies: Implications for Australia's Future Employment and Skills', National Board of Employment, Education and Training, (1994), and Higher Education at the crossroads, A Review of Australian Higher Education, (2002).

In the last decade the move towards online learning has been gradual. It should have resulted in a range of options for higher education students. New, or modified, programs that are totally online have been adapted from the traditional distance education model offered by distance education providers in Australia. Additionally, on campus programs have incorporated the use of ICT to complement their offerings so that resources and tutorial discussions are readily incorporated into the pedagogy. The emphasis has moved from print based text content, to content or learning materials being provided by technologies usually via the web or on a CD ROM.

In the developed world elearning appears to be here to stay. It has been noted by Segment & Holt (2003, pg 1) for example, that 'to enhance the educational experience of students in higher education it would seem the majority of Australian universities have committed strategically to a greater use of digital technologies and elearning.' The question remains however, that this rush to embrace technology at all costs, has often been made without the input of key educators and is more closely aligned with the new breed of technocrats ways of thinking rather than educationalists who value learning and pedagogy. The introduction and use of technology as a vehicle to promote off campus learning is also viewed to be cheaper in the long term for administrators who have little understanding of the complexities of teaching. Indeed, Segrave & Holt (1999 pg1) supports this premise by arguing that 'broad commitments to flexible delivery, student centered learning approaches and the development of desired attributes of student learning can be found in institutional plans and policies'. However, even though such statements are in place it does not necessarily mean that they are being enacted. It would seem to be the case that teaching and learning has not kept pace with the range and types of technologies that are available in Australian universities. What is missing in the first instance is that important pedagogical discussions have not taken place in the design of online learning modules and consequently many of them have simply been generated by putting old paper based distance education material on the web. In this chapter we will consider the factors that need to be considered when designing for elearning in online contexts and provide an example that manifests specific design principles in action.

We have noted already that the move to embrace elearning has not always been accompanied by new thinking about the pedagogies that might be relevant to new contexts, nor the ways in which the new contexts might change the work of academics and their students. There has been a realisation that this model of learning or way of delivering programs has become more popular for a number of different reasons. Such reasons were based on the belief that they might bring about improved access for students who previously could not attend higher education institutions. The institutions themselves considered that there would be associated financial advantages from the shift to online learning, and it was also believed that the new mode would result in increased flexibility for the learner as well as the organizations.

The re-invention of academic staff

With educational reform come the necessary changes in practice that are enacted in educational sites in a variety of contexts. As discussed, over the short time span in which the use of the World Wide Web has become a ubiquitous aspect of our lives the corresponding development 'pedagogies and practice' have not kept pace with the increase in the amount of information technology available to academic staff and students in the higher education context. Vast amounts of money have been spent upgrading unworkable systems or systems which break down and in the development of key personnel to maintain and run the technological systems. Little or no funds have been placed in the hands of the educators to develop either campus based or online courses, which are innovative and challenging. Indeed, in the case of online courses many academic staff have been languishing in the wake of web based learning tools, which are constantly changing with the need to deliver information to different sectors of the universities. In some instances there are two or three different systems working while the next one is being upgraded and made ready for implementation. Have we lost sight of the reasons for the use of the technology? When is enough technology enough? Collins (2000, pg 2) argues that there is form of culture shock associated with the learning of new technologies by staff in higher education by noting that 'Their discomfort often stems from a fear that they cannot cope with the technical requirements, that they must learn to teach all over again and lose their role as 'dispenser of knowledge' in the course'. In her study Collins found that the academic staff expressed 'grave concern for the quality of on line courses' and 'they fear that nothing that they know has any value any more'. In our own work we have found that there is a genuine fear amongst staff of becoming global and having their courses open to scrutiny from the rest of the world and that we have 'this very homogeneous Web structure' as described by Boyle (2003) which most academics can use, but to varying degrees of ability. Additionally, to move to the next level takes time and is a challenge for many academics who already have increasingly heavy workloads. It might be contended that academics are fearful of the size and sheer complexities of the task and about their lack of knowledge, and their lack of understanding of the pedagogical use in order to develop learning experiences for their students in the information age. This is apparent at a time when, as Turkle (1998) noted:

‘...today's children will grow up with very different feelings and thus be in a different frame of mind when forming relationships with computers. They will be more likely to take the machines 'at interface value', that is, to accept them as dialogue partners, even as companions of a sort'.

Of course it is clear that not all academics are frightened of change and many embrace the use of new technologies in their teaching. However it is possible that differences are a manifestation of the intergenerational differences, which are prevalent in the workforce at the current time. It appears that the lack of confidence with the use of technology for new teaching opportunities would seem to be only

affecting those staff who are older and less computer literate than their younger colleagues. This issue is clearly contentious and problematic and will have interesting outcomes for pedagogies and practice in our higher education institutions. Younger staff are embracing new technologies and view them as a resource that not only saves them time but also enables them to engage students in new and dynamic ways. For example, the introduction of online tutorials and their implications for fundamentally changing the context and form of communication for learners is of significance to the reconceptualizing of new pedagogies of learning.

However, the question remains as to whether academic staff are sufficiently prepared to administer the quality education programs which are required in order to maintain fundamental and practical aspects of pedagogical significance. The solution is simple, yet paradoxically problematic in terms of thinking about the nature of academic work. It requires *time* and academic staff training and collaborations that are multidisciplinary. Further, a careful situational analysis should be undertaken in order to fully understand the potential of the medium and the nature of the learning experiences to be undertaken.

In the process of making the situational analysis a number of serious issues need to be considered.

These include:

- ***Delineating the aims and objectives of the course.*** This will include asking serious questions about the purpose of the online component and the ways in which the design needs to meet the needs of the students.
- ***Interrogating the nature of the content in the course.*** Asking question about the ways in which the new technologies can enhance students' understandings of the content and the processes of inquiry which may lead to new discoveries about the content area. Further questions about how students will demonstrate and communicate what they have discovered will also need to be made and may be considered as assessment items.
- ***Articulating a set of beliefs about learning*** and the ways in which the team believe that students learn best. This discussion will need to consider the social context of learning (Vygotsky, 1978) as well as the broad nature of contemporary society in which the students live and the relevance of schooling. In this way the successful implementation of new technologies in the educative process is relevant to the citizens of tomorrow, because it builds on existing social features in each learning context (Singh, Kell and Pandian, 2002).
- ***Outlining the ways in which the new technologies will be used.*** A consideration of what the design of the (new) course will look like, how it will be able to engage learners, the extent to which interactivity will be established and how communities of practice will be created.

- *Considering how learning will be evaluated.* This will include linking assessment to both course and program aims and objectives and ensuring variety and relevance of assessment across the program and in context of student capabilities.

Such discussion should involve academics, ICT specialists and students. However, in reality academics are often told by administrators to prepare the materials and then the technicians take over and prepare the material for access online or via CD ROMS. In many instances academics are not aware of the potential of the medium for engaging with material in new ways and technicians are not familiar with the content, or are only aware at a simple level, and thus although they may have the technical skills, they are unable to relate it to the relevant content.

In this way academics often feel disempowered in the process and disengage from the process by the time that the material is available for students. Brabazon (2002, pg1) illustrates this in an imaginary teaching scenario for a first online lecture, whereby an academic has posted a message:

'For those with busy lifestyles, you are encouraged to leave the lecture now and buy a long black at the library coffee shop...please do not contact me if you have difficulty logging onto the course. Your access is not my responsibility. So, if this is the last time I see you in the lecture theatre, I thank you for enrolling in ERE 102. I look forward to receiving your e-mails. Have a nice life'.

Brabazon (2002) also insists that students '...demand – alongside internet-based materials – face-to-face contact as central to the course'. She argues that 'teachers may be major losers in the-clichéd-virtual university' when in fact they are the lynchpin to success. She states:

'Teachers, as the group responsible for curriculum, methodology and assessment, are not only 'not unimportant', but absolutely critical to the reputation and success of students and universities'.

Her most important statement however is her explanation of the reason she thinks academic staff are not embracing new technologies. It is because 'Internet-based learning actually increase[s] academic workloads'. Further, she argues strongly that:

'Ironically, at the moment when student-centered learning has become a cliché, students are (overtly) evaluating teachers' abilities'.

This makes staff work harder and often in contradictory directions. However, what it does do is make staff think more about the methods, which they employ to develop student learning in the university sector and it can make them more accountable to students for advanced preparation of material.

New learning, new pedagogies, new literacies

One possible way forward is to reconceptualise the ways in which we view learning and the pedagogies we deploy so that deep learning can occur. New learning (ACDE, 2001) contends that we need new frames of reference for thinking about ways in which learning takes place, and the outcomes of the educational process. New learning was conceptualised around 8 propositions:

1. Education has a much larger role to play in creating society
2. Learning will be lifelong and life wide
3. Education is one of the main ways to deliver the promise of democracy
4. A new basics is emerging
5. Technology will become central to all learning
6. The work of educators will be transformed
7. The place of the public and private in education will be redefined
8. The focus of education policy must change from public cost to public investment

New learning links effectively to the multiliteracies framework (New London Group, 1996) which has as a starting point the ideas “...that knowledge and meaning are historically and socially located and produced, that they are ‘designed’ artefacts” (Cope & Kalantzis 2001, pg 7) This design process comprises of three processes:

- *The designed* – taking the available meaning-making resource and using it
- *Designing* – more than just using existing designs, this process involves the re-presentation and recontextualisation of the material via some sort of transformation
- *The re-designed* – in which a uniquely new resource or design is created

(Cope & Kalantzis, 2001)

Against this frame the pedagogy of multiliteracies (New London Group 1996) was conceptualised. It was centered on four key principles of what a good teaching and learning environment should encompass. Teaching and learning about the design of meaning should include a mix of: (i) Situated Practice, (evidence) (ii) Overt Instruction, (critique) (iii) Critical Framing (critique) and (iv) Transformed Practice (impact).

Situated Practice	Immersion in experience
Overt Instruction	Systematic, analytic and conscious understanding
Critical Framing	Interpreting social and cultural contexts
Transformed Practice	Transfer of meaning making process

Figure 1: A pedagogy of multiliteracies

The pedagogical framework that supported multiliteracies is known as the ECI Model (Evidence-Critique-Impact). Cope & Kalantzis (2001, pg 11) conceptualised these to comprise of the following:

Evidence: working with raw information and everyday experiences, as found in the real world-observation, data collection, and reflection on personal experience. (This aligns with situated practice of Multiliteracies pedagogy.)

Critique: working with generalising concepts and theories, which describe underlying structures and processes in the real world, plus critically reflecting upon the social, economic, cultural and political interests served by those structures and processes. (This merges Overt Instruction and Critical Framing of Multiliteracies, pedagogy.)

Impact: acting on knowledge, applying new learnings to the real world, innovating and reflecting on the change process. (This aligns with the Multiliteracies notion of Transformed Practice.)

They contended that the Evidence to Impact approach is basically about using knowledge to remake the world. It is about change-through-knowing. Its learning focus is on self and environmental transformation. The learning process of the ECI Model promotes fluidity and movement back and forth between each of the components. It need not be a purely linear model. In this way it is of particular relevance to adult learning contexts since it "... seeks to engage adult learners in the creation of knowledge and new modes of being in our world." (Scown 2004, pg 214) Further, it embraces the notion of personal life-worlds, since knowledge content and learning is tailored to suit their needs more effectively. Learners select their own entry point and sequences of learning through the knowledge content in a particular course and also nominate their own assessment format and criteria in an open manner. This type of learning has been found to be most effective across learning contexts (e.g. Singh, Kell & Pandian 2002).

In developing elearning content it is critical that 'new learning' should be evolved around such a pedagogical framework. The following case study illustrates the ways in which these design principles can be put into practice.

A case study of educational innovation in an online context

In 1998 RMIT University, developed a strategy around aligning Information Technology (IT) processes and systems and Teaching and Learning across the University. The strategy is known as Information Technology Alignment Project (ITAP). The strategy complemented the University Teaching and Learning Strategy 1998-2000 (RMIT, 2000). One of the Teaching and Learning guiding principles was the move towards flexible modes of delivery.

The Teaching and Learning Strategy of the Faculty of Education Languages and Community Services (FELCS) sets out the objectives of course and subject renewal. These included the utilisation of flexible learning in a student-centred environment. The general purpose of course and subject renewal is to lead to measurable improvements in our courses from the perspective of students, staff, employers and other stakeholders. In this way the catalyst for change was initially from the 'top' and it was up to the staff to demonstrate that they were cognisant of the policies and ready to adapt their programs to suit them. The choice of program for the innovation was the result of demand from an external offshore provider of education. As part of the brief for the program it was stipulated that not all the program should be offered online and that there should be some face-to-face component, at the local site. The mixed mode of delivery suited the needs of the students and thus was incorporated into the design. Issues of cost/benefit analysis were not really relevant in this context as the program would be delivered cost neutral due to the contractual arrangements with an external client.

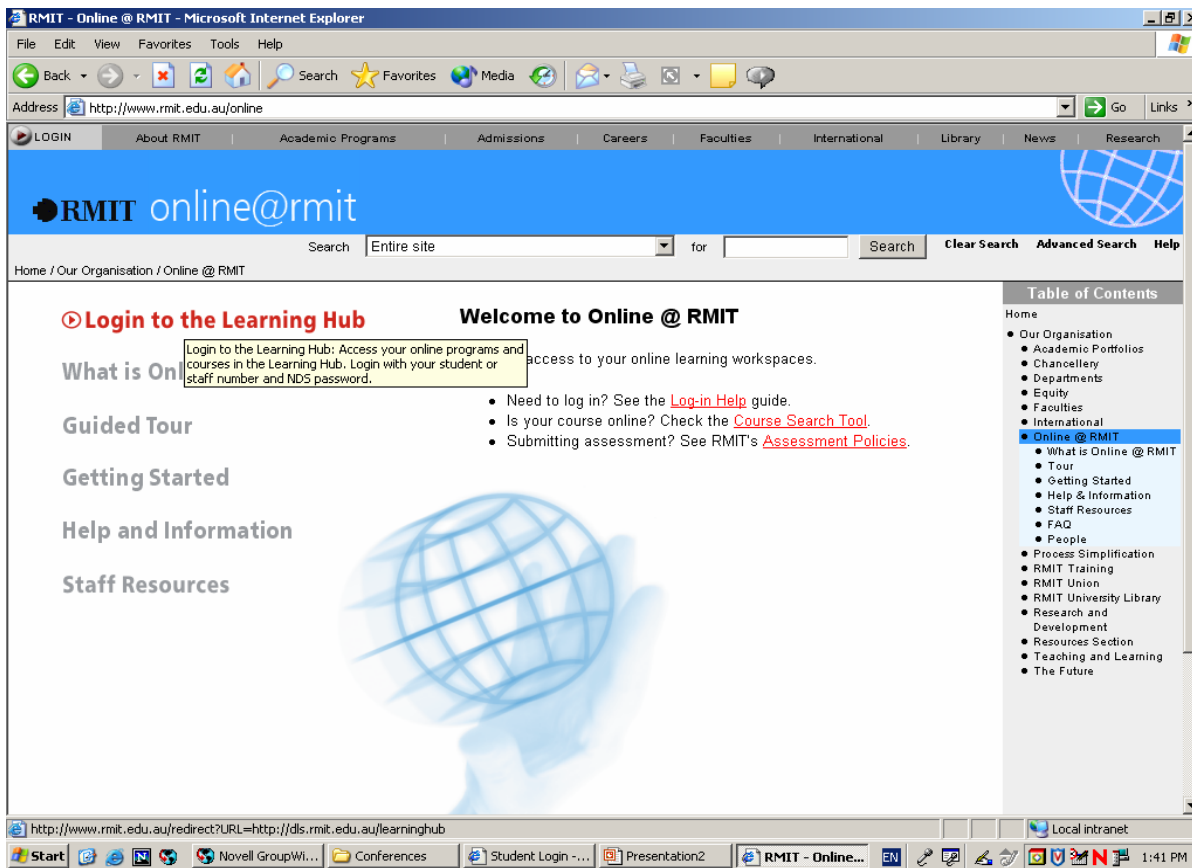


Figure 2 – Online in the Master of Education and Leadership, RMIT

The design of the program for the Master of Education (Leadership and Management) was based on the pedagogy of multiliteracies (New London Group, 1996 - Cope & Kalantzis 2000) and was enacted along two particular dimensions, a pedagogy that was appropriate for cross cultural settings and innovative content knowledge. The pedagogical aspects took into consideration a perspective of learning that incorporated the notions of empirical/ evidential, theoretical/ conceptual / critical and was active and transformative to authentic activity.

This was simplified to be known as the evidence/ critical/ impact model, which was then, related to the themes under review in the course modules. Remember also that the pedagogy of multiliteracies also contended that learning should be situated, include overt instruction, be framed critically and have the capacity to transform practice. A website was developed around the pedagogical framework and all courses were re written with a common template. The program used a dedicated website, discussion boards, e-mail and chat facilities along with information and videos on CD ROMS and digitised readings

In this way the framework was a two dimensional grid as shown in Figure 3. Students could select their course of study/ investigation within this knowledge framework to suit their own needs and interests.

They may decide to follow a topic from all three angles in a sequence (1,2,3) or concentrate on the material evidence (e.g. statistical data, observations, situated knowledge) across three themes (A,B,C) or critique the themes before collecting their data or making specific observations (X,Y,Z). Although the students could chose the sequence they had to consider all themes and they had to do this from each of the perspectives of E-C-I. Figure 4 illustrates the ways in which the model is implemented in the context of a module of Leading and Managing Change. The importance of students selecting the sequence of study is considered to be vital to their learning since they are in the best position to realise what is most effective for the creation of deep understanding about ideas and concepts.

	EVIDENCE	CRITIQUE	IMPACT
THEME 1	A 1 →	X 2 →	3
THEME 2	B ↓	Y ↓	
THEME 3	C	Z	

Figure 3 – Evidence – critique - impact

The screenshot shows a web browser window titled "Course Themes - Leading and Managing Change - Microsoft Internet Explorer". The address bar shows "http://edulead.eu.mit.edu.au/courses/ue754/content/themes.html". The page content includes a navigation bar with "THE COURSE", "Welcome", "Course Overview", "The Course Themes", "Course Content", and "Resources". The main heading is "Leading and Managing Change - Overview".

	Evidence	Critique	Impact
Theme 1: Exploring the Phenomenon of Change	Change as a challenging life experience	Understanding how to react to change	The role of personal mastery in leading and managing change
Theme 2: Managing Change	The dynamics of change	Using theories of change as a scaffold to manage change	Selecting appropriate change strategies
Theme 3: Leadership and Change	Change management as a key leadership quality	Team development and learning as a way of embracing change	Leading and managing others in and through the change process

Please use the interactive version of the Evidence - Critique - Impact Model (above) for an overview of the themes of Leading and Managing Change.

If you wish to print a section (a frame) of the Interactive, press the right mouse button (ctrl/click for Mac) to bring up the Flash Player context menu. Then use the Print command from the context menu to print the frame.

Figure 4: E-C-I Leading and Managing Change module

With such individualised courses of action, assessment also had to be tailored to meet course objectives and be rigorous for the level of the award. On line readings were provided as well as paper based ones (Figure 5).

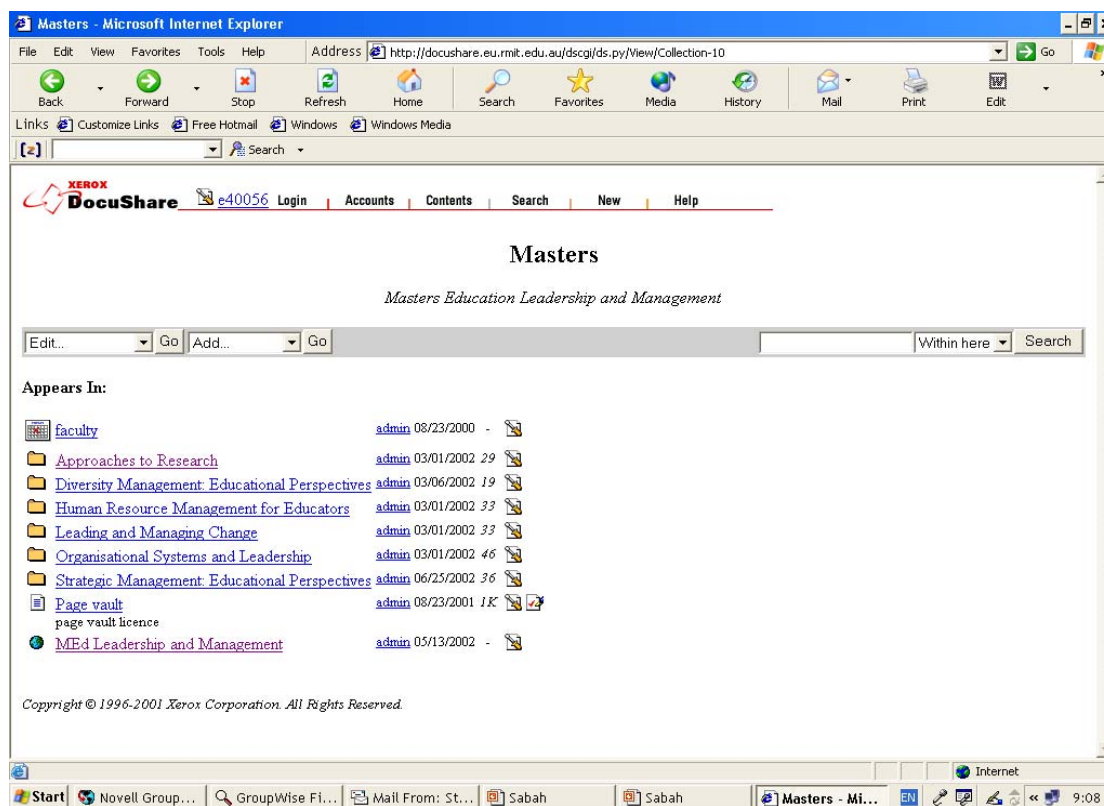


Figure 5: Online readings for modules

Assessment generally involved the completion of nine sections in each of the courses; this was three themes each from the E-C-I perspectives, and of course could be completed in a sequence chosen by the student. It was stated that each of the nine sections was of equal value and students were required to demonstrate proficiency and understanding of them all. Participation in online and face-to-face interactions was also a prerequisite for a successful grade. Five assessment items were included; essay, literature review, project, reflective journal and case study. The topic for each was negotiated between the student and the tutor. The purpose of the assessment items were not only to demonstrate increased knowledge in the area as evidence of personal transformation but also to display the capacity to reflect on theory and practice so that new practices are generated.

The design of the courses that constitute the program considered both face-to-face and electronic interactions (Figure 6) that are the mode of pedagogy as well as ensuring that the knowledge building process in each of the themes was rigorous, relevant and authentic. The multi modality of such a

pedagogy ensured its relevance to diverse learners and recognised the need for learners to invest in their own choices about the how and when of their own learning.

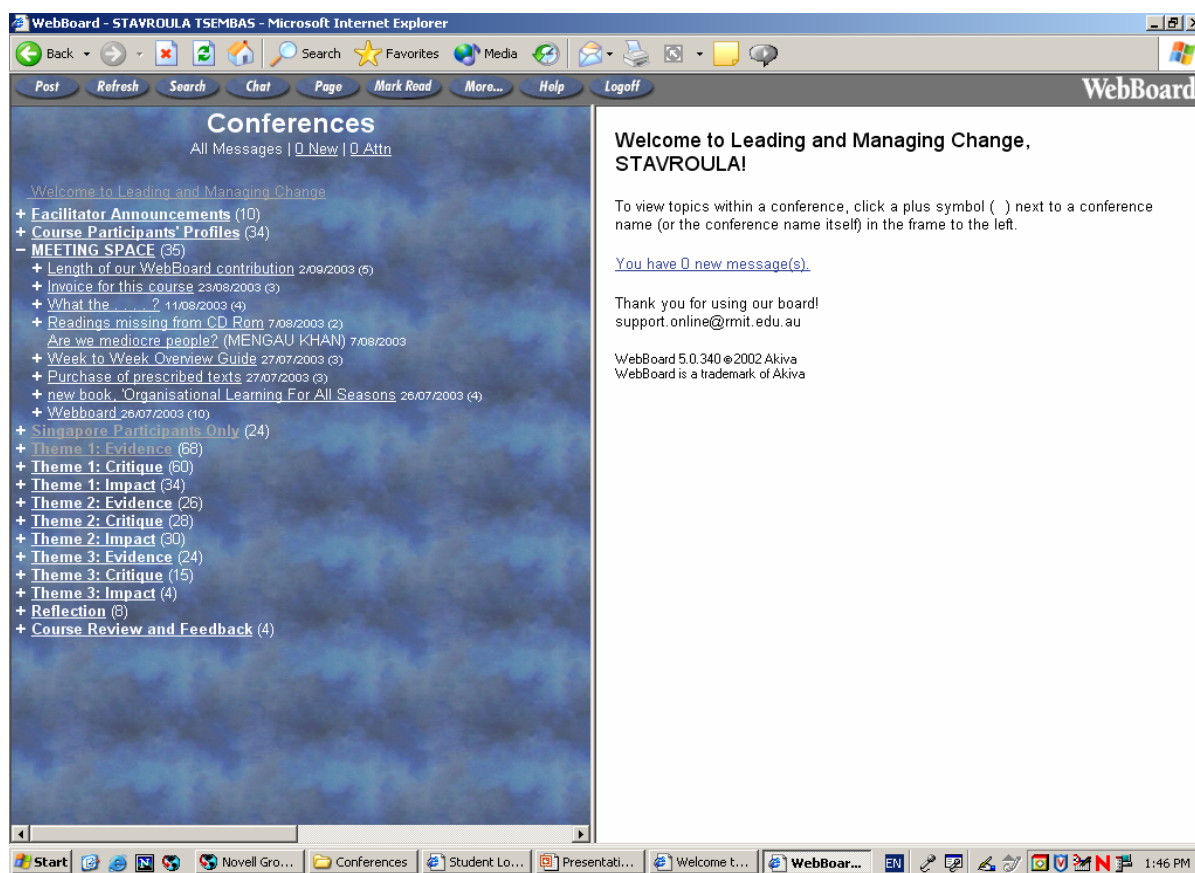


Figure 6: On line learning discussion space

Conclusions

As previously stated we are living in the information age and academic staff cannot be expected to deliver new and exciting programs without access to and fluency with new technologies, as well as support from trained technicians and other educators who need to be fully aware of the pedagogical issues surrounding technologies of practice. Unfortunately, in many universities this is not occurring, and it may not be possible in all university environments. Some universities have become specialist 'online' universities, so that they are able to channel appropriate resources to dedicated online programs, rather than spread their meagre resources across a broader spectrum of offerings. We are therefore suggesting that more funds and support for professional learning for academics should be made available so that they might become confident and competent in the use of new technologies for learning. This will entail collaborations with technical staff as well as those who administer programs but it will promote the design of on line learning environments which are not simply *electronic* external notes that were in existence in distance education mode prior to the use of the Internet. Pedagogies need to be reconceptualised to suit the new learning environments that are now possible with new technologies. We should not be mapping new technologies onto outdated pedagogical models and we

should be concerned about the nature of the content that learners are encountering in online learning worlds.

Currently it would seem that there are few university technocrats and administrators who are able to understand this. Such learning environments require rethinking the very nature of work in higher education institutions and it entails academics having enough dedicated time allocation to seriously consider the reconceptualising of their pedagogies in light of the new technologies. In this way it is apparent that effective online learning environments are created by teams of professionals who come from a variety of points of view and expertise and not pseudo teaching and learning experts who have not had any teaching experience in higher education contexts for many years.

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