

# **SCHOLARSHIP IN TEACHING PROJECT**

## **FINAL REPORT**

**An investigation into the enhancement of blended learning environments – towards an effective pedagogy and practice**

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## Executive summary

In **2005** the researchers began this study by simply wanting to teach better. The mission was to address their individual student needs which it was felt were not able to be met by using traditional classroom/DE teaching methods. Thus the use of an interactive multimedia CD-ROM was introduced along with changes to the classroom and DE delivery modes.

The primary aims of this study were to develop an effective pedagogy for flexible and blended learning; to examine the values and limitations of blended learning opportunities offered through technology enhance learning experiences; and to investigate the potential of using an adaptive management framework in managing research outcomes and managing change in the learning environment.

The study involved following the introduction of flexible and blended learning and e-learning approaches to teaching three subjects (one internal, two DE) over the period of late 2005 to late 2008. Owing to changes in subject teaching loads, personal circumstances, team members and individual doctoral study commitments there was something of a hiatus in physical progress on the study between mid-2006 and late 2007. The forced break in the project was serendipitous in many ways because during this time there have been a number of changes at CSU that have affected the outcomes of this study. These include Faculty and school changes, the introduction of the two new teaching institutes (Flexible Learning Institute and Education for Practice Institute), a new University Strategy (2007-2011), advances in the development of multimedia and most notably, the introduction of our new online learning environment *CSU Interact*. The researchers believe that the changing focus of the study in response to the external changes and the resultant findings are most timely in contributing to the University's understanding and management of blended and flexible learning.

***Approach*** - The study had a two tier structure. An **Adaptive Management approach** was introduced as a technique for managing the individual subjects over a number of

teaching sessions. The learning process detailed in the adaptive management process that led to changes in subject management approaches is consistent with the **Heuristic Inquiry Process** that the researchers adopted to guide their research.

Heuristic inquiry provides a disciplined process for finding the underlying meaning and knowledge that emerge in important human experiences. Heuristic research involves six phases of design. These include, the initial engagement, incubation, illumination, explication and culmination of the research in a creative synthesis.

The study followed the progress over a period of almost four years of three subjects. These were EMS301 (Science and Technology in primary School an internal subject, EPT514 (Educational Practice, Learning and Teaching) a DE subject and EMT501 (Educational applications of IT) a DE subject. It was realised early on that the solution to blended learning lay not simply in providing interactive multimedia resources, but in the teaching process itself, using an appropriate pedagogical approach and in creating a suitable learning environment.

For the researchers, the opportunity to continue to reflect on their teaching and the design of student learning experiences has been a powerful learning experience. During the course of the study the personal experiences and lessons learned have been actively applied to teaching, designing effective learning experiences, and sharing and improving practice with others.

**Findings** - The products of this inquiry are: firstly the development of guidelines for an effective pedagogy for flexible and blended learning in the CSU context; secondly the identification of significant organisational limitations and consequent implications for staff of applying good pedagogical practices in pursuing blended learning; and finally, the successful application of adaptive management to managing and improving the student learning environment in the study subjects over time.

**Considerations for an effective pedagogy for flexible and blended learning.**

The following considerations for an effective pedagogy for flexible and blended learning are one product of this inquiry.

- **Pedagogical practice must evolve to meet the changing needs of staff and students if students are to achieve their objectives**

The changing university and workplace environments, and the nature of particular subjects and associated objectives can demand that new approaches to teaching be considered if students are to achieve their objectives.

- **No one size fits all - there is no homogenous group of students, nor academics.**

Personalising learning can be very localised, and academics and students need to be able to respond to different backgrounds and different understandings

- **Ways of using learning resources, need to change in relation to the specific student group needs**

Different cohorts and individuals will use resources in different ways. Teaching with resources needs to be dynamic and reflective in order to feed into improvements.

- **Students are used to the traditional models of teaching (DE and internal), and initially resist change:**

It takes time for students to adjust to different formats for learning. Students need structure to their learning and more transparency around alternative forms of delivery.

- **Students prior knowledge and experience needs to be considered in designing learning**

- **There can be negative feelings about a subject that inhibit the attainment of stated outcomes. Ways to overcome this need to be considered.**

Spending time helping students think about what knowledge is and how we can obtain it can help students to deal with negative feelings about particular subjects.

- **Students enjoy structure and discipline:**

Students need structure to their learning and more transparency around alternative forms of delivery. The optimum situation was a subject that presented structure

with models and examples along with the opportunity for the student to identify some specific personal learning needs. Spend time at beginning, scaffolding students and staff into the learning approach.

- **Students need to be engaged in reflecting on their learning needs to develop their own set of learning objectives for a subject.**  
Subjects can be designed flexibly so that even the assessment tasks can be tailored to particular student groups
- **Students need to embrace uncertainty, therefore an academic needs to create a safe environment for discussion of understandings**  
Students need to be prepared to embrace uncertainty, to move on from needing the one right answer, and to accept change. The academic needs to create that safe environment whereby students can learn.
- **Distance students value the efforts of the academic to give individual feedback and response**  
Active teaching approaches in DE subjects that help create a positive learning environment include regular Forum feedback, timely response and feedback on assignments and the use of digital media (CD ROM and Interact) to provide personal introductions and guidance.

### **Organisational limitations and implications of blended learning in practice**

The study revealed significant organisational limitations and implications for staff of applying good pedagogical practices in pursuing blended learning opportunities through technology enhance learning experiences at CSU.

In 2005 the researchers began this study by simply wanting to teach better. The mission was to address their individual student needs which it was felt were not able to be met by using traditional classroom/DE teaching methods. Thus the use of an interactive multimedia CD-ROM was introduced along with changes to the classroom and DE delivery modes.

Over the time period of the study there have been a number of significant changes at CSU in the ability to support a technology enhanced learning environment. This includes an improved ability to support multimedia resource development and the introduction of our online learning environment, *CSU Interact*. However, together with the increased

availability of technology comes an increased expectation in how this will be used to promote CSU's goal of flexible learning.

Grounded in this research is the researchers' belief that there still are significant institutional limitations and critical barriers to the effective pursuit use of flexible and blended learning approaches at CSU. These have been identified here and it is hoped that this research will inform improvements in the right areas.

The study revealed significant organisational limitations and implications for staff in applying good pedagogical practices in pursuing blended learning opportunities through technology enhanced learning at CSU.

- **Distance teaching and resource based blended learning approaches require a lot of personal input to engage students**

One cannot rely on the resources to engage students but personal input is essential.

- **The Academic who writes and plans the subject can't always be the one person responsible for keeping subjects as they originally designed them:**

Subjects can become very personalised and it makes a difference when another staff member takes over a subject regardless of the counselling and assistance they receive. There is a need for subjects to be transferred rather than just referred in such situations

- **Academic fatigue can result in taking easy path of non-excellence:**

The advent of new technologies that appear to have positive features for learning and teaching take time to prepare and become proficient in, both technically and pedagogically; recognition that the subject designs have taken a lot of thought and adaptation throughout the process of teaching them over a number of semesters

- **Staffing changes and academic buy-out can compromise student feedback on assignments**

Feedback to students can be compromised where marking buy-out and marking assistance is used if there are not sufficient guidelines and expectations for the markers.

- **The learning environment needs to be dynamic**

Formal and informal evaluation of a subject and the learning and teaching experience needs to be done on a regular basis and changes made according to the feedback from students, lecturer and other factors in the learning environment.

- **Current timetable systems do not accommodate flexible use of learning spaces (classrooms).**
- Staffing allocations, and formulas for such, do not account for varying class sizes nor factor in the time taken to develop new resources
- There is a lack of recognition of time investment required for flexible and blended learning
- **Enrolment options are limited.** For internal students to be able to access DE resources with no extra cost (in initial stages of study) they needed to be enrolled as DE students which posed a number of issues around timetabling etc.
- Accreditation bodies can limit the content and pedagogical approaches to innovative teaching and blended learning.

*Application of Adaptive management in subject management* - The Adaptive Management Framework was successfully introduced as a technique for managing the individual subjects over a number of teaching sessions (2005-2008). The researchers found the adaptive management steps; benchmark (learn), plan (learn), implement (learn), monitor and review (learn) (see Figure 2) to be a good way to focus on continuous improvement in the learning environment for the students subjects and the overall subject learning environment over time. The reflective learning process that is fundamental to successful adaptive management complemented the heuristic inquiry method used in the research. Learning from one's actions in adaptive management ideally feeds directly into policy changes that help to improve the learning environment.

During the course of the study, in their various capacities in the Faculty of Education and CELT/DLTS, the primary researchers have been able to take the lessons learned as evidence to feed into improving CSU systems and disseminating the pedagogical outcomes more widely. It is the expressed hope of the researchers that the findings from this study will be of direct benefit to CSU in its ongoing move towards blended and flexible learning and that the results of this research will contribute towards improving the learning environment for staff and students.

# The study

## Background

The study involved following the introduction of flexible and blended learning and e-learning approaches to teaching three subjects over the period of late 2005 to late 2008. This study was initiated in mid-2005 by Ellen Buckland (CELT) in association with the current researchers. Much of the early background and study survey data collection was done in late 2005 - early 2006. Owing to changes in subject teaching loads, personal circumstances and individual doctoral study commitments there was something of a hiatus in physical progress on the study between mid-2006 and late 2007. During this time the primary researcher withdrew, but the remaining members of the project team continued to meet infrequently and to review their own progress with respect to monitoring their subjects and reflecting on their personal positions in relation to blended learning. In late 2007 the remaining researchers reviewed the project progress, aims and budget and were granted an extension to complete the research.

The forced break in the project was serendipitous in many ways because during this time there have been a number of changes at CSU that have affected the outcomes of this study: some positive, some not so positive. These include Faculty and school changes, the introduction of the two new teaching institutes (Flexible Learning Institute and Education for Practice Institute), a new University Strategy (2007-2011), advances in the development of multimedia and most notably, the introduction of our new online learning environment *CSU Interact*. The researchers believe that the changing focus of the study in response to the external changes and the resultant findings are most timely in contributing to the University's understanding and management of blended, flexible and e-learning.

In the light of the above changes, the introduction of *adaptive management* as conceptual framework to guide the management of subject development and to guide this research in the face of constant change has been successful.

There were necessary changes in the approach taken to the study but the primary aims of the study have been achieved, including a deep learning experience for the researchers involved.

### **Change in focus**

The initial focus was on e-learning and resource based technology itself as the solution to a student centred learning experience. It came at a time (prior to *Interact*) when multimedia development was increasing and the possibility of creating interactive e-learning resources at a scalable level for DE subjects was a reality. As a result of student feedback during the study and changes within the university, in accordance with the adaptive management framework, changes were made to the ways in which the subjects targeted in this research were taught.

With the introduction of a new University Strategy 2007-2011 there is a stronger institutional focus on flexible learning, as seen in the establishment of the Flexible Learning Institute. Together with this came a focus on blended learning and the introduction of this terminology across the areas of learning and teaching. Reflection on the results of the research and the teaching processes, together with emerging concerns about the ability of university systems to support blended learning approaches meant that the focus of the study became more socially oriented with the research taking on a heuristic inquiry approach. It was realised early on that the solution to blended learning lay not simply in providing interactive multimedia resources, but in the teaching process itself, using an appropriate pedagogical approach and in creating a suitable learning environment..

### **Aims**

The following aims from the original Scholarship in Teaching application remained pertinent throughout the study.

- Be a successful demonstration of ‘convergence’ or blending learning in flexible delivery mode supporting the university’s vision for being an institution recognised for national and international excellence in learning and teaching, for high quality research in selected areas, and for quality graduates (Goulter, 2005)
- To provide accounts of best practice online learning and teaching strategies as exemplars for others (Recommendation 2.3 of the Online Learning Strategy Working Party Report, 2003)
- Action the work of the CELT Learning Media Laboratories in developing exemplars of particular learning designs
- Engage the ‘systemic approach’ suggested by members of CELT and the VLE working party in increasingly integrating a VLE in a flexible and blended approach for both on-campus and distance education (Working document, CELT Educational Design and Educational Technology, March 2005).
- Act on the University’s Learning and Teaching goals by developing adaptable, challenging and supportive learning environments (Strategic Plan 2002-2007), thereby encouraging the effective management of staff workloads, for example, through potentially minimizing face-to-face time for internal students; through flexible delivery methods; and through strongly infusing teaching with current research and scholarship.

With the longevity of the study over four years, much of the value in the findings of this study now lies in the learning that has resulted from reflecting on these aims as the project has evolved over time in response to the changing University environment.

## **Research questions**

The following revised research questions are presented after a review of the project in 2007.

1. What is effective pedagogy and what are the implications of pursuing effective pedagogy within the context of CSU?
2. What are the values and limitations of blended learning opportunities offered through technology enhanced learning experiences?
3. Is the adaptive management framework suitable for managing research project outcomes and decision-making associated with managing change within the educational environment?

## **Literature review**

The literature that supports our research proposal can be divided into three distinct areas:

1. Effective pedagogy within the context of this University;
2. The adaptive management framework; and
3. Technology enhanced learning experiences.

### ***1. Effective pedagogy within the context of this University***

In this era of diminishing funding and changing student needs (Goulter 2005), a sound foundation to creating quality blended learning environments is essential. In response to decreased funding and constant pressure to enhance learning outcomes education providers have engaged multi-media technologies to provide what they consider to be *viable* delivery platforms (Brown, 2001). Charles Sturt University is seeking to distinguish itself through the quality and mode of the delivery of its course offerings. We have been challenged by the Vice-Chancellor to reflect on our students' learning experiences. "What will distinguish our on-campus experiences from our off-campus experiences? How should these two experiences converge?" (Goulter 2005, p.13).

*'Learning and teaching at CSU should be flexible in this sense, which by definition encourages staff and students to make choices about working with print, audio-visual, kinaesthetic, and artefact material within the traditional learning environment as well as*

*the e-environment. The choice of pedagogical tool must always be made according to the needs and purposes of the teachers, students and learning tasks. Pedagogical decisions should remain a matter of judgement for the academic.’ (Reid, 2003, p.5)*

Further, the University states its support for research in online pedagogy and in the identification and support of diverse learning needs (CSU, 2005) and it is acknowledged that, “At present many staff are actively and creatively using the online environment to develop new pedagogical practices to suit particular teaching purposes” (Reid, 2003). This research will look at these priorities and attempt to create new pedagogical practices within the context of CSU.

*‘In general, flexible learning and flexible delivery are terms that denote the shaping of an educational experience so that it more closely matches the needs of the learner, in contrast to traditional approaches that often align less closely with a learner’s needs.’ (Palaskas & Muldoon 2002)*

There are varying uses of the terms flexible delivery, flexible learning, flexible learning and teaching and it has been recognised as important for the ongoing development of operational principles relevant to the CSU environment that there is a common understanding and application of these terms within the University context (Reid 2003). Recommendation 2.1 of the Online Learning Strategy Working Party suggests that:

*“That the University adopts a policy of flexible learning and teaching which includes the online environment as one of a range of existing and emerging pedagogical modes that merit continuous development.” (Reid 2003, p.6)*

In challenging traditional approaches the researchers were required to adopt a critical approach to their existing practices. In order to take a critical position with this project, the researchers needed to locate the issues being investigated within their current context (Rafferty & Hard, 2002). Such a position facilitates the deconstruction of existing practices and allows for the pedagogical needs of the students to be central to the

research. In turn, this central focus allows the researchers to operate and interact at a level far beyond their traditional demarcated roles.

*“As technology continues to develop at a fast forward speed ICT specialists, educational programmers, teachers and learners need to work together. If this does not happen some of the best features of traditional teaching and learning will be wasted and the potential for a new and better pedagogy of e-learning lost. As we implement e-learning we need to critically reflect on our reasons for doing so, examine the ways in which we will employ it, determine how we can know if we are being effective and analyse the ways in which we can improve its use to keep pace with the ICT revolution.” (Christie 2003 p.6)*

. *Heuristic* inquiry provides a disciplined process for finding the underlying meaning and knowledge that emerge in important human experiences (Moustakas 1990). The researchers felt that adopting an heuristic inquiry approach would help them achieve the research outcomes

## ***2. Adaptive management***

To guide this investigation and ensure lasting outcomes it has been necessary to form a new conceptual framework. As this research is entering new areas of educational delivery with attendant uncertainty, it is important that monitoring of the research process feeds back into improvements in the learning environment while accounting for unforeseen changes in the learning environment.

In order to adapt to these different ways of working and thinking the researchers have adopted **Adaptive Management** as a technique for managing their subjects and implicit in this is managing the subject-centred learning environment.

Adaptive management rigorously combines management, research, monitoring, and means of changing practices so that credible information is gained and management activities are modified by experience.

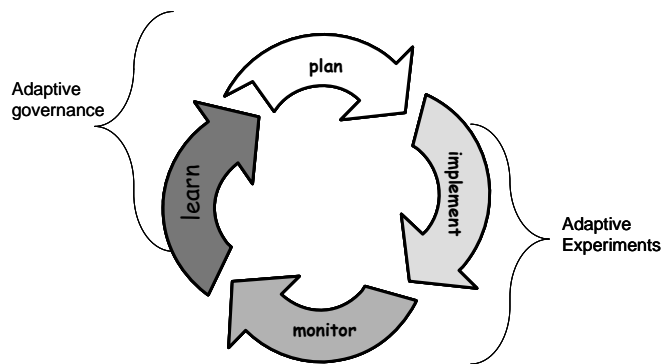
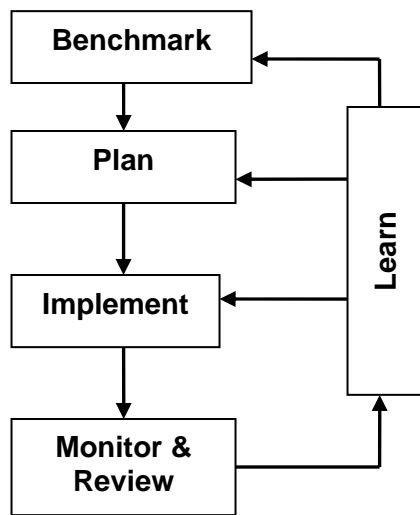


Figure 1. A simple conceptualisation of adaptive management (Allan, 2006)

The Adaptive Management Conceptual Framework was developed as a way to formally apply adaptive management principles to managing the learning environment (Buchan, 2004; Buchan & Buchan, 2003). It provides a step by step approach to guide the process of decision making and action by educators in response to changes within the learning environment (*ibid*). In the case of this project in exploring possible blended environments this necessitates challenging existing practice, trying new strategies and modifying actions according to the outcomes of new strategies. The process of adjusting actions emerges through the research and can be applied directly to the project. Adaptive management has a number of similarities to action research, the PIRI (Plan-Implement-Review-Improve) management cycle (Organisational Development, 2008) and other review and reflect strategies such as single and double-loop learning (Argyris, 1976) However, adaptive management has been chosen because it ensures a focus on the shared values of the learning environment, and importantly, it provides a way of developing policy and management decisions that can be ongoing and can last beyond the lifecycle of the research project. The AMCF has been further developed for this study (Figure 2).



**Figure 2 An Adaptive Management Framework**

### ***3. Technology enhanced learning experiences***

Our original project proposal literature review looked in depth into e-learning opportunities. This was consistent with terminology at that time. The terms technology enhanced learning (TEL) and references to technology enhanced learning environments (TELE) are now more widely used (Ebner, 2007; Keppell, 2006; Goodman, 2002, Spector, 2000) and for the purposes of this study also encompass the wider range of technologies that are being used to facilitate the flexible and blended learning experience. E-learning has become increasingly important in all educational sectors through the use of web-based delivery platforms. Such systems provide an important framework to facilitate e-learning. It is also apparent that technology developments rather than pedagogy have driven the development of e-learning (Ravenscroft, 2001). Issues surrounding effective and appropriate pedagogy remain problematic. E-learning is a basis for continued research and development and delivery of subjects in blended environments, including CD-Rom, DVD, web based, and video as digital objects.

In the blended learning environment new roles for digital video in online learning are emerging. It has been proposed that the emerging digital video technologies may improve

learning in online courses. Video objects are a unique subset in repositories of learning objects. They are dynamic and interactive, engaging and sharable (Karlsen 2002). These modes of delivery are seen to be a way of dealing with diverse internal and external student populations, dispersed university campuses and staff and time. These new technologies have enormous consequences for the teaching of the future. As Christie (2003) states, “E-learning is here to stay both as a support for face to face teaching and as the main means of distance education.” (p. 4). Yet, simply transferring subjects into multimedia formats does not necessarily make subjects pedagogically better. For subjects to be effective in e-learning formats they must be designed written and assessed within *new* pedagogical frameworks. This has been noted in the CSU context where the Online Learning Strategy Working Party Report further notes the need “...to further develop our pedagogical knowledge of and capabilities for online learning”. (p.7). The CSU Online Learning Strategy Working Party (Reid 2003) reports that it was informed “...of several instances of exemplary uses of the online environment for the enhancement of learning and teaching within existing subjects and courses at CSU.”

Since the inception of this project in 2005, CSU has moved on from a resource-based (CD-Rom) approach to digital media and has made major advances in e-learning with the introduction of the new online learning environment, *CSU Interact* in 2008. Hence, this project is extremely timely in guiding the decision-making of educators and the implementation of technology enhanced learning. The motivation for technology enhanced learning as an important part of education design is its flexibility and accessibility. It is regarded as way of opening up learning for those who wish to participate, at any place and at any time, away from the conventional face-to-face setting of a classroom or lecture theatre. E-learning is also seen as important in facilitating lifelong learning, engaging communities in learning and in meeting the demands of the knowledge economy.

## **Approach to the study**

The study has a two tier structure. (I) An **Adaptive Management approach** was

introduced as a technique for managing the individual subjects over a number of teaching sessions. The learning process detailed in the adaptive management process (see Figure 2) that led to changes in subject management approaches is consistent with the (II) **Heuristic Inquiry Process** (see below) that the researchers adopted to guide their research.

The study followed the progress over time of three subjects. EMS301 (Science and Technology in primary School an internal subject, EPT514 (Educational Practice, Learning and Teaching) a DE subject and EMT501 (Educational applications of IT) a DE subject.

### **(I) The Adaptive Management approach**

Implicit in the Adaptive Management approach is managing the subject centred learning environment. It was felt that adaptive management would be a suitable approach to guide the review, reflection and improvement process in managing the respective subjects over time (Figure 2). The implementation of this approach is detailed in the Results of this report (see Appendix 1). Tables 1 and 2 (Appendix 1) detail the changes to subject delivery over the four years of the study.

In order to monitor and assess the current state of the learning environment and efficacy of changes in teaching approaches and delivery of the subjects, the following data was collected and analysed on a cyclical basis according to the adaptive management framework (see Table 1, Appendix 1). These results fed into required changes to improve the student learning experience.

- Subject evaluation surveys (formal University administered surveys) for each session that the subjects ran (see Appendix 5)
- Direct (informal) feedback from students (email, online forum discussions, in person etc.) (see Appendix 6)
- Research surveys – these were single surveys conducted in 2005/2006 for EMS301 and EPT514 (see Appendix 2).

- In-depth interviews were held with the researchers (appendices 3 & 4)
- Review meetings

As the study progressed review meetings were held to review the state of progress of the study and to determine appropriate course of action in changing teaching methods, use of technology etc.

## **(II) Heuristic inquiry process**

This study is an investigation of the direct and personal encounters the investigators had with developing effective learning experiences for their students. This study extends beyond studying the phenomena of creating, designing and implementing educational programs. It sought to obtain qualitative depictions of the lived experienced of those involved in the teaching and learning process. In order to collect, organise, analyse and synthesize the data a *heuristic* inquiry process was established, similar to the model suggested by Moustakas (1990). *Heuristic* inquiry provides a disciplined process for finding the underlying meaning and knowledge that emerge in important human experiences (Moustakas 1990). Heuristic research involves six phases of design. These include; the initial engagement, incubation, illumination, explication and culmination of the research in a creative synthesis. Each phase will be discussed in the briefly in the sections that follow.

### ***Stages of inquiry***

The variety of data collected; surveys, student feedback, interviews held with the researchers in 2008, along with reflection during the regular review meetings is the source of reflection for the detail provided in each of the stages of inquiry. Highlights of the interviews and details of review meetings are found in the appendices.

### ***Initial engagement***

As Moustakas contends "...the task of initial engagement is to discover an interest, a passionate concern that calls out the researcher, one that holds important meaning and personal, compelling implications." (1990, p.27). The researchers started reviewing subjects to be delivered in a blended environment. There was an intense interest among the investigators to examine the pedagogical implications of blended learning. There was also great encouragement from the University to actively pursue and engage with blending learning. In 2005 the researchers initially engaged the technologies (multimedia and what was then available online) to circumvent some of the institutional restrictions they were faced with as they attempted to provide students with effective learning experiences. The intention was to design subjects that would meet students' educational needs. However, some of the systems and technology needed by the researchers were not supported by the university.

For example, timetables are planned almost six months ahead of teaching time, which means the researchers were required to agree to times and spaces that may not be suitable to more flexible approaches to types of learning activities or modes of engagement with students. Traditionally, academics are asked to plan for a one-hour lecture and a two-hour workshop or tutorial. Biggs (2005) remind us that we know there are far better and more effective ways to 'teach', but with the imposition of timetable we become pressured into ineffective learning and teaching. The desire to take on a 'blended' approach helped the researchers move away from the traditional lecture/tutorial mode.

The way teaching allocations and responsibilities are organised so far ahead of time, as with timetables, meant the researchers were restricted. Staffing allocations, and formulas for such, are a response to student numbers that presume the division of cohorts into groups of even numbers. Such notions challenged what the researchers knew and believed about effective learning. The desire to use blended learning offered an opportunity to teach effectively in an environment that could be considered antithetical to good teaching.

To access the resources needed to engage the technology needed for blending learning internal subjects needed to be listed as distance subjects. However, distance subjects

could not be allocated physical learning space. This inability to book a “space” for classes listed as distance subject meant students encountered delays in starting the study schedule. Students were sometimes up to two weeks behind in the proposed study schedule while the facilities were being procured.

As well as the institutional pressure, the researchers also experienced pressure from external bodies that accredit education subjects in NSW. In particular, in EMS301 there was pressure to include more pure science ‘content’ in the subject involving high regular examination of science facts. The external authority promoted a model of knowledge and learning that differed significantly from that held by the University and the researchers. From this initial phase onwards pedagogy for blended learning became the passionate pursuit of the researchers and the research questions emerged.

### ***Immersion***

The immersion phase enables the researchers to come to be on intimate terms with the research questions (Moustakas, 1990). In this study the researchers immersed themselves in discussions concerning all possibilities relating to exploring blending learning and the nature of pedagogy in such environments. The immersion phase was characterised by a sustained focus on matters related to the research questions. These discussions involved students, readings meetings and the researchers’ self dialogue. The cooperative and collaborative environment provided interest, excitement and personal discovery through the exploration of ideas. The development of resources and engagement of technology was exhausting. The problematic nature of initiating change within an institution held together with systems and practices antithetical to change was frustrating. Nevertheless, in this phase the first interactive CD’s were developed and engaged as major learning resources. The lecture/tutorial mode of teaching was abandoned in favour of individual/small group consultation and forum responses. All the practices, hunches, ideas and beliefs held by the investigators were manifested into the production of the desired blended learning resources.

### ***Incubation***

The incubation phase is characterised by a retreat from the intensity of the immersion phase (Moustakas 1990). No longer absorbed in the search for pedagogical implications and exploration of technological applications of blended learning the investigators began to focus on teaching and working with students on reaching the objectives of their respective subjects. During this phase the investigators allowed the ideas giving life in the immersion stage to grow through implementation. The pedagogical beliefs of the investigators are actioned. The incubation phase provides an opportunity for new understandings and additional qualities of the initiatives to be revealed.

For example, in EMS301 students and the academic talked about the nature of knowledge and, how we, as humans, interact with knowledge, and what could be achieved within the space of a semester in a subject. The academic was able to share experiences of teaching in science both effectively and ineffectively in order to demonstrate the understandings of ways children learn. These illustrations of learning about and through science challenge the ways in which science can currently be taught.

Students struggled with the notion that they needed to come to class with ideas already gleaned from the set readings. The academic needed to establish an environment of trust where differing ideas and notions were accepted in order to have productive discussions. Students needed to realign and re-orient their conventional ideas of how a lecture or tutorial should be formatted. Once the safe environment was established, students were able to share freely about how they felt about science concepts and how they impacted on them as future educators as well as how they will address similar situations with children they will be teaching.

This was also the case for the subject EMT501. Students came to the subject with varied levels of expertise in the tools of technology, so the subject centred around the students engaging in a series of exercises that helped them reflect on their learning needs in order to ascertain within a set of learning objectives what they could best achieve in the time available in the semester. The first assessment task was the devising of a Learning

Contract, and the second assessment was the demonstration of that learning presented in an ePortfolio. The academic monitored the progressive discussions of the group and responded to learning needs and student questions throughout the semester.

In order to provide more appropriate learning experiences the academics needed to help the students understand that learning can occur in different ways. Many learning situations need flexibility rather than rigid pre-formatted learning that disregards the learning characteristics of the group. During the semester for the internal Science subject students became more used to understanding the organisation of the subject according to the observed needs of the group. For example, they might be asked to engage intensively in reading during one week and interrogate these readings from a technical perspective, this might be followed by a week where students' ideas and issues would be the focus of the learning. This required convincing the students of the value of learning in this perceived new way, as well as the academic responding to the learning needs of the students.

### ***Illumination***

Moustakas (1990) contends that the process of "...illumination occurs naturally when the researcher is open and receptive to tacit knowledge and intuition (p.29). This phase may involve a growing awareness of the qualities and challenges blending learning has added to the enterprise.

The academics recognised that cohorts enrolled in a subject have varied backgrounds and also come with varied grades of levels of investment in their learning. Even when a cohort is divided into tutorial groups each group will have its own set of specific learning needs. As the students are not always an homogenous group, the academic teachers in this study believe that it is not appropriate to provide learning in exactly the same way to each. To personalise learning is very localised, reacting to different backgrounds and different understandings. For example, in the Science subject one student's background was such that he was involved in an industry that heavily relied on science, and he was responsible for some scientific advances that were quite complex, and led to international

changes in pest control. This student's experiences changed the 'character' of the tutorial group to which he belonged. Where some students were exhibiting fear regarding their inabilities to achieve in science from their own schooling, the student who was immersed in the industry of science countered them. The experienced student's knowledge of science didn't specifically help him to understand how to teach science, the main focus of the subject, but it certainly contributed to the need by the academic to change the quality and design of learning activities and discussions for that particular group.

The environment created by the academic was continually under consideration. The academics were always required to keep their own social perspectives in check. Both academics were middle-class and white, which had to be identified and explicated with regard to their consideration about the nature of knowledge, and the nature of power in the construction of knowledge. It was important to demonstrate the presence of equality in the University classroom. For example, It was important to create very positive and interesting environments where the students were constantly reflecting on the purpose of what the group was trying to achieve.

With regard to the distance cohorts it was still possible to respond to student needs. Once students had introduced themselves in the online forum it was possible to identify learning needs. For example, in EMT501 it was apparent that some students were doing the subject in order to gain more experience in technology because they had very little knowledge. For these students it was possible to arrange synchronous learning, as well as specific feedback on personalised learning tasks that weren't necessarily attached to an assessment task. These were created during the semester, not several months prior to the semester as most distance learning 'packages' currently are.

### ***Explication***

The explication phase fully examines what has been discovered in the illumination phase. The explication phase depicts the core and dominant themes that have developed from the researchers awareness, feelings, thoughts, beliefs and judgements that are derived from conversations and dialogue with others (Moustakas, 1990). The researchers involved in

this project came to their own understanding of ‘blended learning’. It was having the ability and facilities to do some of the learning activities through technology, if that suited the learners. The academic was not always passive, but could be when necessary. The academics understood the high value the students gained from some periods of self-directed study when it was interspersed with collaborative learning with one other student, or groups of students. ‘Blended learning’ represents the many possible ways of engaging students in learning through a variety of resources, spaces and pedagogical approaches.

### ***Creative synthesis / The story***

The Creative Synthesis, or Story, is the final part of the process where statements may be made for future use and exploration. The statements are the articulation of the unique experience of the researchers. Familiarity with the data in its major constituents, qualities and themes allow the researchers to a comprehensive expression of the essence project is realised (Moustakas, 1990).

This phase took place once the researchers had delivered the subjects several times, had interviewed each other and had student feedback gathered as data. (see Appendices) Interrogation of this data constitutes the statements articulated from the study.

### **Our Story**

#### **One cannot teach with the same University teaching methods from the past**

Although the academics involved in the research felt sure they needed to respond to different learning needs from the students, they needed to explore ideas and ways of working that would verify that these new ways of working were effective (see interviews). Not only did they need feedback from the students involved in the study that their learning had been engaging and useful, but the academics themselves needed to feel validated. This validation could lead to processes for Institutional change and ways to challenge some of the ‘myths’ held about the narrow ways teaching and learning currently undertaken.

#### **Students have an active role in learning**

In EMT501 students are asked to think deeply about the stated learning outcomes of the subject and rank them in meaning to themselves and their learning and teaching situation, and to justify that ranking. This leads them to consider exactly what (in relation to those learning outcomes) learning they need to engage in for the best possible personal outcomes. In this way, students with more experience in technology can still challenge themselves to take their knowledge further. Those with less experience will focus their learning on the most useful topics for their own needs.

### **Distance teaching requires a lot of personal input to engage students**

In the previous part of the research process it was argued that the subjects in this study became personalised by the academics designing and teaching them, and when casual staff were employed to take part or all of the teaching the subjects floundered somewhat. This leads the researchers to emphasise the need for subjects to be transferred rather than just referred in such situations. The new academic owner needs to do just that, take ownership of the subject. Each subject has core objectives and learning outcomes, but the new academic needs to bring their own thinking and evolution of learning in order to take the learning and teaching design into new areas. Institutional response to this issue would be expensive as casual staff members are paid for lectures and tutorials, not for designing or evolving subjects in new ways that engage them as well as the students in their care.

### **Academic fatigue can result in taking easy path of non-excellence**

The institutional restrictions talked about in the introduction to this section have proven to be immense hurdles for the academics involved in the study. There is minimal recognition that the subject designs have taken a lot of thought and adaptation throughout the process of teaching them over a number of semesters, which results in many hours of thought and personalised planning for the groups of students. Also the advent of new technologies that appear to have positive features for learning and teaching take time to become proficient in, both technically and pedagogically. The scarce commodity of time can often result in the academic taking the easiest and least time-consuming path, which is not often the best educational decision.

The subjects in this study took a lot of preparation time. For example, EPT514 has a CD-Rom that took several weeks of consolidated time to prepare. The CD-Rom still exists, but needs revision as new texts become available. Support staff are not always available to assist in revising the learning objects, and the academic often wants to do the revision themselves, but is pressed through lack of time.

### **Ways of using resources can change in relation to the student group needs**

Another way of demonstrating the response of the academic to individual and student group needs was the use of the CD-Rom that was created for the subjects. Initially the CD-Rom guided the subject and students were encouraged to use it as the basis for learning. As the subject developed over successive semesters in response to students learning needs, the CD-Rom became used as a guide to help reinforce learning (see Appendix, Table 1). Students have responded positively to having the extra material available for reference and review.

### **Students are used to the traditional models of subject delivery and initially resist change**

Internal students were used to the traditional lecture/tutorial model and desired the discipline this represented with regard to turning up to expected learning situations (see Informal feedback Appendix 6). It took some time for students to adjust to different formats for learning. Students asked for more structure to their learning and more transparency around alternative forms of delivery.

### **Students have personal experiences in subject content area to deal with in order to renew their learning, and consequently their teaching**

Particularly in the Science subject some students had negative feelings about Science from their own learning in Primary and Secondary school, and had chosen to remove themselves from recent learning in this curriculum area. Academics, therefore, needed to spend time defining what learning through science can be in the 21<sup>st</sup> century, and where the information and knowledge resides. Time was spent helping students think about what knowledge is and how we can obtain it.

### **Students enjoy structure and discipline**

The academics involved in the study knew a lot about learning in the subject disciplines and also about designing learning activities for students. The first delivery of the new subjects were criticised by students because they were used to all the information being laid out for them at the outset, and weren't prepared for the academics to respond to their learning needs as the semester progressed. As the academics began to recognise this need in the students a compromise situation was created, mostly through demonstration and models or examples of work. The optimum situation was a subject that presented structure with models and examples along with the opportunity for the student to identify some specific personal learning needs.

### **The Academic who writes and plans the subject can't always be the one person responsible for keeping subjects as they originally designed them**

During part of the research period the academics engaged in the study took leave or had a situation where casual academics were employed to teach all or part of the subjects being reviewed. This led to negative feedback from the students as the casual teachers and markers had no 'stake' in the subjects and approached them from the 'institutional' and easiest avenue. The subjects had become highly personalised with the initial academics responding to the unique group of students and their needs (see interviews Appendix 3).

This leads the researchers to comment that even though the teaching was not centred on the academic (as discussed in the Immersion section), the subjects were personalised by the academic. While there is a definite need for uniformity for learning outcomes and goal setting, these were not the only driving factors in the design of the subjects. The academic's interpretation of some of the key concepts varied according to the way the students interpreted them, and indeed, the way casual teaching staff employed in the designing academics absence interpreted the key concepts. This is exemplified by the student evaluations over the periods of the study, which fluctuated according to the academic teacher coordinating the subject. The academics in this study agree that it

makes a great deal of difference when another staff member takes over a subject regardless of the counselling and assistance they receive.

### **Staffing changes and academic buy-out/marketing assistance can compromise student feedback on assignments**

Another example of the difficulty in staffing was in the subject EMT501 where the number of students enrolled in the first cohort was double the expected number, making marking assistance necessary. Usually casual markers are paid to spend about a half hour per assignment, but in this subject the first assignment is short and comes in very quickly, whereas the second is a much larger submission and requires more review by the marker. In trying to explain a more even allocation of time per assignment the academic gave the casual marker the mistaken impression that the first assignment needed to be marked as quickly as possible. Thereby unwittingly encouraging the casual marker to tend to gloss over the initial submissions with not as much feedback as the academic usually gave in the assignments she marked. This produced an inequitable situation, and also resulted in several assignments needing remarking by the permanent academic.

### **Distance students value the efforts of the academic to give individual feedback and response**

The personalised approach to teaching discussed above, was also a feature of the distance teaching by the academics in the study. Students highly valued the 'presence' of the academic in synchronous and asynchronous discussions. One of the academics resolved to respond to each forum (discussion list) posting by a student. This required a large time commitment but engaged the students and modelled good practice that became the standard practice by the students. As the semester progressed the academic needed to comment less, as the students became active participants in their own learning and their discussion of learning.

The introductory videos have had a similar effect. Students report that they enjoy knowing what the academic looks and sounds like, and that the person organising their learning is interested in them (see surveys Appendix 2). Once again though, this

highlights the difficulty in handing a subject over to another academic who is employed to only respond within limited consultation hours. The creation of appropriate artefacts to introduce subjects and key concepts takes time, as does the encouragement of discussion by distance students.

## **Conclusion**

The primary aims of this study were to develop an effective pedagogy for flexible and blended learning; to examine the values and limitations of blended learning opportunities offered through technology enhance learning experiences; and to investigate the potential of using an adaptive management framework in managing research outcomes and managing change in the learning environment.

The outcomes of this research are the following considerations for an effective pedagogy for flexible and blended learning and a number of organisational limitations and implications of blended learning in practice.

### **Considerations for an effective pedagogy for flexible and blended learning**

The following considerations for an effective pedagogy for flexible and blended learning are one product of this inquiry.

- **Pedagogical practice must evolve to meet the changing needs of staff and students if students are to achieve their objectives**

The changing university and workplace environments, and the nature of particular subjects and associated objectives can demand that new approaches to teaching be considered if students are to achieve their objectives.

- **No one size fits all - there is no homogenous group of students, nor academics.**

Personalising learning can be very localised, and academics and students need to be able to respond to different backgrounds and different understandings

- **Ways of using learning resources need to change in relation to the specific student group needs**

Different cohorts and individuals will use resources in different ways. Teaching with resources needs to be dynamic and reflective in order to feed into improvements.

- **Students are used to the traditional models of teaching (DE and internal), and initially resist change:**

It takes time for students to adjust to different formats for learning. Students need structure to their learning and more transparency around alternative forms of delivery.

- **Students prior knowledge and experience needs to be considered in designing learning**
- **There can be negative feelings about a subject that inhibit the attainment of stated outcomes. Ways to overcome this need to be considered.**

Spending time helping students think about what knowledge is and how we can obtain it can help students to deal with negative feelings about particular subjects.

- **Students enjoy structure and discipline:**

Students need structure to their learning and more transparency around alternative forms of delivery. The optimum situation was a subject that presented structure with models and examples along with the opportunity for the student to identify some specific personal learning needs. Spend time at beginning, scaffolding students and staff into the learning approach.

- **Students need to be engaged in reflecting on their learning needs to develop their own set of learning objectives for a subject.**  
Subjects can be designed flexibly so that even the assessment tasks can be tailored to particular student groups
- **Students need to embrace uncertainty, academic needs to create a safe environment for discussion of understandings**  
Students need to be prepared to embrace uncertainty, to move on from needing the one right answer, and to accept change. The academic needs to create that safe environment whereby students can learn.
- **Distance students value the efforts of the academic to give individual feedback and response**  
Active teaching approaches in DE subjects that help create a positive learning environment include regular Forum feedback, timely response and feedback on

assignments and the use of digital media (CD ROM and Interact) to provide personal introductions and guidance.

### **Organisational limitations and implications of blended learning in practice**

The study revealed significant organisational limitations and implications for staff of applying good pedagogical practices in pursuing blended learning opportunities through technology enhance learning experiences at CSU.

In 2005 the researchers began this study by simply wanting to teach better. The mission was to address their individual student needs which it was felt were not able to be met by using traditional classroom/DE teaching methods. Thus the use of an interactive multimedia CD-ROM was introduced along with changes to the classroom and DE delivery modes.

Over the time period of the study there have been a number of significant changes at CSU in the ability to support a technology enhanced learning environment. This includes an improved ability to support multimedia resource development and the introduction of our online learning environment, *CSU Interact*. However, together with the increased availability of technology comes an increased expectation in how this will be used to promote CSU's goal of flexible learning.

Grounded in this research is the researchers' belief that there still are significant institutional limitations and critical barriers to the effective pursuit use of flexible and blended learning approaches at CSU. These have been identified here and it is hoped that this research will inform improvements in the right areas.

The study revealed significant organisational limitations and implications for staff in applying good pedagogical practices in pursuing blended learning opportunities through technology enhanced learning at CSU.

- **Distance teaching and resource based blended learning approaches require a lot of personal input to engage students**  
One cannot rely on the resources to engage students but personal input is essential.

- **The Academic who writes and plans the subject can't always be the one person responsible for keeping subjects as they originally designed them:**  
Subjects can become very personalised and it makes a difference when another staff member takes over a subject regardless of the counselling and assistance they receive. There is a need for subjects to be transferred rather than just referred in such situations.
- **Academic fatigue can result in taking easy path of non-excellence:**  
The advent of new technologies that appear to have positive features for learning and teaching take time to prepare and become proficient in, both technically and pedagogically; recognition that the subject designs have taken a lot of thought and adaptation throughout the process of teaching them over a number of semesters.
- **Staffing changes and academic buy-out can compromise student feedback on assignments**  
Feedback to students can be compromised where marking buy-out and marking assistance is used if there are not sufficient guidelines and expectations for the markers.
- **The learning environment needs to be dynamic**  
Formal and informal evaluation of a subject and the learning and teaching experience needs to be done on a regular basis and changes made according to the feedback from students, lecturer and other factors in the learning environment.
- **Current timetable systems do not accommodate flexible use of learning spaces (classrooms).**
- Staffing allocations, and formulas for such, do not account for varying class sizes nor factor in the time taken to develop new resources.
- There is a lack of recognition of time investment required for flexible and blended learning.
- **Enrolment options are limited.** For internal students to be able to access DE resources with no extra cost (in initial stages of study) they needed to be enrolled as DE students which posed a number of issues around timetabling etc.
- Accreditation bodies can limit the content and pedagogical approaches to innovative teaching and blended learning.

The Adaptive Management Framework (Figure 2) was introduced as a technique for managing the individual subjects over a number of teaching sessions (2005-2008). The researchers found the adaptive management steps to be a good way to focus on continuous improvement in the subjects and the overall learning environment over time. The reflective learning process that is fundamental to successful adaptive management complemented the heuristic inquiry method used in the research. Learning from one's actions in adaptive management ideally feeds directly into policy changes that help to improve the learning environment (Buchan 2004). During the course of the study, in her various positions; as educational designer, educational technologist and manager, the primary researcher has been able to take the lessons learned as evidence to feed into improving CSU systems and to disseminate the pedagogical outcomes more widely. Similarly, through their faculty involvement the academic researchers have been/will continue to be able to feed into required policy development and strategies for blended learning approaches in their faculty.

It is the expressed hope of the researchers that the results of this study will be of direct benefit to CSU in its ongoing move towards blended and flexible learning and that this research will contribute towards significantly improving the learning environment.

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# Appendices

## Appendix 1 The adaptive management process for subject management

This section reports on the implementation of an Adaptive Management approach to this research study (see Figure 2).

### Benchmarking

The **Benchmarking** phase of the Adaptive Management Framework equates to the assessment of the initial state of the particular learning environment that led to the initiation of this project. For the individual subjects studied this was manifest in the researchers' initial 'gut feeling' that the current learning environment for their internal and DE students was not adequate for the students' needs. This led to their initial engagement in the project. The actual reasons behind this decision were discussed informally at the initiation of the project and have been recorded in the in-depth interviews with the researchers.

For Benchmarking to be done properly indicators that enable measurement of aspects of the learning environment need to be established. These indicators have been formally identified as the project progressed. These include:

- Subject evaluation surveys (formal University administered surveys)
- Direct informal feedback from students (email, online forum discussions, in person etc.)
- Research surveys (see Appendix 2)
- Project review meetings
- Researcher interviews (see Appendices 3 and 4)

As the study progressed review meetings were held and the current state of the learning environments in each of the study assessed informally in order to inform future action in

the project. Monitoring through measurement of the indicators was done in order to inform future action.

**Planning**

Based on the findings of the benchmarking, planning was undertaken for delivery of the subject. In the initial offering of the subjects (200570) a multimedia CD-ROM was developed for EMS301 and EPT514 which contained virtual lectures, video introduction to the respective subjects and associated resources such as readings and website links. The decision was taken to enrol the on-campus EMS301 students in DE mode in order to provide more flexibility for the students and access to the multimedia study resources.

EMT501 is a post-graduate subject offered only by DE mode. When first developed the subject resources consisted of a single interactive CD-ROM and supporting online resources along with innovative use of a variety of (non-CSU) online tools. With the advent of CSU Interact made subject delivery easier.

**Implementation**

During this phase teaching took place and the teaching strategies and learning resources were implemented.

The tables below capture the approaches, events and feedback that influenced decisions about how the subjects should be delivered.

**Table 1 EMS301** The changing teaching approach and use of multi-media resources.

(On-campus students enrolled via DE or internal modes)

Year / session (Semester 1= Autumn. Semester 2 = spring)	Enrolment Mode	What f2f teaching time timetabled	How the CDROM was used/integrated into teaching	Student feedback that influenced decisions	Other factors influencing delivery during session
200570 Semester 2	DE (included internal students)	Alternate weeks 1 hour all group lecture. 2x 1hr small groups	1 hour CDROM self-directed with CDROM	Not positive feedback	Space, timetable issues,

		workshops			
200640 Semester 1	Internal enrolled as DE	2 hour workshop weekly, 1 hour self - directed	1 hour CDROM self-directed with CDROM	Not positive feedback, wanted more direction	<b>Space, timetable issues,</b>
200740 Semester 1	DE	3 hour workshops whole group	CDROM available. . CDROM used as a reading guide not fundamental. Started talking about nature of knowledge, introduced expectations for the subject & student responsibility	Positive feedback from students once they understood what was happening. Getting into adaptive management & making changes according to evidence	Space, timetable issues,
200770 Semester 2	DE	2 x 2 hour workshops, small group	CDROM as reading guide only	Poor feedback	Lecturer did not teach the subject, casual staff. Timetable & space
200840 Semester 1	Internal (DE enrolment scrapped)	3 hour whole group workshops	CDROM scrapped. High use of forum & <i>Interact</i> . Forum use successful once connected to the assessment task.	No timetable issues. Negative response relating to casual staff & inconsistency with approaches to forum use & student engagement/con tract	<i>CSU Interact</i> introduced. Casualisation
200870 Semester 2	internal	3 hour whole group workshop	High use of forum & <i>Interact</i> .	Improved results & student rating	

**Table 2 EPT514 The changing teaching approach and use of multi-media resources.  
(DE offering only, no on-campus students)**

<b>Year / session (Semester 1= Autumn. Semester 2 = spring)</b>	<b>Enrolment Mode</b>	<b>What f2f teaching time timetabled</b>	<b>How the CDROM was used/integrated into teaching</b>	<b>Student feedback that influenced decisions</b>	<b>Other factors influencing delivery during session</b>
200570 Semester 2	DE	none	CDROM used exclusively. High forum contact all the time	Positive evaluation surveys. Positive	

				surveys. If students felt their responses were being read they responded more.	
200640 Semester 1	DE				
200740 Semester 1	DE				
200770 Semester 2	DE				
200840 Semester 1	DE		CDROM used exclusively. Interact used during subject	Lack of forum contact affected student engagement	Casualisation.
200870 Semester 2	DE		CDROM used exclusively. High use of Interact		

### Monitor and review

The state of the learning environment associated with each subject was assessed at the end of each offering of the subject using the determined indicators. This was done as part of the normal end-of-session subject review process but for purposes of this research the evidence used to inform the resultant decisions was collated, and the factors influencing future decisions articulated in the in-depth interviews.

### Indicators:

- Subject evaluation surveys (formal University administered surveys)
- Direct, informal, feedback from students (email, online forum discussions, in person etc.)
- Research surveys (note these were only conducted in one session 200570 owing to changes in project membership and individual researcher time constraints).

### Learn

A key part of adaptive management is to learn from one's actions and the decisions taken to inform future practice. This learning is necessarily iterative and should not be confined to a single phase i.e. once the full session is over and the monitoring and review complete, learning informs future action. During the various sessions various events took place that informed small changes in practice. At the end of each session the monitoring

and review process led to major learning that informed necessary change of practice. Some of the key findings/learning episodes that led to changes in subject delivery are recorded in Tables 1 and 2 above (EMS301 & EPT514). The heuristic inquiry method gives further details of the learning process.

The project review meetings provided the platform for reviewing the current state of the learning environment and determining the required change in teaching approach. Action research would be sufficient as a tool if the researchers wanted simply to improve their teaching and student learning experiences. However, the strong heuristic inquiry process that has emerged during the study has identified issues and areas for attention that go beyond simply adjusting one's own teaching methods but the researchers are looking at identifying key issues, such as policy and guidelines, that impact at a University level.

## Appendix 2a Survey results EMS301 Education Studies: Practice of Teaching (Primary) – internal enrolment

Student surveys on the use of newly developed multimedia resources in the subject were carried out in 2005-2006.

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
1. The interactive CD-Rom gives me control over my learning?	1	10		7	1
2. The interactive CD-ROM with the lecturer speaking assists my learning?	2	4	1	5	7
3. The interactive CD-Rom assists my learning style?	2	4		6	8
4. The lecturer's input on the forum helped me feel a part of an interactive learning environment?	4	6	1	3	5
5. This is an effective classroom environment?	3	4	1	4	7
6. The reallocation of time between lectures and consultations has enhanced my learning?	2	3	2	6	6

- 1) 7. Which component of the subject has enabled your learning outcome? (E.g. Forum, Subject Outline, CD-Rom, Textbooks.) Summary of responses in decreasing order of significance in enabling learning outcomes: textbook, forum, CD-Rom, "combination of CD/Rom, Text & Assignments, but mainly teacher's enthusiasm & expertise in the area",

8. Do you find the contributions from other students useful?

Summary of responses: YES - 16 out of 20 respondents “definitely as you get to hear a variety of viewpoints, which allowed me to think more critically about any issues”, NO – 4 respondents “no we were all as confused as each other”.

9. This subject has been utilising interactive media pedagogy to enable students to have a closer engagement with the lecturer. What improvements or modifications can you offer to assist the research team to improve these learning materials?

Survey respondents provided very frank and open feedback around the use of the CD-Rom. Some comments included:

- *“Needs to be closely monitored so students actually do read text & use CD because it doesn’t take long to fall behind & then you don’t bother catching up, also tutes need to be more closely linked to the allocated readings & part of CD that was completed for the week because it didn’t take long to realise you didn’t need to read book or use CD to pass subject.”*
- *CD-Rom to provide information that would be given at a lecture, rather than duplicating what is in the text, ensuring all students have access to a range of multi-media programs.*
- *It would be good to have a clear schedule/subject outline so you know exactly what the requirements are & when your meant to do what.*
- *Students did not have a closer engagement with the lecturer, there needs to be more input than just listing examples/exercises to complete.*
- *I really enjoyed the subject & its presentation, teacher/lecturer was very passionate about the subject, which created a great learning environment*
- *Being able to post assignments through the internet would be a good idea and having subject outline available so that we don’t have to download whole thing just to view one page.*

10. Any other comments?

- *I think if the technology is clear and there is close connection with the CD-Rom, textbook & forums this form of external learning will be very effective.*
- *I would much prefer to be taught in the same manner as most other subjects, lecture & tute/workshop.*
- *The forum was a valuable means for class discussion.*
- *Did not suit my learning style. It didn’t feel like a real subject at all. Very disappointed.*
- *I enjoyed this subject as the lecturer used a variety of learning methods to assist with my learning of the subject, I believe the CD-Rom is another useful tool used in the classroom.*

## Appendix 2b Survey results of EPT514 Education Studies: Practice of Teaching (Primary) – DE enrolment

Student surveys on the use of multimedia resources in the subject were carried out in 2005-2006.

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
1. The interactive CD-Rom gives me control over my learning?	6	8			2
2. The interactive CD-ROM with the lecturer speaking assists my learning?	11	3			2
3. The interactive CD-Rom assists my learning style?	8	6			2
4. The lecturer's input on the forum helped me feel a part of an interactive learning environment?	13	2	1		
5. This is an effective classroom environment?	8	5	3		
6. The reallocation of time between lectures and consultations has enhanced my learning?	4	3	9		

7. Which component of the subject has enabled your learning outcome? E.g. Forum, Subject Outline, CD-Rom, Textbooks.

*Summary of responses: the majority of respondents identified all the components were important in enabling learning outcomes, 4 respondents specifically identified lecturer*

*participation and individual feedback to be important, 6 respondents specifically identified the CD-Rom as a good learning tool, no negative responses to the components.*

8. Do you find the contributions from other students useful?

*The majority of students agreed with this statement, 4 respondents indicated contributions were only sometimes useful and one did not find other students' contributions useful.*

9. This subject has been utilising interactive media pedagogy to enable students to have a closer engagement with the lecturer. What improvements or modifications can you offer to assist the research team to improve these learning materials?

- *“Students need to know what material to have read prior to viewing the CD”*
- *“CD-Rom shouldn't just quote the text.”*
  - *‘I found the CD extremely annoying, course materials are far more valuable, accessible & user friendly, I see this as a cost cutting exercise – students are forced to print readings.’*
  - *“Definitely acts as a bridge to bring students and lecturer “closer” in distance education.”*
  - *“Offer both interactive and on paper. Some people work better off notes on paper.”*
  - *“I was extremely happy with CD-Rom as it was.”*

10. Any other comments?

- *The support given by staff on forum really helped us feel like we were on the right track with our learning, rather than the only feedback to learning being from assessment.*
- *I thought CD was great, it's hard to get motivated & stay focused when you are constantly reading for hours, It was great to have a varied form of interaction.*
- *I actually made the comment to others during this subject, that it was as close to having a classroom/lecture-on-campus situation as I had experienced since commencing the course, I feel the input of John Rafferty and the other students along with the resources, brought the subject into my home.*
- *Excellent subject great delivery, at the end of the day the generosity of the lecturers in their time and knowledge was second to none.*

## **Appendix 3a Interview questions – academic researchers**

Interview questions asked of the academic researchers in the project. The essence of the answers to these questions has informed the details of the Stories and stages of the recount in the heuristic inquiry process.

### **Questions for blended learning project**

1. How would you define blended learning in the context of your teaching?
2. Can you outline the history of EMS301 [& EPT514] and your involvement
3. What were the major problems / issues in your teaching that led you to look at changing your teaching methods?
4. What were you hoping to achieve through involvement in this research?
5. Outline your overall approach to teaching EMS301 [EPT514].
6. How would you define the learning environment?
7. What sort of classroom climate/environment are you trying to create?
8. Do you think another person can teach your subjects in the same way, using your resources?  
What is needed for this subject to be taught by someone else?
9. Outline your concerns about blended learning at CSU and issues that need to be addressed for blended learning to be successful.
10. Comment on the time spent in teaching/delivery of blended vs face to face vs DE
11. What sort of student feedback have you had around your approach to teaching in these subjects?
12. comment on the student reaction to the delivery by CD-ROM vs real time lectures for on –campus students.

## **Appendix 3b Interview questions – educational designer**

1. How would you define blended learning in the context of your position here?
2. Can you outline the history of your involvement in the creation of these three subjects?
3. What were the major considerations when working on these materials?

4. What were you hoping to achieve through involvement in this research?
5. Outline your overall approach to creating resources.
6. How would you define the learning environment?
7. Any thoughts about the independence of materials regardless of teacher/academic?
8. Outline your concerns about blended learning at CSU and issues that need to be addressed for blended learning to be successful.
9. What have you noticed about student feedback on the blended learning approach?
10. Do you have any comment on the student reaction to the delivery by CD-ROM vs real time lectures for on-campus students?
11. Anything else you would like to add?

#### **Appendix 4 Researcher interviews, highlights**

The essence of the interviews has been used to inform the heuristic inquiry process so details. The researchers are passionate about their teaching and providing the best possible learning environment for the students. The experience of the researchers was very powerful and some of this is captured here in highlights from the interviews.

##### **John Rafferty**

- “blended learning, in the way I approach it, is really breaking away from traditional lecture and tutorial modes and engaging other technologies and protocols to establish a level of communication that is advantageous to learning. ...I think it can be summed up as just a change in challenging traditional lecture/tutorial approaches that we have.”
- “...in summary, the issue is how to teach well in an environment that doesn't support you to teach well. It is driven by other goals and these have a big effect.”
- “...I'm really looking for some validation of what I'm doing and then a platform for advocacy about challenging some of the myths that we hold.”
- “...My overall approach is to get a sort of collective..a safe environment for the students to talk about understandings of science ... we get to a situation where we can share and talk about these things and see how that's an impact on us as an educator and what we need to do.”
- “...the learning environment is a highly personalised one and there needs to be a lot of discussion and we alternate it around. “
- “...So initially, preparing stuff that worked for EPT graduate students and giving it to the internal students didn't quite work, but the feedback was the students wanted that discipline.”

- "...While I describe [the learning environment] very generically as personalised no year or no tut group are the same. "
- "...I think the environment is a fairly consistent one where I revisit constantly, the nature of knowledge and power relations within the teaching environments... I'd like to maintain that it is very positive and interesting environment, where we are constantly reflecting on the purpose of what we're trying to achieve."
- "...I think the transfer of subjects has to be a transfer not just a referral. There's got to be some ownership from the other person and some evolution in their thinking and they will take it somewhere...but it has to be more than just an explanation of what was in the package and how to do it."
- "...the rhetoric behind blended learning really speaks about recasting in education, recasting the way we think about pedagogy recasting the way we approach the students .. But if that's to be authentic reorientation recasting, then the systems behind it have change at the same time, not some time later."
- "...EPT514 has really been strong in the student evaluation survey, EMS301 has fluctuated a little bit but been inclining. The common theme in all my evaluations is the personalised approach."
- "...their [students] feedback was `you can give us some information about lectures and stuff about reading and stuff on the CD that good, but we'd really rather come and have some contact with you. So really had to sort out the role of the CD."
- "I don't want to sound like a miser or a doomsday person about these changes and Interact provides a useful platform. I don't think it's the be all or end all..we have to let people pick and choose how they engage in it and what they use out of it."

### **Jenni Munday**

- "To me the word 'blended is' emphasises the different aspects I try to bring to my teaching. So if I'm teaching internally now I'd try to provide resources for students to continue their learning outside of the classroom and when I'm preparing DE material I'm trying to put a bit more of myself in there..."
- "...We can make up our minds to do things a certain way but once you know the sort of students in your little pack, your little class, in each cohort you need to respond to them too."
- I came up with the idea...putting it into this particular context was new that if students had so many learning needs then could I find a way for them to be able to choose from a wide number of learning situations.. The learning outcomes for the students and the assignments that we received were spectacular".
- "...[the students went] through a series of exercises where they reflect on their own learning needs and by answering those questions about what I saw as the expected learning outcomes of the subject and their own learning needs at that particular time, they would create a learning contract. So they needed to devise that contract, that was their first assessment task, and then they needed to set about doing it, so it was a way to get them to be self-directed."

- "...a few of the students that I heard from, felt that there wasn't enough structure,.. I felt the results of the subject really showed me that if I supported the students a bit better, I would continue to get those good outcomes"
- "...we need to understand the real value in the electronic stuff and what it can do and how we can provide varieties of them to suit different learners."
- "...we need to recognise what value we have for the student. What value the student has in collaborating with other students by collaborating with one other student, working alone and being self-directed, working in a larger group, working in a whole class."
- "I would love to define [the learning environment] as a blended learning environment, in that I offer as much as I can."
- "...I value the students giving each other feedback about their work...is there going to be a way that we can use some of that online seminar or webinar or whatever to allow students to come together at a certain point, or some students, maybe small collections of students in order to share their learning at a particular point and to get feedback from their peers."
- "...when we are talking about the workload issue, it's also about the wanting to provide... it's that same thing that I said right back at the beginning, responding to individual needs within a subject and I would like to be able to do that more and then I think you are really providing a blended or flexible learning environment."

## **Janet Buchan**

*JR - Janet, at the end of it, what message you hope the readers will get out of the report? What's the message we want to get out? I mean, as an Ed Designer, what's the one or two main sort of messages, you hope we are going to get out if it?*

- "That there are a number of realities to this idea of blended learning as it's been put forward by the university and so those realities need to be known and it's a lot of hard work and there's no silver bullet, as it were, no answer to that. I mean, certainly for the students, it really has the potential to be a very exciting learning experience, but from what I can see, it takes enormous amounts of time and effort on behalf of, not just lecturers but others as well, but most importantly yourselves, ... So the message from the study is that there is no single solution, that we need to approach things in a very sustainable way if we are to survive and be able to sort of teach, but I think there is a lot of work to be done in the university to really get its head around what blended learning really means, if it's the answer to everything or not... There is certainly no one approach that pleases students and eventually you just do it and say 'just listen guys, just listen to the instructions and do what mum and dad tell you and you'll be fine.' Yeah it's difficult to thing, to work it out."

*Why did we choose to do interviews?*

- “The most important reason was I felt that we really needed to capture the emotional side and the really personal side of it, because it’s not just action research trying to improve one’s practices, but it’s become very clear that there is a very strong personal involvement in the subjects and always has been and that message, I think, needs to get out there because when it comes down to it, what the university is asking the people to do with blended learning and innovative approaches to teaching is too much, in workloads and such, without changes in the way things are done and support of teaching allocations and things like that, so I think that message really needs to get out there, that people are doing their best but peddling uphill and there is a limit to how far one can keep going with it. “
- “Blended learning, I understand, is the university approach to be the nexus of the Internal and Distance delivery...”
- “The first thing in the process was in actually designing it, was to know what the learning outcomes are, what are we trying to get across to the students and what’s the best way of doing that”
- “We did have issues in the early days of people with Macs, users not being able to access the PowerPoints so we had to make alternative formats available, so that was a technology thing, which of course impact on the learning. “
- “...we are now sort of seeing good practice and minority groups and saying ‘well small pockets of people are doing stuff and then using that and feeding that into the main stream and that’s what we do within CELT, is to try and look at that and try to feed that into the main stream, so these sorts of things that we’ve done, by John on his desktop, now it’s a whole lot simpler for somebody that wants to do that,”
- “...I really want to make sure the project comes to a good closure, because there is so much in it that we can take and generalise it and now that I have [more] responsibility within the university ... it’s not just developing little stuff, here down in Albury, but something that makes you feel you can go broader the university.”
- “..what we’ve learned from that is sustainability, that stuff needs to be sustainable.”
- “I’m coming to grips myself with what the learning environment actually is and there’s only one answer to that, it is that it’s different for everybody and that’s about it and that’s what an environment is. You draw the boundaries for yourself, as to what you can deal with... I draw distinction between the learning environments which is where the learning actually happens and the broader educational environment and those are the factors that are going to impact on it. ”
- “...I guess I always had a feeling with the fact that the key to these subjects is the individual lecturers at that point, if somebody else takes over the subject then I would like to see their face up there on the CD-Rom..”
- “I think materials should be able to stand alone and somebody else should be able to pick up those materials and teach the subject without having to completely redo it, so I think, that’s the sustainable approach.. to the design of resources, but if in the learning design, you’ve factored into it, a one page document that tells somebody how to teach the subject..”

- “...Yes, there has to be some fundamental policy changes for blended learning if we are to get the Internal and the DE convergence, but I’m not sure that we want to necessarily, because each of those has very distinct, positive attributes in itself, the Internal and the Distance. The blended learning, I think I would probably like to, rather than blended learning go towards a term that we’ve used Convergent learning...”
- “..what we have been looking at is resource based learning and that’s having a physical resource that is then used, I guess, as the primary source of information for the students... since the study started, Interact has come onboard, we haven’t see the impact on these particular subjects yet, but I would say that overall for other subjects, it simply provides another medium for information sharing... interact should then help provide the just-in-time provision but having said that, then the worry there, is how people actually use that or abuse it.”

## Appendix 5 Summary of Student Evaluation Survey feedback

### EMT501 – Student evaluation Survey reports. Key observations.

2008 Spring session - This report shows only a few items scoring under 5 (the mean?). Time management is scored lower even though the students are encouraged to complete and submit a study schedule as part of Assessment 1. Other items scoring under 5 relate to non-compulsory participation with Interact tools like the blog and wiki. Higher scoring items demonstrate students valuing the opportunity to think critically about topics and have control over their own learning. "I loved this subject. It was flexible and catered for my needs."

2007 Spring session - The 2007 report shows the responses to the time management issue and resulted in the above strategy. With the consistent response further review strategies are being considered. The consistent valuing of 'discussion' and lecturer input is exemplified by the above 5 responses for self-motivation and self-directed learning.

## Appendix 6 Informal student feedback

Quotes from student feedback via email, forum and surveys demonstrating student value and the usefulness of lecturer interaction for their study:

### EMT501 – informal feedback .

- My main reason for writing, however, is to thank you for your help this semester. While I did not include video in my portfolio I did make use of the links you sent and they were very helpful. Likewise, your advice on the Grade Pending application was really welcome. Things were quite stressful and your advice helped a lot. I guess I should have been aware that such things exist but I didn't. So again, thank you.
- I've a week to go with work. I'm teaching my staff about Moodle on Wednesday and planning IT assessments as well for Years 7 – 10 as the children have left for the year. So some of what I've learnt in the course will get passed on. I guess you don't have too long before a break. I read a lot about the design and management of distance courses early in the semester and I guess you might well be looking forward to a break too.
- I just wanted to let you know a "post script" to my work this year! You may remember the short early cut of the documentary I was making with my Year 10 boys about University access. We finished it, and it ended up being 20 minutes long and excellent (even if I say so myself!). The boys presented their work at a student research conference at QUT Kelvin Grove on Friday night. The boys and I have been asked to present the work and documentary at a literacy conference next year! Very exciting and I would not have had the confidence to embark on the project without the work I had done in EMT501 as a basis.
- 2007 email demonstrating the ability for students to negotiate appropriate learning according to 'life' circumstances:

as you pointed out on my contract it was ambitious and I have had to modify things a bit. However, it has turned out that one of my minor aims has become a major one at the expense of some basic skills. A school moodle has become available and I've been using it strongly as part of my senior Earth Science Course with on-line quizzes, web pages, etc. As a result I'd like to address this as it's really been where I've learnt a lot – particularly about the use of on-line assessment for learning. I'm setting up a guest access to the site at present so you can look at it. I'm assuming that the change will be OK.

- When I created my learning contract I was a bit optimistic about how quickly the students would be able to complete the work especially the blue screen movies. We are still finishing these off and I would really like to include these in my portfolio.

### **2009 – Student feedback from the Forum:**

I got Jenni to ring me a couple of days ago. Now instead of drowning for the 3rd time (in a flood of tears) I have found a little bit of land that I can perch precariously on and start to do something. I am hoping that the flood will subside and that I will be able to move forward step-by-step in a non-linear fashion of course – going all over the place is more my style.

What I did if it helps.

Looked at the Objectives and rewrote them (with Lysa's go-ahead) to suit the situation that I was in – at this point still not sure if I got the order right.

Was advised to keep my learning goals simple – after 6 or 7 rewrites they are almost getting there.

As for the weekly plan – that's still causing trauma but I feel like I've taken a little step.

Just keep asking questions until you either finally ask the one that you should have asked all along or you get the answer to the question that you'd never considered asking.

If you need light relief, support or procrastination time I can highly recommend the mature age students form – open to all ages. Don't expect maturity unless the question or situation requires it but there are also some great stress breakers.

Talk to Jenni or Lysa and keep asking questions.

This is the 3rd time I've tried to post so I have done it in word first.

### **Student Feedback on EPT514 and EMS301**

John 2005

EPT514 December 2005

John, I really appreciate the EPT514 subject as it was so interactive. That is accredit to you as you designed it to be interactive and you were always available to monitor the forum chats and add your own comments which was so great. As a distance education student you can feel very isolated...however. you were able to achieve interaction through the forum...I can see you care about your students. Plpease continue with this format – it is great.

EPT514 November 2005

An excellent and interesting subject. What was appreciated was the consistent contact on the forum which no other subject coordinator has provided until you. The knowledge that every response was being read, and responded to by you, gave a great deal os reassurance that there was someone at the other end interested in our learning. Because of your contributions I did actually feel as if I learnt something from someone (other than reading a massive backlog of readings)

EPT514 November 2005

I have thoroughly enjoyed this subject and found the CD presentation fantastic. Having studied DE for 6 years prior, I feel well experienced to judge! It was great to have the personal touch, rather than just be a name on paper. I would also like to thankyou for your devotion to the forum! It was great to know that you were interested in all of us here in DE land.

EPT514 November 2005

I loved the CD as it gave me a way to see you and hear “in person” your thoughts and expectations of this subject

EPT514 2007

I loved the CD that came with the notes...the forum pushed me to learn

EPT514 June 2008

Content was very well set out with the CD Rom, was almost like going to lectures - Great. Assignments were very relevant to our new world of teaching and John Rafferty was extremely supportive

**EMS301**

EMS301 2005

Did not suit my learning style. It didn't feel like a real subject. Very disappointed  
EMS301 2005

Get rid of the CD the subject was confusing, ill-directed and a waste of my HECS.  
EMS301 2005

I really enjoyed the subject and its presentation  
EMS301 2005

I enjoyed the subject as the lecturer used a variety of learning methods to assist my  
learning of the subject  
EMS301 2005

I prefer this style of learning. Good!  
EMS301 2008

Very confusing having the subject listed as distance but not actually being a distance  
subject  
EMS301 2008

As for John I don't think he should change anything (with the subject) it is wonderful.  
EMS301 2008

I feel that I didn't learn a thing with the casual staff member

## Appendix 7 Project budget financial details

7522 - Scholarship in Teaching 2005 - Buchan, Rafferty, Munday											
Original Application		2005		2006		2007		2008		2009	
Budget Item	\$	Budget Item	\$\$	Budget Item	\$\$	Budget Item	\$\$	Budget Item	\$\$	Budget Item	Yr to Date
		Income	\$7,108.68	Income	\$7,021.38	Income	\$7,661.04	Income	\$5,680.64	Income	\$3,704.72
				extra Faculty Funding	\$1,103.32						
Teaching Release	\$4,750.68	Travel	\$87.30	Postage	\$91.62	Academic Salaries	\$1,980.40	General Salaries	\$669.29	General Salaries	\$330.58
Travel	\$2,358.00			Travel	\$372.04			Super + oncosts	\$46.84	Super + oncosts	
								Printing Costs	\$200.00		
								Travel	1,059.79		
		Total Income:	\$7,108.68	Total Income:	\$8,124.70	Total Income:	\$7,661.04	Total Income:	\$5,680.64	Total Income:	\$3,704.72
		Total Expenditure:	\$87.30	Total Expenditure:	\$463.66	Total Expenditure:	\$1,980.40	Total Expenditure:	\$1,975.92	Total Expenditure:	\$330.58
Total Request	\$7,108.68	Remaining Funds:	\$7,021.38	Remaining Funds:	\$7,661.04	Remaining	\$5,680.64	Remaining Funds:	\$3,704.72	Remaining Funds:	\$3,374.14

Funds remaining, to be returned to Scholarship in Teaching fund - **\$3,374.14**