Education Studies Online

An evaluation of the Comprehensive Online Research and Development (CORD) Project

Prepared for the ESO evaluation team by Mary Rice

LS Learning Environments

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Acknowledgements

The work of the Education Studies Online evaluation team is gratefully acknowledged. Members of the team are:

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Role of the team

The evaluation team was responsible for the overall management of the evaluation and their role was to:

- determine evaluation foci and questions
- determine appropriate methods for gathering the data
- decide who would gather the data and when it would be gathered
- determine who owns and controls the data
- ensure that ethical issues were identified and addressed.

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Background

Over the past few years, Deakin University has funded various projects under the auspices of its Comprehensive, Online Research and Development program (CORD). In March 1998, two academic staff in the Faculty of Education submitted a proposal for CORD funding to develop a Virtual Learning Centre (VLC) for the Education Studies Major (ESM). The major has been developed in modular form across three year levels and is taught on-campus at Burwood and Geelong as well as in off-campus mode for post-graduate students.

The proposal for a VLC involved Information Technology (IT) being integral to the ESM. The expectation was that students would draw out theoretical understandings by engaging in practical problems, and that IT could be useful in illustrating those problems. ESO was therefore based on the following set of guiding principles derived both from the SCTP[1] competencies and from the team's experience.

> • Students must be able to access information from a variety of sources;
> • Students must be able to talk together using a variety of formats from face-to-face to electronic;
> • Students must manipulate rather than merely receive information;
> • Assessment processes must allow students to demonstrate both theoretical and practical competence;
> • Students must be able to search for international information;
> • Students must be able to make choices;
> • Students must be able to critically reflect on both their learning processes and outcomes;
> • As an equity issue, most of the information would be available both on the web and in print format (paper and/or CD-ROM). (Hutchins and Nicholson, 1998[2])

The VLC environment envisaged in the proposal enables online interaction with the large range of multimedia and other resources in a database-driven site that students and staff create together. In addition to manipulating preconceived content, learners are explicitly

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[1] Standards Council of the Teaching Profession.

[2] Hutchins, T. and Nicholson, P. (1998). *A virtual learning centre for the Education studies major: A CORD funded project, Business Plan*. Faculty of Education, Deakin University.

invited into the space to provide some of the material for learning, through forms of communication with each other.

What is ESO?

ESO is a customised learning environment that has been designed to meet the specific needs of the ESM. It integrates in a powerful way (1) academic administrative information, (2) module guidance and activities, (3) a digital resources library, and (4) communications dimensions.

1. *Academic administrative information*: ESO provides year-level information as a context for the modules on which it is based. This is information about Rationale, Goals and Structure. There is no unit level information as this was expected to be part of an Instructional Management System (IMS). The module home pages provide academic administrative information about matters such as Rationale, Outcomes, Structure, Assessment, Resources, and Staff. The relationship between ESO and the university 's computer user management system for authentication, and the IMS TopClass, has not been resolved.

2. *Module guidance and activities*: Each module contains study guidance, unit content and activities that draw on resources from the digital resources library. Unlike many websites used as adjuncts to other forms of delivery, ESO responds to a wide range of pedagogies, teaching and learning styles, and subject content.

3. *Digital resources library*: The database delivers discrete learning resources that can be used for different purposes throughout the site. They can be integrated into a module or activity by being assigned to those, or the database can assign resources to one or more topics in any modules. At present, there are 213 of these discrete learning objects in the digital resources library with associated catalogue and metadata. They include photographs, streamed audio and video excerpts, multimedia learning objects, and text documents. (Appendix 3 details the streamed Quicktime media.)

4. *Features enabling individual work and communication*: ESO enables students to create their own professional portfolio, reflect in their personal journal, and create personal web pages. It also has the potential to enhance students' school experience through its link with the practicum. Moreover, a public comments list and seamless articulation with FirstClass conferencing is provided.

Evaluation objectives and methods.

The objectives of the evaluation were to

- illuminate issues associated with the development of ESO in respect to:
  - project management practices,
  - resourcing the project
  - processes of development
  - the way the demands of the project challenged teaching and learning
- examine the impact of ESO on students' learning processes in respect to:
  - students reactions to what is there at present
  – the ways ESO has been used
  - the impact of the interactive components.

Limitations of the evaluation

The evaluation is limited in respect to student generated data for the following reasons.

- The project was not completed in time for students to use the site effectively in first semester
- ESO is not yet fully integrated into the ESM in all classes
- In second semester, it was difficult to gain access to student groups within the available timeframe.

It is essential that more systematic evaluation be conducted in 2001 to assess the impact of ESO on students' learning styles, processes and outcomes.

Evaluation findings

Managing the project

In the very early stages of the project, clear processes for project management were not established. While the Chair of the Education Studies Major (ESM) took the lead in the initial stages, he resigned from Deakin before the project development work began in earnest. This left a leadership void and no one to sponsor the project development. Furthermore, there was no designated project manager and no scope document that articulated the parameters of the project and detailed roles and responsibilities of staff. In particular, not all database technical aspects were not clearly and specifically scoped from the functionalities implied or stated in the business plan.

After a period of inactivity in 1998, when it became evident that the project was not progressing as it should, a proposal for managing the project was put by DCAD educational development staff to the Dean of the Faculty, who asked that it be implemented. The following action ensued during August/September 1998:

1. The Faculty's IT manager was appointed as project manager of ESO.
2. A Steering Committee was established to discuss issues associated with online development, develop appropriate policies, and make decisions about the nature and scope of the site from an educational perspective. Meetings were generally held at six weekly intervals. Members of the committee included the Project Manager, Chair of ESM, Unit Chairs of each of the three ESM year levels, education designer (DCAD), and web coordinator (LRS). (See Appendix 1)
3. A Working Group was also established to carry out the development work in ways that ensured the site was consistent with the principles articulated in the initial proposal. This group met weekly or fortnightly and was responsible for designing and building the site, defining the type of functionality that was required, liaising with individual unit chairs, and developing production processes and timelines. The group included two Faculty academics, the project manager, and development staff from DCAD and LRS. (See Appendix 2)

4. An ESO project management site was built to facilitate communication about project decisions and progress. (See http://www3.deakin.edu.au/vlc) Notes and reports from the Steering Committee and Working Group were archived on this website . Exemplars of online resources were placed there to give staff a better understanding of what ESO might be. Examples of online video and audio were provided along with links to an ESO mock-up site and a site developed for the School of Architecture and Building that had comparable functionality.

These mechanisms epitomised good project management practice as articulated in the literature. Attempts were made to clarify the roles and responsibilities of people involved in the Steering Committee and Working Group and, by and large, the groups reported to one another as they should. Despite having these processes in place, there were project management difficulties that significantly affected the development of ESO.

- At various stages of the project, there were problems associated with human resources allocation and management within the Faculty, DCAD and LRS. There was an unusually high amount of staff turnover and both long and short periods of scheduled and unscheduled leave. This created difficulties for project management. Some staff accepted responsibilities knowing they were going to be away at critical times, others didn't inform the project manager when they were going to be away. Unforeseen absences also occurred as a result of resignations, retirement, or stress leave. This impacted on workflow causing some staff to be allocated alternative work and not be available to ESO for significant periods of time. The database developer and graphic designer were unavailable to work on the project at critical stages when their work was required. While absences were generally unavoidable, the issue is they could and should have been better managed.
- The Faculty IT Manager was asked to take on the role of project manager along with his other responsibilities. No allowance was made for management of a complex IT project that would be time-consuming. Therefore, it proved to be difficult for him to always give the project the time it required. Managing a project without scoped parameters was also difficult for him, though his efforts were widely appreciated by academics in the Faculty.

- The Steering Committee met quite frequently during 1998 and produced some very helpful policies and principles to guide development. They also dealt with curriculum and budgetary matters. For example, money was allocated for small sub-projects as an incentive to involve staff. The projects included module writing, Deakin video and audio resource searching, URL searching, listing and annotations. However, there were extended periods during 1999 when project progress was slow, the Committee didn't meet, and membership waned. Committee deliberations sometimes reached an impasse because of the differences and tensions between the two campuses. It was sometimes difficult to resolve issues about content and pedagogy for online environments.
- The Working Group were responsible for the day-to-day work of conceiving, developing and testing ESO functionality in line with the original proposal. They met regularly and, for the most part, worked productively throughout 1998, early 1999. The group included people with different types of expertise and varying levels of experience. Nonetheless, all were on a steep learning curve in respect to the design and development of complex online learning environments. Some members of the group sensed a lack of coherence at times because roles and responsibilities of group members sometimes overlapped, causing confusion about who was responsible for what. The education designer at times acted as a quasi-manager in an effort to ensure that what was developed was consistent with the type of environment originally proposed.

  The development process undertaken by this group is detailed further on in the report.
- While the project management website archived notes and reports from the Steering Committee and Working Group during 1998 and 1999, most staff didn't visit the site to keep up-to-date with what was happening. Email was subsequently used as the main communications mechanism. A further problem with the site was that there were long delays in placing exemplars there. Staff who initially visited the site from time to time stopped doing so because there was 'nothing to see'.

What has been learnt about project management?

Although an appropriate organisational structure was established for the project (albeit after work commenced), a number of lessons have been learnt from the project management difficulties that arose.

Project sponsor: Projects need a project sponsor or leader who has a vested interest in its completion. Someone who can inspire participants and harness and focus their energies to ensure that progress is steady, and commitment to the project objectives is engendered and maintained. A leader also needs to be able to make decisions in uncertain circumstances.

Scope statement: Before work commences, a project needs to be accurately scoped, particularly in respect to database/technical aspects. Roles and responsibilities, schedules and risk factors should be documented at the outset. Without such parameters, control of the development processes can be difficult.

Project manager: Projects need project managers who are in a position to dedicate adequate time to the various inputs, throughputs, processes and outputs, as well as to the communication of project requirements and actual progress. The project manager's role should be clearly articulated and understood by all participants, and he/she should have the authority to progress the project. In particular, he/she should report to senior management on impediments to progress such as the unavailability of human resources and other risks.

Communication plan: From the outset, a project manager needs a communication plan to ensure that relevant people in cross-functional groups receive all information in convenient, timely ways, and have shared understandings about the information being communicated.

Team dynamics: It is necessary to define clearly the roles and responsibilities of each group member and to identify strengths and weaknesses in the skill base. It is also

necessary to ensure that team members understand how to work collaboratively in a team, and know when it is appropriate to work as individuals. Rather than operate in routine ways, different skill sets, work patterns, and role relationships may be required to progress web-based research and development projects.

Resourcing the project

Being a CORD project (research and development), ESO received University funding of $80,000. Of this, $40,000 went to the Faculty and DCAD/LRS received $40.000 essentially to pay for database development, education design, graphic design, editing and production. In the Faculty, each of the three year levels for the ESM received $10,000 and the final $10,000 was used to cover other costs in the Faculty. The project money was used in various ways to further the development of resources for the site.

The Steering Committee initially devised a pro-forma to encourage staff to apply for small amounts of funding to enable them to develop resource material for ESO. Only two staff members completed the pro-forma and received funding. They used it to hire consultants to help develop and search for resources, as will be further detailed.

Issues associated with resourcing

• Some staff expected money for teaching time release to enable them to find or create resource material for ESO. However, others believed that ESO was part of their overall job, and as such didn't require extra funding. Such discrepancies in understanding about changing roles for academic staff should be debated and resolved by the ESM committee.
• Some money was spent on activities that did not come to fruition. For example, Module writing work done by a consultant ended up not being used because it was thought by some to be inappropriate for ESO. Also, $1000 was used to pay a person to research relevant resource weblinks for the site. These have not yet been used and some are now inactive because no one has taken on the responsibility of maintaining the website links.
• Some staff believe the project was too costly, both in terms of money and staff time. They did not believe that the development of ESO was necessary. However, the decision to go ahead was made by the Faculty. It is often difficult for people to understand the real costs of IT development– commensurate with commercial rates, the ESO development

costs were quite acceptable. If it had been possible to have a programmer working full time on the project, development time would have been greatly reduced.

• Among staff, there was confusion about resourcing. Although they knew the Faculty had received University funding, some didn't know what it was being used for overall, how much was available for individual staff, or how it was being used by other staff, DCAD and LRS for example. Moreover, some staff didn't know that this type of information was available on the ESO project management website, though they had been notified initially and regularly reminded by the project manager via email. It appears that staff did not have time to continually access this information.

Process of development

The ESO development process was characterised by periods of productive activity followed by periods of inactivity. Two main factors contributed to this:

- There were an unusually high number of key staff absences at critical times, and
- the development of comprehensive online learning environments was a new endeavour for most academic and development staff involved in the project.

In an attempt to focus the project prior to his departure from the University, the Chair of ESM and co-author of the project proposal specified what he thought ESO would look like. His idea was that it be based on modules, that there be enough modules to enable students to select flexibly, that modules could be added or taken away, and that this flexibility might help to alleviate ideological, philosophical and pedagogical differences between the two campuses. He also described the type of activities and resources that could be included in ESO. However, after he left, progress stalled for a number of reasons. There was a void in respect to leadership and vision from those with the authority to motivate and focus Faculty staff. At this time, there were also tensions within the Faculty in respect to who should be chairing the pre-services course committee and the ESM committee. Issues relating to the teaching of the ESM across the two campuses remained unresolved. In particular, there were different student profiles, and differences in respect to what was taught and how it was taught.

However, following the establishment of the project committee structure, development work progressed. The Steering Committee decided that year level development teams should be cross-campus rather than campus-based. Some of these teams worked more productively than others, but developments took place across the three year levels. First year appeared to have the most stable curricula and developed modules for trialing by students. Second year dealt with significant cross-campus differences and changes in chairs and curricula, while third year focussed on a 'case study snapshots' website.

Initial deliberations of the working group focused on ways of assisting year level academics to determine the scope and function that should be available for each level in the ESO. The group listed the types of resources and content that could be included (e.g text, video, audio, graphics), and also identified the types of functionality that would be possible (e.g. how to link video, audio and graphics with text, how to create a student portfolio, the type of discussion/chat forum required). Guidelines were produced for academic staff on LRS timelines, possibilities and functionality of the on-line components, and processes for disseminating information about the project. The education designer and database developer listed the functions that would be generic across the site along with the aspects of functionality and the possibilities of teaching and learning on-line.

A significant task was to determine the categories and keywords to be used as descriptors for resource items that were to be uploaded to, and downloaded from, the site. Although the group planned to upload some video files as exemplars for staff to see how it could be used online, this was delayed because a video-streaming server was not available at the time and the resources database was not completed.

Academic staff for each year level were asked to discuss ways of teaching and ways of adapting strategies for online use. They were also asked to find resources for the site, produce content and activities and decide how they would be integrated within the learning environment. However, for legitimate reasons, this proved to be a very difficult, drawn-out process. Because there was nothing for staff to 'see' on the site, most of them

did not have an understanding of what the online environment was and what it required of their writing and designing skills. They could look at aspects of the site, but could not get a sense of what ESO was in totality. Without that, they felt unable to produce appropriate material, as the following comments indicate:

> We were being asked to design something both at a content and conceptual level that we'd never done before. We didn't have a concept of what this thing could be.

Technical and design staff had difficulty communicating the technical possibilities in the site. They ran workshops for staff, but they were not well attended, and in any case did not solve the problem for those who did attend. As one staff member commented:

> I went to most things they ran…but I'm still in the dark as to the kinds of possibilities that there are in the site. I don't really understand the site in lots of ways. No-one's really explained it to me. It's been developed in bits and no-one is communicating all the bits to everybody - you discover it by accident.

The approach to development tended to be egalitarian in the sense that all staff had the opportunity to contribute ideas. However, some believed it would have been preferable and time-saving for someone to develop a model and ask staff what they liked about it, what they would modify and so on. Not having something concrete to work with was clearly a factor that retarded development.

A significant and understandable disincentive for some staff was an underlying problem with the structure of the Education Studies major. Staff believed the sequence of the ESM curriculum was not appropriate and would soon be reviewed. This curriculum review eventuated with the appointment of a new Chair of the ESM committee in mid-2000.

All academic and design staff working on the project had other responsibilities. This meant that no one could devote themselves solely to the project. For some academics, the ESO was only a small part of their overall ESM responsibilities, and that was only a small part of their overall workload. Because there were other more urgent priorities demanding staff attention, and because development work for ESO required different ways of thinking and working, and was very new and difficult, it did not progress according to schedule. However, it was a CORD project, that is to say, it was meant to be

a comprehensive, online, research and development project, something that the literature reports is thwart with uncertainty.

While there was a period of time when staff thought very little was happening because they could not 'see' anything, development work was steadily continuing on the structure and design of the site. For example, by December 1998:

5. The foundation model for the shell had been developed,
6. Navigation prescriptions and options had been developed
7. Graphical interface and site design was developed
8. Key words had been identified for resource categorisation
9. A conferencing/chat facility had been developed [3]
10. Discussions were held about what material would be openly available on the web and what would be available only for enrolled students.

Funding for Faculty staff was used to employ consultants who undertook the following work:

- Composed some online pathways for students to compliment the print resources
- Searched for resource material, such as videos in the library
- Collected images of education over time and looked for sounds and slides
- Searched for online resources
- Wrote summaries of lecture content to put online.

Other people in LRS, and the Library also contributed to the collection of resources by searching the University's photographic archives. A relationship was developed with LRS photography and the University's Marketing Division to acquire existing photographs taken of teaching and learning settings in the University and in primary and secondary schools. Resource acquisition and management was a significant element of the research and development project.

[3] This chat facility was subsequently abandoned. Instead, a direct link was provided from ESO to the University's conferencing system, FirstClass.

In early 1999, the project stalled because, as mentioned previously, the database developer was unavailable to work on ESO. He had been moved to another project for a three month period. Similarly, the graphic designer had been allocated to other projects.

In April 1999, following a hiatus in the project, a discussion paper[4] was written to address the challenges inherent in designing for online environments within finite timelines and at a time when workloads were generally intensifying. This paper argued that work for the CORD project should not be an added extra, but should be an integral part of the overall teaching responsibility. The paper further argued that as far as possible, optimal use should be made of existing materials such as study guides, lecture material and tutorial/workshop notes. It recommended that a framework be developed and that existing materials be 'modified and enhanced for access online'. However, some staff believed this approach would be inconsistent with the initial goal of developing an innovative VLC and would lead to mediocre use of the website. Now that ESO has been developed, such print materials could easily be transformed for inclusion into the learning environment.

Challenging teaching and learning

The development, ongoing maintenance and use of a comprehensive integrated online environment has challenged teaching and learning in a number of ways.

• ESO has challenged understandings about the nature of learning, how it is initiated, managed, and what online learning might mean because it has created learning opportunities not previously available to staff and students. While Faculty staff have a depth of expertise in teaching and learning, they are challenged to translate this to online environments where learning may require a different style of thinking . As one staff member commented:

> This project allowed us to have very interesting conversations within my team about how people learn and that's been very useful. We know about how people learn – what we've got to do is translate that to online. Many people think that learning and online learning is the same thing.

[4] Fitzclarence, L., Gough, N., Johnson, R., and Warren, C. (1999). *Some proposals for addressing the challenges of Education Studies Online*. Faculty of Education.

Another believes that:

> …what it means for our teaching and for our students' learning are open questions. Until you've had a site to work with, tried it with students, you don't have the data on which to base judgements about how it's affecting your view of teaching and learning.

There is a view that online learning is much less linear and prescribed than traditional Western styles. It demands that students have choices, can take the initiative and be responsible for their own learning. It also suggests there should be enough options to enable students to discover and use their preferred style of learning. ESO has built in many opportunities for reflection, analysis, logical solutions, non-verbal communication, different modes of discourse, and so on to cater for different styles of learning.

• ESO can create uncertainty about the knowledge base of teaching because it highlights what is not known about teaching and learning online. Knowledge that has accumulated over several years is open to question, and staff are challenged to 'let go' some of their valued methods of teaching. Some staff experience a loss of control because they are challenged to keep students interested and motivated when they are not together in groups. Moreover, they have to manage huge variations in students' computer literacy skills.

• ESO challenges existing assumptions about the type of content presented to students and the opportunities made available for participation and interaction. ESO asks academics to construct, customise and individualise environments that invite students into the space to participate in the content creation process. This in turn assumes the need for a reconceptualisation of assessment approaches.

• The basic understanding is that ESO is for all students. Rather than be seen as a resource predominantly for off-campus students, the ESO presents a challenge to on-campus staff and students as well, in respect to the integration of online work with face-to-face classes. The use of the journal, portfolio, and practicum has particular relevance for on-campus students as they develop their professional skills. Specific ESO resources

can form the basis for a face-to-face or online tutorial or could be used in pre-and post-tutorial activities.

• ESO reflects the changed world we live in, the world in which trainee teachers will be living and working. It challenges staff to consider the implications of the e-world for what it means to be an academic and a teacher. One unit chair observed:

> In our teacher-training program, we don't replicate the notion that computer terminals and access to the WWW are a normal part of the classroom, part of kids' social relations, integral to kids lives. Increasingly, teachers are responding to it, but teacher trainers are not.

Staff and students talk about e-learning and operate in the e-world in many ways. They are familiar with swipe cards, BPAY to pay bills online, the Deakin student information database, staff information database, library catalogue database, links to many places in the world – there is integrated connectivity on a very large scale. The challenge is to become networked professionals.

• The need to provide metadata (catalogue entries) for resources placed in the repository will be a challenge for staff, particularly if they do not have the time or interest to work with the site in that way. In addition to providing information about the author, title, and date, key words have to be selected, and a description of the resource is required from a technical point of view. The idea of using a search engine to find relevant resources in the database will also be a challenge for users.

• ESO challenges staff and students to increase their information technology literacy skills. The incorporation of IT into the curriculum is a challenge for staff when their students' computer competency levels vary significantly. While some students will feel comfortable and be able to operate in the ESO environment, others will not and will need time to learn the required skills. If other systems such as FirstClass and TopClass are used in conjunction with ESO, students have to learn how to use them as well.

Use of ESO

Anticipated use

In most classes for ESM units, use of ESO during 2000 was voluntary because the site was incomplete at the beginning of first semester. However, two lecturers mandated a small hurdle task that required students in their classes to write some reflections in their ESO journal. Across the major, there was no integrated, planned use of ESO, therefore the degree to which lecturers and tutors encouraged students to use ESO varied widely. As one student noted:

> *Tutors were all doing their own thing.*

In some classes, lecturers introduced students to ESO. They showed them how to navigate and how to use the various modules. These students were also informed about the resources available, links to other websites, and extracts from the work of past students. Then it was left to them to choose how much use they might make of the site.

Other lecture and tutorial groups were introduced to ESO in a more cursory way or not at all. Sometimes, this was because the site was unfinished and tutors thought it would be too frustrating for students to be trying to access technology that was not properly established. In other cases, staff were less interested in ESO, or did not have the time to incorporate it in their units. A few didn't see much value in it for on-campus students.

Usage statistics

Of the 1920 students enrolled in ESM, 294 logged on to ESO, while of the 26 full time and 10 sessional staff members teaching in the major, 20 logged on. Of these, only two visited the site on a regular basis, logging in on more than 40 occasions. Twenty other staff not teaching in the major also logged on.

Some student perceptions

Due to difficulties in accessing student groups within a short timeframe, data presented in this section has been drawn from discussions with only two focus groups and four follow-up telephone interviews. Given that this is a small sample of students, it is not known how representative the perceptions are.

Reactions to ESO

Students' reactions to ESO varied considerably and depended largely on the extent to which they understood and engaged with the site. One group of students appeared to demonstrate little interest in ESO, and showed no excitement about its possibilities. They appeared to have very little understanding of ESO as a concept or much knowledge of the breadth of resources available on the site. As a result, very few of them explored information available through a number of URLs provided on the site. One student who tried to do so found it too time-consuming and couldn't obtain what he was searching for, so didn't find it helpful. Apart from completing the hurdle task by making an entry in their ESO journal, no one in this group extended their use. As the usage statistics demonstrate, about 85% of the overall cohort didn't use ESO at all.

Another small group of students did engage more with ESO and were very positive about its possibilities. While they knew the site was still being developed, they generally found it easy to use, and easy to understand. They also found some aspects of it informative and useful for assignments. Some used the journal for personal reflection beyond what was mandated. Others used the videos and the SA site for teachers, which contained lesson plans and ideas from practising teachers. Some of these students commented on the value of the 'Inside classrooms' video, as this remark illustrates:

> *Hearing from teachers about real live teaching issues is really valuable.*

Students in this group appreciated the opportunity to use online technology and some noted that it was the first time in their lives they have had such technology available to them. They believe it is important for trainee teachers to increase their computer skills,

become competent users, and learn how computers can be used to advantage in classrooms. Indeed, one student observed:

> *The Education major could do with more computer work–it needs to be modelling the use of computers for education.*

A few highly motivated, mature-aged students logged onto ESO on a regular basis to check for resources that would help expand their knowledge and understanding of teaching practice. They got as much out of it as was there and found it relevant in terms of the resources provided and the activities available. As two students noted:

> *Once I got into a rhythm personally, I checked it once a week to see if there was additional material different from what was in the Study Guide. It was the links that particularly interested me. I became a regular user*.

> *Ultimately I got a lot out of it. I'm not a technophobe, but needed to be converted to use it on a regular basis.*

Some students used FirstClass to access resources such as lecture notes and lecturer's directions or advice, especially about assessment. It is not known how many of them connected to FirstClass through the ESO link, and how many connected directly through the FirstClass Client. The portfolio and practicum have not yet been used..

Impact of ESO on learning processes

For most students, there has been very little impact on learning processes to date because not enough use has been made of the site to influence existing ways of learning. Students are not accustomed to learning online so have not changed existing learning processes resulting from enculturation over many years. They are accustomed to face-to-face lectures, where they are often passive recipients of content. While they are invited to ask questions, make comments and so on, (and some do), most listen to the lecturer, follow a Powerpoint presentation or watch video material at times. Opportunities for more interaction are provided in tutorials or workshops catering for smaller groups. Here they are engaged in discussion with the tutor and other students, or they complete various activities relating to the topic under discussion. Although audio and video resources are

widely used, use of online technology is generally not a feature in these face-to-face classes.

By and large, students bring their existing ways of learning to online environments. The majority of students in the focus groups prefer face-to-face classes and would want these opportunities for personal interaction and discussion to continue. However, most on-campus students have not yet experienced a different model. Mature-aged students who regularly used ESO could conceive different ways of working as this comment illustrates:

> *I could imagine myself getting used to a different balance between face-to-face classes and online contact, and between print resources and online resources*.

Outside classes, information is predominantly accessed through print. Most students do not like to read online – they find it more convenient to print textual material to read elsewhere. Print is generally seen to be more portable and therefore readily available. To the extent that students highlight or annotate print material, they can be said to be interacting with the content. However, they look to computer technology to provide more interesting interactive material, particularly 'moving action bits' that cannot be found in books.

Some students would like to be able to access lecture notes online when they miss a lecture or lose their lecture notes. At present, most borrow notes from other students to photocopy. Some lecturers now make their lectures available online in FirstClass.

Most students have not engaged with ESO content in sufficient depth for it to affect learning processes or improve learning outcomes. However, those who did access the resources and use the journal believe they learnt things about teaching and learning they would not otherwise have learnt. They found there was more chance for individual work that encouraged them to explore their own interests.

Implications of student feedback

With the caveat that student feedback to date is sketchy and not necessarily representative, there are some implications to be drawn.

It appears that some students are very aware of the need for them, as student teachers, to become competent users of computer technology so that they can use it effectively in classrooms. They know that school children already use computers extensively, both at home and at school, and they realise that many teacher-training courses do not model what is happening in schools. Furthermore, many teacher graduates are not as competent or confident as children are with computers.

It is likely that many students take their cue from staff. If staff are interested in integrating online technology into their classes, and incorporate it into assessment work in significant ways, students will use it more regularly, and become more competent. These students will be better equipped to teach children in the 21st century.

While the consensus appears to be that face-to-face classes are still the most valuable way of interacting, students may benefit from a different balance between on-campus and online classes. Depending on the content, some lectures could be online, while others could be delivered face-to-face. The balance between on-campus and online classes does not have to be the same for all students. Some may desire or require more face-to-face interaction than others. With ESO, options could be available that enable students to complete particular activities during on-campus classes or online if they preferred. Mature-age students in particular would perhaps appreciate this type of flexibility, and would like to use face-to-face classes in optimal ways for more personal interaction. In a climate where resources are dwindling, the best possible use should be made of on-campus and online opportunities.

Clearly students would appreciate receiving content in a range of media. In particular, many of them are more motivated to engage with ‘moving action bits’ rather than with copious amounts of print. ESO has already responded to this need with the incorporation of a variety of resources, many delivered via streamed audio and video.

Conclusion

Consistent with many research and development projects, the ESO project was experimental and protracted. Inconsistent project management and staff movement in the early stages significantly affected the progress of the project, as did the lack of a strong project sponsor. The difficulties experienced by staff in developing material for an unseen environment also affected progress. Nonetheless, the project was brought to fruition and has resulted in a comprehensive, fully integrated teaching and learning environment that offers innovative opportunities for learning that have not been previously available for ESM students. The digital resources library provides a wide range of multimedia resources that can be used in different ways in different units or programs.

Not enough use has been made of the site to date for it to have had any significant impact on student learning processes and learning outcomes. While students express a desire for material that cannot be provided in print, there is insufficient understanding of the potential offered by the interactive elements of the ESO. Nonetheless, the experiences of a few students who believe it did benefit their learning indicates that ESO is potentially a valuable learning environment.

Recommendations

- Through its relevant committees, the Faculty should develop clear policies or guidelines for the future development and maintenance of the ESO, and its integration with FirstClass and/or TopClass.
- A sub group of the ESM team should be established to assume particular responsibility for ensuring ongoing development of the online components of the major.
- Development of the educational aspects of the site should be the responsibility of unit chairs for each of the three year levels. Any technical development and maintenance work for the site should be the responsibility of an IT support person.
- Just-in-time professional development should be resourced by the Faculty to ensure that the advantages of ESO are realised by staff. One-to-one development should be provided when individual staff are required to produce material for their particular units. This can be achieved through a mentoring system within the Faculty or by having an education designer work with individual staff.
- Project management and academic content provider roles require a serious time allocation. Such roles should not be assumed by staff who have many other commitments. The Faculty should make funds available for time release to ensure that online content development is properly conceived and brought to fruition.
- Academic staff should not be expected to develop high levels of IT conceptual and technical expertise because it is not their core responsibility.
- The Faculty staffing profile needs to include a range of skills and specialisations including:

  • academics who are comfortable and competent with technology and who have an understanding of the educational and technical possibilities in online environments;

  • education design specialists;

  • IT specialists to assist with technical development and trouble-shooting;

  • project management expertise;

  • administrative support staff.

- Access to the following skill sets is also required: web technology; database development; multimedia production; graphic design; and library retrieval. Such expertise can be attached to the Faculty, accessed via central support agencies, or by outsourcing specialist tasks.
- Practical models or exemplars should be developed to demonstrate how ESO could deal with the different pedagogies used by individual staff and teams.
- To encourage students to use ESO, relevant resources should be drawn to their attention and meaningful assessment tasks should be incorporated in the environment.
- Future IT research and development projects should only be undertaken if there is a strong project management structure in place, there is a reasonably stable staffing profile, and there are sufficient understandings about the real costs of such projects.

APPENDIX 1: ESO Steering Committee membership

Richard Bates – Dean, Ex officio

Noel Gough - Chair, CORD Project Steering Committee, ESM Coordinator

Colin Warren - Project Manager, VLC

Richard Johnson - Academic Director, VLC

Peter Waterworth - 1st Year Coordinator Burwood

Russell Matthews - 1st Year Coordinator Geelong

Richard Sealey - 2nd Year Coordinator Burwood

Jill Blackmore - 2nd Year Coordinator Geelong

Christine Perry - 3rd Year Coordinator Burwood

Wendy Kortman - 3rd Year Coordinator Geelong

Robin Stephens - IT Advisory Committee representative

Stephen Segrave - DCAD representative

Rosemary Borland - LRS representative

APPENDIX 2: ESO Working Group membership

Richard Johnson - Academic Direction, Faculty of Education)
Colin Warren - Project Management, Faculty of Education
Rosemary Borland - Co-ordinator, LearningResources Development, LRS
Stephen Segrave - Online Education Designer, DCAD
Andrew Smith - Software Development Projects Officer, DCAD
Ian Fox – Graphic Designer, LRS.

The Core Working Group met weekly or fortnightly to maintain action on the practical developments in the project. Meetings of this Working Group will almost always be supplemented by other staff from the Faculty, DCAD, LRS, ITS, Library etc on a needs basis—that is, whoever needs to be involved in the development, production and implementation of whatever the Working Group is working on at the time.

APPENDIX 3: Quicktime media streamed from the LS pilot server

Folder		File Name	Format	Resource Title	Relate
Technology	1	1_dotComTV	Full motion colour video	Memory Stick (dotComTV)	Modul
	2	2_dotComTV	Full motion colour video	Wine Chat online (dotComTV)	Modul
Hargreaves	3	1_Hargreaves	Audio with single still colour photograph	Andrew Hargreaves Presentation	
Chequerboard	4	1_chequerboard 1min36secs	Full motion B&W video	Chequerboard Revisited: That Piece of Paper (Pat & Ken -26mins)	Modul
	5		Full motion colour video	That Piece of Paper (Ken Sylvester extract)	Modul

First_day	6	Sam_attack	Full motion colour video	Sam's attack ('First Day' extract)	Modul
	7	Sam_hat	Full motion colour video	Sam's hat ('First Day' extract)	Modul
	8	Sam_home	Full motion colour video	Sam's home ('First Day' extract)	Modul
	9	turkish_culture	Full motion colour video	Turkish Culture ('First Day' extract)	Modul
	10	roland	Full motion colour video	Roland ('First Day' extract)	Modul
Lateline	11	1_Lateline-6-4-00	Full motion colour video	Thinking Ahead [excerpt] Lateline, ABC TV	
	12	2_Lateline-6-4-00	Full motion colour video	Thinking Ahead [excerpt] Lateline, ABC TV	
	13	3_Lateline-7-9-00	Full motion colour video	War Against Boys - Statistics (Lateline exerpt)	
	14	4_Lateline-7-9-00	Full motion colour video	Christina Sommers Interview: The War Against Boys	
	15	Thinking Ahead2 (Lateline)	Full motion colour video	Thinking Ahead [excerpt] Lateline, ABC TV	Modul
	16			Teachers and Doctors -Lateline, ABC TV	Modul

Dale_Spender	17	Dale_Spender_a	Full motion colour video		Modul
	18	Dale_Spender_b	Full motion colour video		Modul
Middle_years	19	Michelle_Hayes	Full motion colour video	Middle Years - Michelle Hayes	Modul
	20	david_ryan	Full motion colour video	Middle Years - David Ryan	Modul
	21	Maree_Semar	Full motion colour video	Middle Years - Maree Semar	Modul
	22	Anne_newer	Full motion colour video	Middle Years - Anne Newer	Modul
	23	Stephanie_Merchants	Full motion colour video	Middle Years - Stephanie Merchants	Modul
	24	Karen_Moore Karen Moore (1) Karen Moore (3) 1&3 are not on the streaming server	Full motion colour video	Middle Years - Karen Moore	Modul
	25	stephen_caspino		Middle Years - Stephen Caspino	Modul
	26			Karen Moore (3)	

classroom_rules	27	rules_1	Full motion colour video	Classroom Rules: Prep 1993	Modul
Murray	28	Murray_1	Full motion colour video	Murray (1)	Modul
	29	Murray_2	Full motion colour video	Murray (2)	Modul
	30	Murray_3	Full motion colour video	Murray (3)	Modul
	31	Murray_4	Full motion colour video	Murray (4)	Modul
	32	Murray_5	Full motion colour video	Murray (5)	Modul
Teach_E	33	TeachE_Y1_L2_A	Full motion colour video	TeacherE_A: Leave the cord, please! [Teach_E_Y1_L2_A]	Modul
	34	TeachE_Y1_L2_B	Full motion colour video	TeacherE_B: Information Overload [Teacher_E_Y1_L2_B]	Modul
	35	TeachE_Y1_L2_C	Full motion colour video	TeacherE_C: Groupwork 6 stations [Teach_E_Y1_L2_C]	Modul
	36	TeachE_Y1_L2_D	Full motion colour video	TeacherE_D: Pair Working Quietly [Teach_E_Y1_L2_D]	Modul
	37	TeachE_Y1_L2_E	Full motion colour video	TeacherE_E: Attending to individual learners [Teach_E_Y1_L2_E]	Modul

Teach_E	38	TeachE_Y1_L2_F	Full motion colour video	TeacherE_F: Dreaming [Teach_E_Y1_L2_F]	Modul
	39	TeachE_Y1_L2_G	Full motion colour video	TeacherE_G: Listen to me, Teacher! [Teach_E_Y1_L2_G]	Modul
	40	TeachE_Y1_L2_H	Full motion colour video	TeacherE_H: Ending Groupwork [Teach_E_Y1_L2_H]	Modul
	41	TeachE_Y1_L2_J	Full motion colour video	TeacherE_J: Sitting up, quickly! [Teach_E_Y1_L2_J]	Modul
	42	TeachE_Y1_L2_K	Full motion colour video	TeacherE_K: 6 Cherries [Teach_E_Y1_L2_K]	Modul
Advertisements					

Hungry_Jacks	43	1_Hungry_Jacks	Full motion colour video	Hungry Jacks TV advert	Modul
MacDonalds	44	1_MacDonalds	Full motion colour video	McDonald's and NEWS (Victorian Ch10)	Modul
	45	2_Mac_dino	Full motion colour video	McDonald's & other corporates	Modul
	46	3_Mac_2bucks	Full motion colour video	MacDonalds Advert: Two Bucks	Modul
KFC	47	1_KFC	Full motion colour video	KFC Bacon & Cheese Fillet Burger	Modul

World	48	poland_gestures	Full motion colour video with subtitles	World Teachers:Poland_Gestures	Modul
	49	japan_intro	Full motion colour video with subtitles	World Teachers:Japan_Intro	Modul
	50	japan_Location	Full motion colour video with subtitles	World Teachers:Japan_Location	Modul
	51	Korean_bottle	Full motion colour video with subtitles	World Teachers:Korean_Bottle (Teacher_Choi Young-jae)	Modul
	52	Korean_Crocodile	Full motion colour video with subtitles	World Teachers:Korean_Crocodile (Teacher_Choi Young-jae)	Modul
	53	korean_laugh	Full motion colour video with subtitles	World Teachers:Korean_Laugh (Teacher_Choi Young-jae)	Modul
	54	finland_environment	Full motion colour video with subtitles	World Teachers:Finland_Environment	Modul

NEWS	55	altz	Full motion colour video	Brain - Alzheimers Research	
730_Report	56	1_730Report_29-8-00		Reading Buddy Mentorship Program (7.30 Report)	
	57	2_730Report_11-9-00	Full motion colour video	E-Books - Bryce Courtenay (7.30 Report)	
7up	58	7upnick	Full motion B&W and colour with index points (chapter	Nick: A snapshot from 7UP (Ages 7,14,21,28,35)	Modul

			tracks)		
	59	7upjackie	Full motion B&W and colour with index points (chapter tracks)	Jacki: A snapshot from 7UP (Ages 7,14,21,28,35)	Modul
Veronica_Walshe	60	1VW	Audio	V. Walshe - Important elements in teaching	Modul
	61	2VW	Audio	V. Walshe - Social Issues	Modul
	62	3VW	Audio	V. Walshe - Climate & Discipline	Modul

Veronica_Walshe	62	3VW	Audio	V. Walshe - Climate & Discipline	Module 2
	63	4VW	Audio	V. Walshe - Language	Module 2
	64	5VW	Audio	Veronica Walshe Interview	Module 2
Wendy Warren		8 audio clips to come			
teacher_work_A	65	duty_of_care	Audio	Duty of Care 5/6 Teacher	Module 2
	66	one_monday	Audio	One Monday 5/6 Teacher	Module 2
	67	individuals	Audio	Individuals 5/6 Teacher	Module 2
	68	role_changes	Audio	Role Changes 5/6 Teacher	Module 2
	69	structure	Audio	Structure 5/6 Teacher	Module 2
R_Johnson	70	ICT_metacognition	Full motion colour video	Computers Promoting Metacognition	Modules 6
A_Current_Affair	71	PrivateSchools.mov	Full motion B&W video	Funding Private Schools	