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The power of three plus one: developing an electronic readings service

Sandra Wills

University of Wollongong, sandra_wills@uow.edu.au

Craig Littler

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Abstract

The multiple roles and skills required to create online learning environments challenge traditional organisational structures that are currently based on relatively autonomous functional units. At the University of Wollongong, the staged development of an electronic readings service demonstrates the 'power of 3+1' through the formation of collaborative partnerships between three principal university support units as per the theme of this conference: * Flexible Learning Centre known at UoW as the Centre for Educational Development and Interactive Resources (CEDIR), * Information Technology Services (ITS) and * Library, plus... one other important unit, our Print and Distribution Centre.

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THE POWER OF THREE PLUS ONE: DEVELOPING AN ELECTRONIC READINGS SERVICE

Craig Littler, Outreach Librarian, University of Wollongong

Professor Sandra Wills, Director, Centre for Educational Development and Interactive Resources, University of Wollongong

Introduction

The multiple roles and skills required to create online learning environments challenge traditional organisational structures that are currently based on relatively autonomous functional units. At the University of Wollongong, the staged development of an electronic readings service demonstrates the 'power of 3+1' through the formation of collaborative partnerships between three principal university support units as per the theme of this conference:

- Flexible Learning Centre known at UoW as the Centre for Educational Development and Interactive Resources (CEDIR),
- Information Technology Services (ITS) and
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plus... one other important unit, our Print and Distribution Centre.

Electronic readings (e-readings) comprise digitised print materials such as journal articles, book sections, lecture and tutorial notes, and exam papers, as well as materials which are already available in digital format such as fulltext database materials, electronic journal articles, and electronic books. Most universities, and libraries in particular, are exploring ways of integrating such information resources into online learning environments, and addressing associated copyright and access issues. This paper will outline one university's response to these challenges by tracing the evolution of the Electronic Readings Service at the University of Wollongong, together with a description of the context in which that development has taken place. The service has come together through the convergence of a number of similar project initiatives across the campus, which have relied on the skills and expertise of staff from a variety of backgrounds. The paper will also explore related staff development and organisational development issues.

Learning OnLine

E-learning has been piloted at the University of Wollongong since 1996. In 1998 an academic working group investigated and selected WebCT as the underpinning learning management system. CEDIR provides staff development, educational design, and production for WebCT sites. Production is provided for free via an annual Faculty Service Agreement that prioritises the subjects the Faculty regards as strategic for its e-learning offerings. ITS hosts and maintains the WebCT server. WebCT enrolments are integrated with the Student Administration system and further integration may be needed if at some point in the future a decision is made to provide a WebCT site for every subject at the University.

There are currently over 350 subjects using WebCT each session for some part of their delivery and these are accessed via the student portal we call Learning OnLine (see *Figure 1*). Although we are not a distance education provider, WebCT sites are very useful for our University as we teach subjects across a number of campuses, including our campus in Dubai as well as several partner sites in other countries.

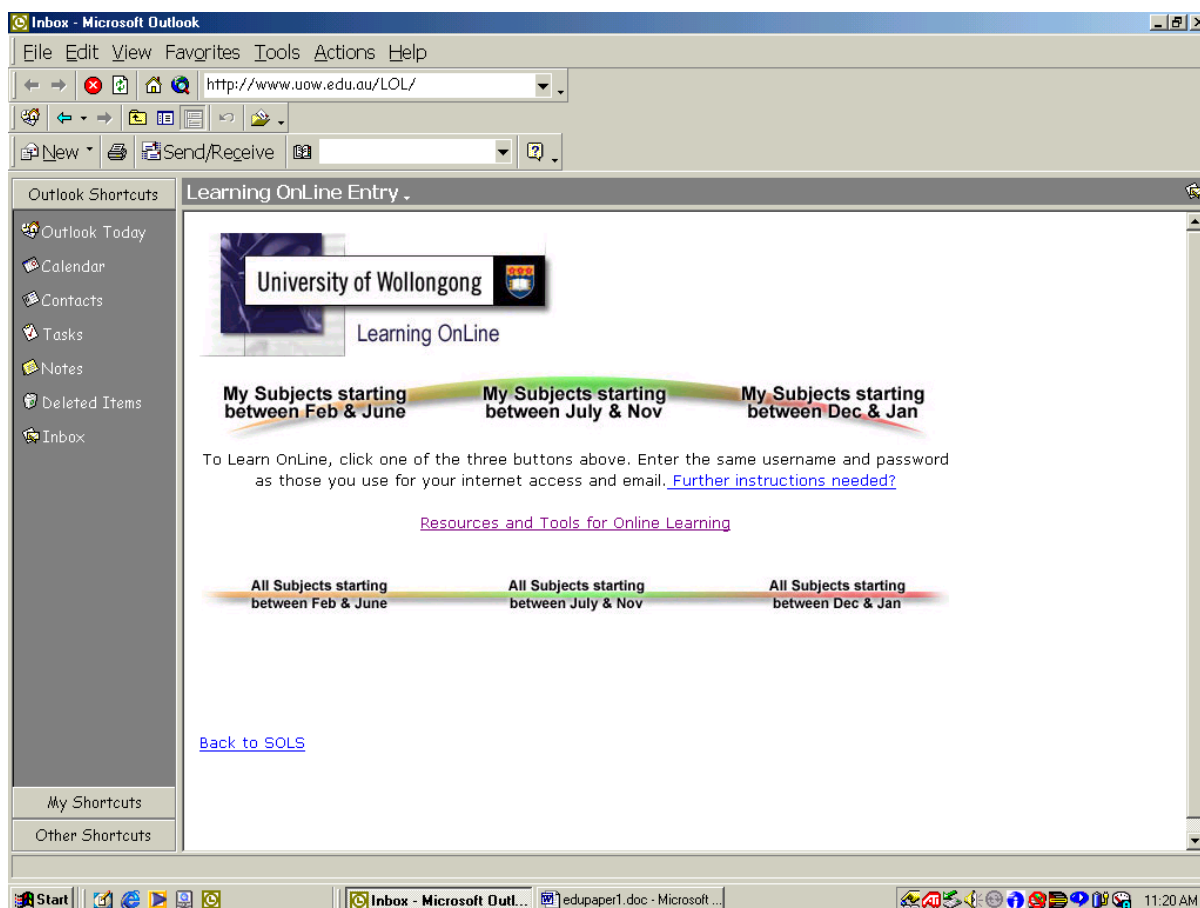


Figure 1: The University of Wollongong Learning OnLine Page

With the uptake of WebCT for online learning, pressure has been increased from academics to provide electronic readings to students via their WebCT sites. Prior to January 2000, however, this was prohibited under the University's copyright licence agreement. Infrastructure cost was a further obstacle.

E-Readings Trial

The signing of a new copyright licence agreement between the Australian Vice-Chancellor's Committee (AV-CC) and the Copyright Agency Limited (CAL) in January 2000, which allowed for the digital copying of print materials, opened the way for more widespread digital copying on the part of universities. Prior to this, permission to copy and make available online relied on gaining copyright clearance from copyright owners, which could be a very time-consuming and costly process.

In response to increasing demand from subject coordinators for the inclusion of digitised readings in WebCT subjects, and in preparation for changes to the *Copyright Act* due to take effect on 4 March 2001, CEDIR educational developers initiated an Electronic Readings Trial in June 2000. The trial developed interim processes and procedures for the production, copyright management, and online integration of electronic readings. It was designed to demonstrate the feasibility of larger scale integration of electronic readings into online subjects, and to show that the University of Wollongong had taken reasonable precautions to ensure copyright compliance.

Two WebCT subjects, which included 17 electronic readings in total, were included in the initial trial. For the period of the trial, CEDIR provided support to establish and develop the WebCT sites, technical expertise and project facilitation. CEDIR also acted as liaison with the AV-CC's copyright lawyers, Baker & McKenzie, to ensure that technical and process developments would meet obligations under the amended *Copyright Act*.

The Print and Distribution Centre provided production services including scanning, file transfer, copyright record-keeping, inclusion of mandatory copyright warnings, and product quality assurance. Print documents were scanned into pdf format and citations and copyright warning notices were added. Some documents were scanned in colour to test the feasibility of providing such a service when colour images are an essential part of the document content. For the trial subjects, students were also given the option of purchasing a book of readings produced by the Print and Distribution Centre, in preference to printing or downloading readings from WebCT. This option provided additional flexibility for students.

ITS provided central server storage space, IT process automation including file upload to WebCT sites, and generation of standard reading pages and icons. The ITS WebCT administrator developed a script to automatically generate citations from information contained in pdf document headers and place them into WebCT pages. A WebCT readings page produced for the trial, incorporating a generic copyright warning notice and links to Adobe Acrobat Reader software, is illustrated in *Figure 2*.

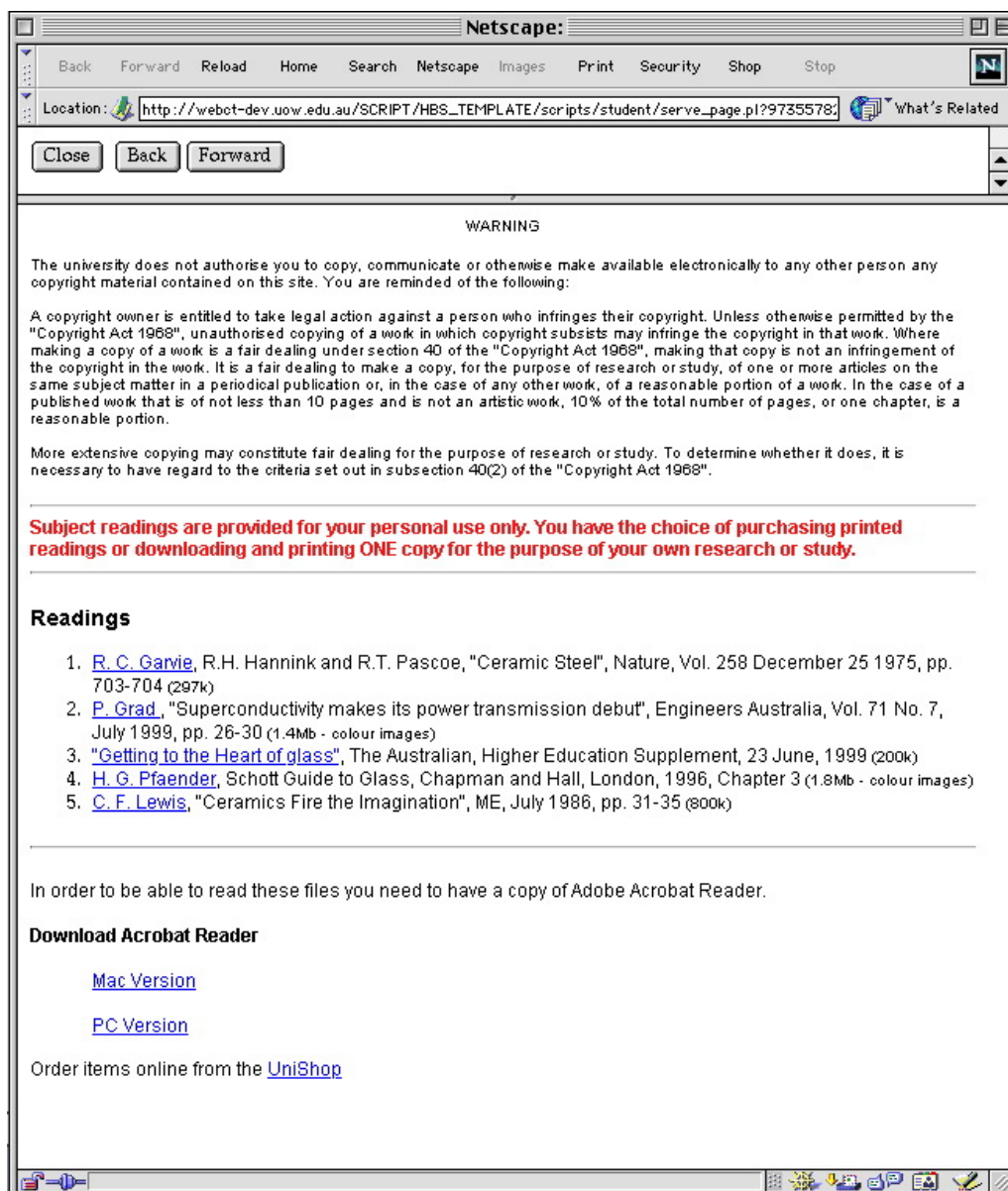


Figure 2: E-Readings Trial - WebCT Readings Page

The E-Readings Trial successfully demonstrated the possibility of integrating electronic readings into online subjects, and that processes and procedures could be developed by a cross-functional team working in a collaborative way. As a result of the trial, and in recognition of the fact that electronic readings are central to the future direction of University teaching and learning, funding was made available by the University Executive to establish a free scanning service. This service was formally launched by the Vice-Chancellor in December 2000, backed by a University policy statement on copyright (<http://cedirdb.cedir.uow.edu.au/Copyright/D057-Copyright%20policy.pdf>)

The service is free in order to encourage all Faculties to make use of it so that the University can be assured that it is collecting accurate copyright records, making the best use of the copyright management software sitting behind the scanning facility, and reducing the possibility of copyright infringement by academic staff who may work outside the formally established system.

E-Reserve

During the period of the E-Readings Trial, the Library kept in close contact with members of the project team to monitor developments and to keep them informed of the Library's own initiatives in this area. Since mid-1999 the Library had been providing an electronic readings service through the Electronic Reserve module of its integrated management system (INNOPAC). Due to the difficulties of obtaining copyright clearance on published materials, these readings were restricted to those for which the University of Wollongong owned the copyright – such as lecture and tutorial notes, and exam papers. The initial E-Reserve module required documents to be scanned into tiff format and the quality was not as high as that produced using pdf format. The implementation in November 2000 of an updated INNOPAC E-Reserve module, with the capacity to use pdf format, was a significant improvement in terms of quality and accessibility, and brought E-Reserve more into line with the processes developed during the E-Readings Trial. During this period the Library also experimented with linking directly to fulltext database materials and electronic journal articles from within the E-Reserve module.

In parallel with these developments, the University Library entered into a partnership agreement with Macquarie University Library to participate in the development and testing of an electronic readings management system (at that time to be known as *Z'mbol* and currently referred to as *eZerve*). This system is to be part of a larger library inter-lending and administration system known as LIDDAS which is being developed by a UK software company in conjunction with a consortium of Australian university libraries. The *Z'mbol/eZerve* system is seen as offering an e-readings system with potential sector-wide application, and its proposed functionality has recently been endorsed by the AV-CC copyright lawyers as providing the basis for effective copyright management for universities.

The University Library has been working with Macquarie University Library and the software developers to develop an E-Reserve Administration database for managing bibliographic and copyright information. The prototype database has undergone a number of modifications over the last six months, particularly in relation to the database field structure to accommodate the requirements of the amended *Copyright Act*. The development of an E-Reserve service has thus involved both intra- and inter-institutional collaboration.

Convergence: Electronic Readings Service

Building on the combined experience gained from the E-Readings Trial and E-Reserve developments, a decision was made by all the project participants to develop a centralised Electronic Readings Service which would draw on the combined expertise of staff from the four support units. Given the Library's involvement in the *Z'mbol/eZerve* project, its access to both print and electronic information resources, and traditional expertise in cataloguing and database management, it was thought appropriate that the Library should centrally manage and coordinate the new service. Consequently, in December 2000 the Library was given responsibility for the ongoing development of digital copying processes.

The development of the service has involved close collaboration between the Library and the three units participating in the initial trial. Staff from the four units formed a working group and met frequently over four months to map processes (*Figure 3*) and develop operational procedures associated with the new service.

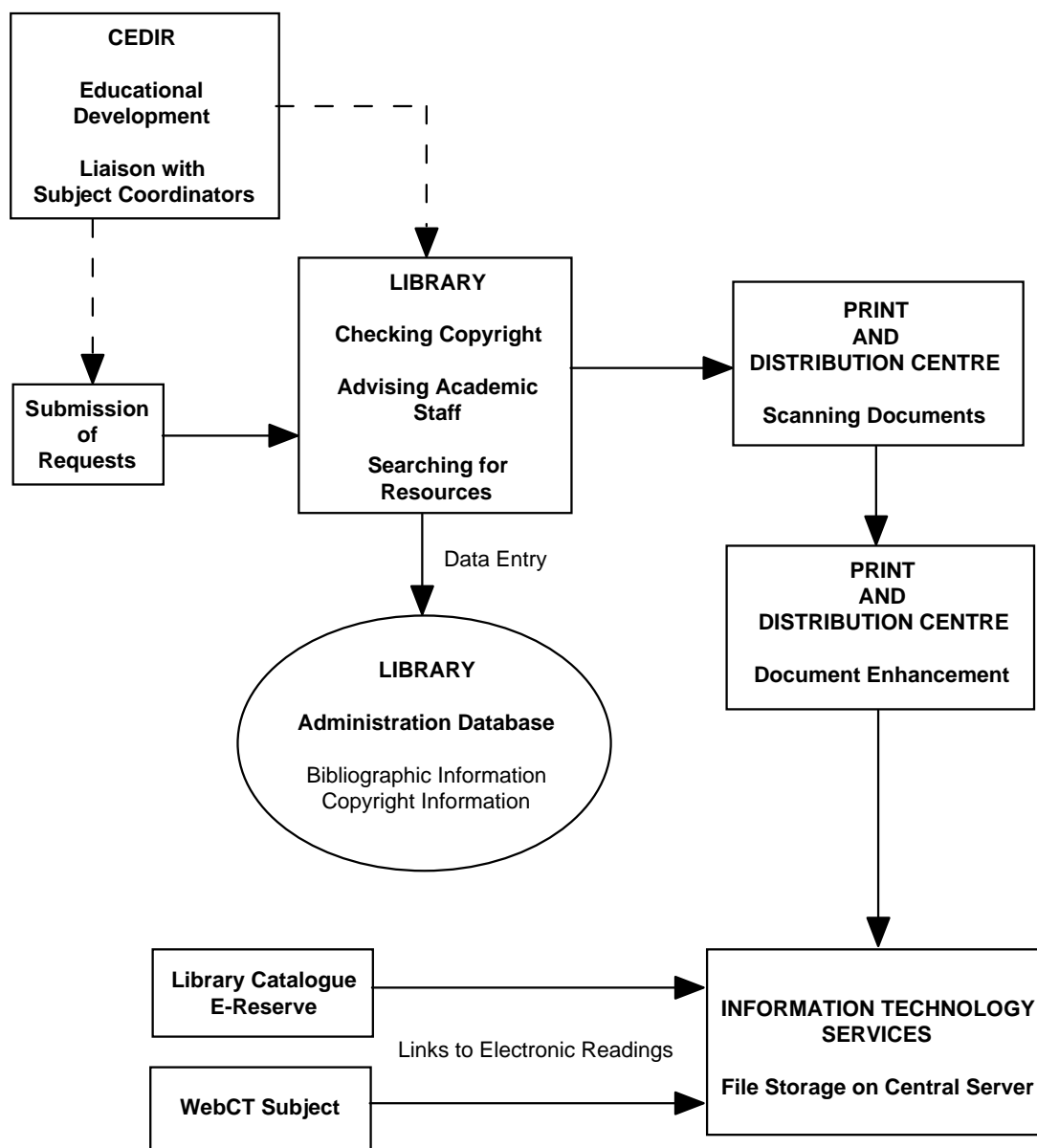


Figure 3: Electronic Readings Process Diagram

The responsibilities of the four units were identified as:

- (1) *CEDIR*: educational development and liaison with subject coordinators; ongoing liaison with other units concerning quality assurance and copyright management
- (2) *Library*: responsibility for overall coordination and management of the Electronic Readings Service; offering guidance on the integration of information resources into online subjects; receipt of requests for electronic readings; checking for copyright compliance; advising academic staff on access to information resources; conducting searches for print and electronic information resources; data entry and management of administration database containing bibliographic and copyright information; linking readings to E-Reserve module on Library Catalogue

- (3) *Print and Distribution Centre*: scanning print documents; document enhancement; quality control; providing advice on appropriate scanning technology and document enhancement software
- (4) *Information Technology Services*: electronic readings file storage on central server; backup file storage; linking readings to WebCT subjects

The Electronic Readings Service was launched on 5 March 2001 to coincide with the implementation of the amended *Copyright Act*, and a further policy statement was issued by the Vice-Chancellor in support (<http://cedirdb.cedir.uow.edu.au/Copyright/D063-Copyright%20policy%202.pdf>). A web site outlining the main features of the service is available at: <http://www.library.uow.edu.au/services/eread.html>

For the first three months of operation, a member of staff from the Print and Distribution centre has been located in the Library to provide scanning and document enhancement expertise. It is anticipated that a large part of this activity will be handled by additional Library staff at the end of this period. The Print and Distribution Centre also arranged a three-month trial of professional high-volume scanning equipment which has proven to be very effective.

An important feature of the service is the flexibility it provides to academic staff in providing access to electronic readings. The two methods of access are derived from those used in the E-Readings Trial and through E-Reserve developments. All electronic readings are automatically placed in the Electronic Reserve collection on the Library Catalogue, where they are searchable by author, article/chapter title, keywords, subject code and lecturer's name. E-Reserve readings for a sample subject EREAD123 are illustrated in *Figure 4*. This centralised method of access allows for the creation of a repository of electronic readings as a University-wide resource, with access not dependent on students being enrolled in a particular subject.

COURSE Search

Prof/ta [HORAN, R](#)
 Course [EREAD123](#)
 Cour note S1-01

MATERIALS FOR THIS COURSE

ARE WE LOSING A GENERATION OF MANUSCRIPTS	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
AUDIO MORPHING DIFFERENT EXPRESSIVE INTENTIONS FOR MULTIMEDIA SYSTEMS	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
CITING JOURNAL ARTICLES IN A BIBLIOGRAPHY USING THE HARVARD REFERENCING STYLE	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
ELECTRONIC COMMERCE DEFINITION THEORY AND CONTEXT	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
TOWARDS AN AUSTRALIAN STRATEGY FOR THE INFORMATION ECONOMY: A PRELIMINARY STATEM	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
VIRTUALIZED ARCHITECTURAL HERITAGE: NEW TOOLS AND TECHNIQUES	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*
View or Print: EREAD123 LECTURE 1	Reserve Collection -- -- IN LIBRARY *ELECTRONIC COPY AVAILABLE*

Figure 4: Readings Accessed via the Electronic Reserve Collection

In addition, academic staff can choose to have links created to electronic readings from within their WebCT subject. As illustrated in *Figure 5*, this has the potential to allow for the contextualising of reading links within subject content. The Print and Distribution Centre has also retained the option for academic staff to request the production of a printed book of readings for sale to students.

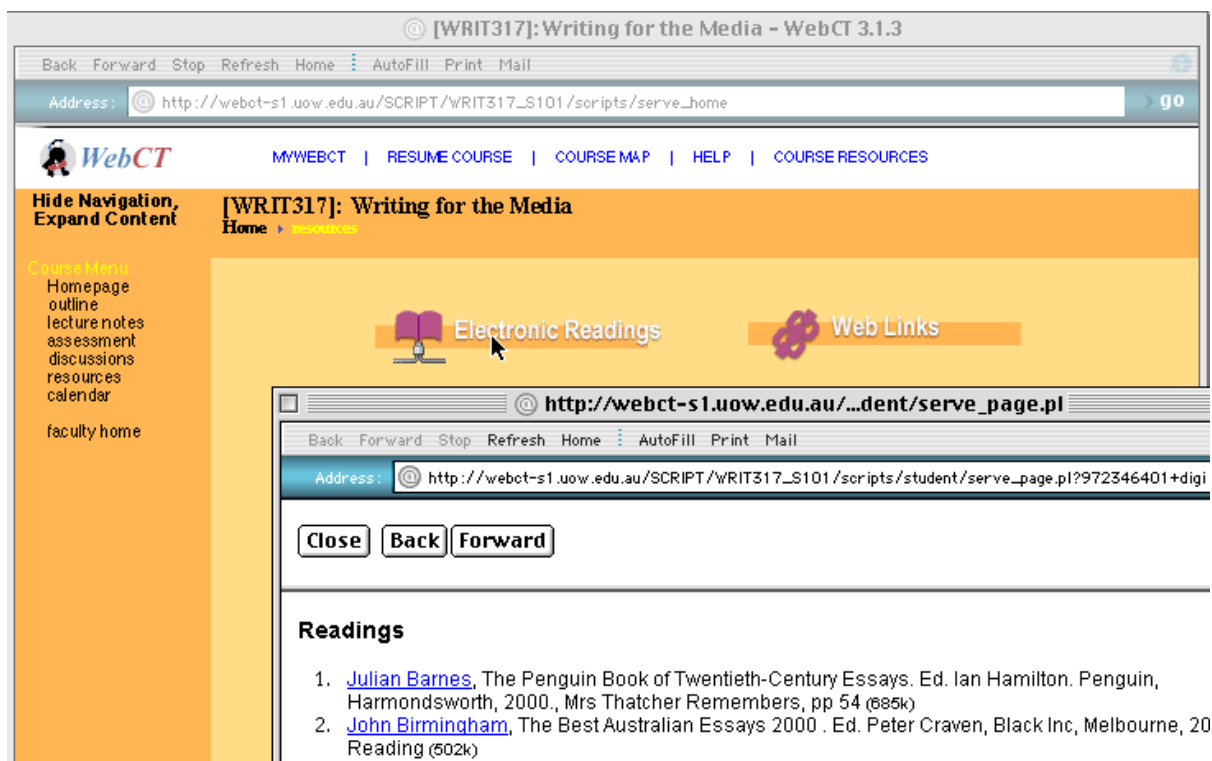


Figure 5: Readings Accessed via a WebCT Subject

Ongoing Development and Issues

The Electronic Readings Service is an evolving project which must respond to the needs of students and academic staff, and to changes in the wider information and learning contexts in which universities operate. For the University of Wollongong, there are a number of key issues which will need to be addressed in the ongoing development of the service.

- There is a difficulty in predicting the volume of demand for the digitisation of print materials. As academic staff digitise their current sets of readings, it can be expected that additions or changes to these will be relatively minimal over the next few years. One could therefore expect demand to reach a 'plateau', but the time period over which this might occur is difficult to estimate. The demand for the digitisation of print materials will also be offset by the increasing availability of electronic journals and books. Electronic readings services will increasingly find their role in advising academic staff of the availability of existing electronic resources and providing links to these.
- The initial increase in the volume of the digitisation of print materials will require additional trained staff and specialist skills such as those traditionally associated with

printing and graphic design. Staff will also need to be flexible in their approach to accommodate changes in the mix of print and digital resources.

- Copyright management will be essential for ensuring copyright compliance on an institution-wide basis. The centralisation of the Electronic Readings Service at the University of Wollongong is designed to minimise the risk of copyright infringement.
- Licence agreements for access to electronic information resources will need to be negotiated in such a way as to allow for storage in electronic readings collections and linking to online subjects.
- The ongoing collaboration of staff involved in supporting online learning will be essential for its success. As an example, a WebCT working group comprising staff from CEDIR, the Library, and ITS has recently recommended improvements to Electronic Readings Service procedures and processes. The working group will have an important ongoing role in monitoring and providing feedback on the effectiveness of the service.
- Quality assurance procedures will need to be maintained to ensure the consistently high standard of electronic readings documents.
- There is scope for collaboration between universities on projects which address common needs and issues, and which have potential sector-wide benefits. The University of Wollongong Library's participation in the piloting of the eZerve module over the next few months will provide an opportunity to have input into software development and to reflect on the administrative processes associated with electronic readings.

Organisational Development for Collaborative Teams

For universities serious about e-business and e-learning, pathways across traditional organisational structures need to be found. Currently these ad hoc project teams for developing new procedures and products are formed due to the goodwill of everyone involved and they are probably much easier to establish in small to medium sized universities where the boundaries between units are less rigid. There are many more factors operating against the success of the teams than factors operating for them.

We have to find ways in our organisations to facilitate collaborative teams rather than hinder them. In time the informal 'goat tracks' criss-crossing between our currently very separate buildings may lead to new organisational structures and/or fully paved highways to replace the goat tracks. In some universities the units responsible for Information Technology, Flexible Delivery and Library are in the same division and/or report to the same senior executive. This may or may not be of assistance to forward planning for e-learning depending on whether the formal forums have yet been created for productive and meaningful collaboration based on mutual trust and understanding of each other's different cultures. But these forums would still be missing a few other units crucial for strategic planning, including Student Administration and Marketing. However, it is rare for these two to appear in the same division as the three units that are the focus of this conference.

So in the short-term, the project team approach will probably be the vehicle for implementing e-learning and other aspects of universities' e-business models. Project teams need explicit support from the top and appropriate resources to support their work, including some

recognised release time from their existing duties, this last being the hardest to provide in the current financially constrained university climate. Teams may also require new forms of meeting places or workspaces that facilitate collaboration and break down stereotypes about the boundaries of the existing units. At the University of Wollongong, we have been designing one such room, currently code-named CODA (Collaborative Online Development Area), for teams of academics, programmers, educational designers, learning developers, and librarians to use when developing online subjects.

We know from previous projects that cross-organisational teams also need time to understand each other's different cultures and time to learn to trust each other before the 'real' work can start. Some of the cross-organisational bonding for this project began as part of a 1998 CUTSD Staff Development grant on action learning, code-named Project LEAD (<http://cedir.uow.edu.au/CEDIR/flexible/proj-lead.html>). Action learning teams in Project LEAD were provided with an organisational developer to facilitate team building and to assist reflection on team processes in addition to the usual resources for completing the task in which they were engaged.

As more of these 'action learning' type teams are established for researching and implementing leading edge developments, universities must pay more attention to the staff development and organisational development needs of team members in order to assist them to work in harmony towards successful outcomes.

Outcomes

The collaborative process leading to the development of the Electronic Readings Service demonstrates the potential of cross-functional teams. The participants in the process have all benefited from the cross-fertilisation of skills, the team-based approach to the development of processes and procedures, and the opportunity to extend their boundaries. They have also gained a greater understanding and appreciation of the respective roles of staff from other support units. These outcomes provide a fruitful basis for the creation of successful online learning environments in the future.

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