

Using electronic literature in online learning and teaching

Sally Burford* , Jane Haggis† and Ian McBain†

* University of Canberra, Australia

Sally.Burford@canberra.edu.au

† Flinders University, Australia

Jane.Haggis@flinders.edu.au, Ian.McBain@flinders.edu.au

Academics have traditionally guided the reading of students to inject a range of scholarly perspectives into a course. The use of the literature is an important part of developing critical thinking skills and part of becoming a member of a discipline. The Flinders University Library's Electronic Reserve developments offer a way for teachers to deliver the literature of a discipline using internet technologies. Where distance education is provided in the online mode, Electronic Reserve has become an integral part of the learning environment. Access to a list of subject readings available on Electronic Reserve can be incorporated into a WebCT site. Alternatively, teachers can link to a specific article that may form the basis of a structured learning activity such as an online discussion. This open system incorporates material from several formats, principally electronic journals and scanned articles. Unlike the proprietary systems available it doesn't limit academics and students to the output of particular groups of publishers. Copyright compliance is managed by the Library. At present, copyright laws limit what can be provided from books but it is hoped that future developments in electronic books will overcome these restrictions.

Introduction

Electronic literature, stored and managed in an Electronic Reserve System has enabled the development of quality online learning experiences at Flinders University by providing contextual and readily available resources embedded in an overall learning design. The development of online learning environments and Electronic Reserve systems has been a focused, collaborative and iterative process involving a range of University staff over several years – the online teaching and learning innovations driving the need for electronic delivery of resources and providing continual feedback to the Electronic Reserve development.

Like many Australian university libraries, Flinders University Library has been working on Electronic Reserve since the developments in copyright legislation in 2000 gave the green light to the dissemination of scanned material to students. The approach that was taken was deliberately pragmatic, seeking to answer the many operational and practical questions that were involved by means of a pilot project, described in detail in Nixon (2002). Whilst the Library recognized the relationship between the Electronic Reserve and the teaching and learning process, thereby collaborating in the planning phase with several academic departments, this early work necessarily focussed on the procedural and operational issues involved in making Electronic Reserve an effective system. This approach resulted in a functional Electronic Reserve system which at the start of 2002 was operating through the newly implemented Voyager Integrated Library Management System. The challenge was always to integrate Electronic Reserve into the rapidly changing teaching and learning process. This challenge was addressed at two levels, firstly the technical level and secondly the more profound level of serving the educational goals of the University.

Electronic reserve implementation at Flinders

Electronic Reserve is a mechanism that provides reliable access to components of the literature enabling academics to guide student's reading and inject a range of scholarly perspectives into a course. This description is identical to that which would have

been used by many universities for their well developed paper reserve operations and highlights the fact that it is the role played by the literature in teaching and learning that is important not the means by which the information is delivered. It is probably this continuity of purpose that has caused many libraries to retain the 'reserve' terminology with its connotations of careful storage and management of scarce resources that are in great demand, for a new electronic service that aims to be anything but reserved. Electronic Reserve should be accessible to all enrolled students whenever and wherever they wish to use it.

Electronic Reserve at Flinders contains scans of journal articles and book extracts as permitted by copyright; links to articles in electronic journals, materials originating from within the University such as exam papers and links to websites that are in the public domain. It is accessible via the Library's Voyager catalogue via standard search criteria that reflect the use of the item in teaching such as author/title, subject numbers and lecturer's name.

As implemented by libraries, Electronic Reserve is an open system that allows the inclusion of any resource that an academic wishes to use, subject only to legal entitlement. This openness is in contrast to the various proprietary systems promoted by publishers based upon the particular packages of resources that they are selling. This intellectual openness is of great value in the incorporation of a range of scholarly information in the teaching and learning process.

Electronic reserve – the technical dimension

The importance of linkages and interoperability between systems and resources in higher education are widely recognized and a range of initiatives have been undertaken in the sector to develop mechanisms to achieve these linkages. Foremost amongst these is the standards based approach taken by the IMS Global Learning Consortium. IMS Australia is affiliated to the IMS Global Learning Consortium and supported by the Department of Education Training and Youth Affairs (DETYA).

Also prominent in Australia is the Collaborative Online and Information Services Project (COLIS) also funded by DETYA. This project links five universities, its demonstrator project has a number of goals, first amongst them to "demonstrate the ... linking of learning management systems to library e-services" McLean (2002).

For Flinders, the first step in this process has been to ensure that all library electronic resources are brought together and are accessible via our Voyager catalogue. All interfaces in the catalogue allow users to save a stable URL for that page in the catalogue. This mechanism was created in co-operation with the University of Adelaide Library with whom Flinders shares the Voyager software. Direct stable access is possible to a list of all articles in Electronic Reserve for a particular course or to the full text of a scanned article. In the educational design of online materials this offers versatility to present all readings or design a particular activity involving A particular electronic resource.

Flinders selected WebCT as its learning management system in 1999; at that point the web based course tool was to be a mechanism for a relatively small number of subjects being developed for flexible delivery. The technology has been strongly adopted in most sectors of the University and current policy is for there to be a web presence, with well defined core elements, for all subjects using WebCT by 2005. Stable URLs to Electronic Reserve literature can be incorporated at any point within a WebCT subject site and used by students for reference or as directed by the academic.

When the URL ie. the result of a search, is subsequently used the Voyager system acts a database populating a website, repeating the search and always providing a current result.

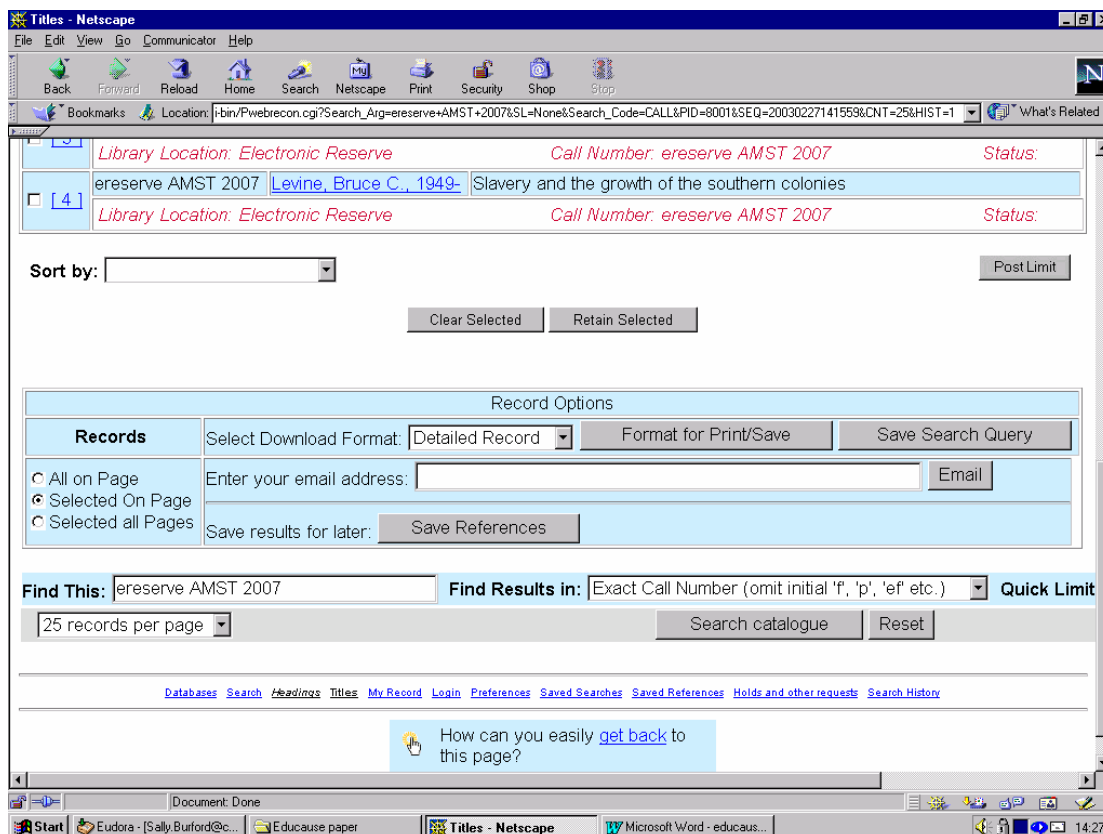


Fig1 An extract from the Library's Voyager Catalogue showing some electronic reserve records and the 'get back to this page' button which allows teachers to save this search as a stable URL for use within a WebCT course.

Ease of authentication is another key goal of the interoperability agenda. For example the COLIS project defines it as "seamless movement between applications using a single sign-on" McLean (2002). The combination of directory based access (LDAP) for WebCT and EZproxy access for library electronic resources has resulted in a single sign on to WebCT and to electronic resources for those students accessing the systems from the University campus. Remote access is less seamless and a student must authenticate to WebCT and once more to Library electronic services using the same login details in each case.

Electronic reserve – supporting online education

Tertiary teaching using internet technology is coming of age. There are very few universities that have not ventured into a 'web presence' for teaching purposes, whilst others are actively attempting to integrate quality teaching and learning processes with the technology. Teachers, information professionals and researchers are now turning their minds to the quality of the learning experience and the necessary resources and infrastructures.

Online education is not without its critics. In her recent book, Brabazon (2002) states that 'the thoughtful linking of curriculum with pedagogy and educational technology remains a challenge' (p131). She criticizes – and rightly so – the 'dumping of printed materials on the web'(p135). However Brabazon goes on to say that 'Internet learning has, so far, been a tragedy for education'(p152). The authors of this paper would challenge this somewhat sweeping statement and describe an online learning environment grounded in educational theory and crafted to include relevant and timely electronic literature.

Constructivism is an educational theory that has been extensively researched and is well accepted as an approach to facilitating learning in any educational environment. (Papert1991, Boudourides 1999, Grabe & Grabe 2001).

Constructivism posits that reality is more in the mind of the knower, and the knower constructs or interprets a reality from his or her perceptions and prior experience. In this view, the student constructs his or her own knowledge from the environment s/he is in. The task of the teacher is to provide material and guide the learner in ways that encourage students to synthesise their own knowledge and integrate it into an enlarged cognitive structure in the process.

The constructivist approach assumes that learners can build their own knowledge, so the student is viewed as an autonomous learner and inquirer. (Phillips (1998))

Active and collaborative learning are effective strategies that put this theory into practice in the tertiary online educational arena. In designing quality online learning experiences activities/tasks/interactions are sequenced by educators to provide the necessary 'scaffolding' Zygotsky (1978) for the construction of knowledge in the mind of the learner.

Harper (2002) recently described a project that identified learning designs that contribute to high quality learning experiences in tertiary education. He diagrammatically outlines the learning experience as a mapping of learner activities, learner supports and resources that build to form a progressive learning sequence.

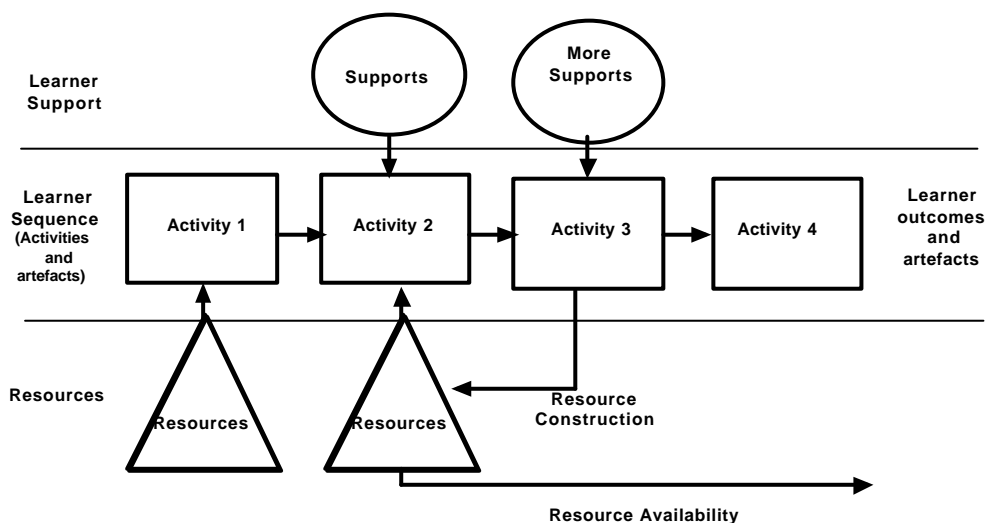


Fig2: Learning Design

Source: Harper (2002) *Information and Communication Technologies and Their Role in Flexible Learning*

At Flinders University a learning design model has emerged in the development of fully online courses, consistent with the one described by Harper. It adopted the strategy of incorporating electronic literature as a resource for sequenced, active and collaborative learning activities. The use of the library's Electronic Reserve system meant that a direct link to a resource could be embedded within an activity – that may have been designed for individual reflection, action or interaction with other students or teaching staff. The sequence of activities formed the overall learning environment.

A Case study at Flinders

Electronic Reserve was extensively used in the online development of an entry-level post graduate subject in the Graduate Diploma (International Development), offered by the Centre for Development Studies, in the Faculty of Social Sciences at Flinders University. The course attracts a diverse range of students, including mid-level bureaucrats from developing societies in the Asia-Pacific region, and Australian and international students working in, or planning to work in, the international aid and development industry. The Graduate Diploma is, from 2003, available as a fully on-line course. Here, we discuss strategies implemented in the development and delivery of the course and its pilot delivery to on-campus students in 2002.

The subject, titled *The West and the Rest*, was undertaken by twelve students, fifty percent of whom were International non English speaking background students encountering Australian tertiary education learning environments for the first time.

The need to incorporate electronic literature in the delivery of this course was informed primarily by design and delivery issues pertaining to global delivery of the course.

- What was the most cost and time efficient way to delivery course materials nationally and internationally?
- Given potential students could come from, or be located in, countries with under-developed socio-economic institutions, relying on postal services presented potential problems of safe and speedy delivery.
- The course is very cross-disciplinary, so a text book approach was inappropriate
- Again, because of the nature of the course, teaching content relies heavily on journal papers
- How to adequately resource students in a diverse range of study contexts? Potential students could be in remote and/or poorly resourced locations in terms of access to library and/or literature services. Thus, the delivery of a comprehensive range of study materials, appropriate to a postgraduate learning environment, was required to ensure equitable access.

The Electronic Reserve system developed at Flinders University, appeared to address most of these concerns. It offered a very flexible range of resources, including access to a wide range of journal materials. In addition, book chapters and other materials can be made available (subject to copyright limitations). Pragmatic benefits from the system and associated processes from the academic unit's perspective, include a less labour and time intensive approach than preparing paper based study materials, and the elimination of costs of reproducing such materials. The limitations of traditional mail delivery were overcome, and access to study materials was more reliable. Issues to do with equity and access within the course were resolved, as all students gained access to the same range of resources and materials.

More importantly, with the knowledge that the important electronic literature for the discipline could be made available, a sequence of learning activities using the literature could be designed. Learning strategies were designed and labelled with icons which clearly and visually informed students of the level of action and interaction in each activity, namely REFLECT, ACT, and INTERACT

The following are illustrations of learning tasks that were sequenced to form an overall learning design. In these tasks the literature is embedded in context via direct hyperlink to the article stored in the Electronic Reserve system.

Example One - Read and Reflect: - in this example, the teacher provides initial guidance to key points of a reading in the online study guide. Students are then directed to read and reflect on a selected extract from a subject reading, immediately available through Electronic Reserve. In this way, all aspects of a learning action are included – the supporting 'voice' of the teacher, the necessary electronic resource and the activity itself.

Example Two - Read and Act: - again students are provided with initial guidance and introduction to a reading and encouraged to reflect upon key issues. They are then guided into a second reading that forms part of an assessed component of the subject. In this instance, immediate online access to the resource is provided within the study guide, allowing situated instruction on how to use the resource in a required active learning strategy.

As well as using particular readings embedded in learning activities, the overall design of the online learning environment includes an electronic listing of all readings for the subject. Thus in a subject information section of the site, students are able to access all the recommended literature and browse to suit their purpose – a less structured use of the resources. It also allows the students to go directly to a specific reading without having to remember its location within the study guide itself. Student feedback indicated this was especially useful when re-locating materials for revision and research exercises and materials.

Issues associated with electronic reserve

Sustainability: Given the financial pressure that the sector is under any project, process or innovation in higher education must, regardless of the value of the outcome, be assessed to ensure efficiency and sustainability. The Electronic Reserve model at Flinders uses Library staff who have always had responsibility for paper reserve, at worst it is close to cost neutral and in the medium to long term it may represent a saving as the need to handle paper declines.

Copyright: the present provision of scans to students relies on an agreement between the Copyright Agency Limited and the AVCC for appropriate remuneration. While this agreement creates certainty out to 2007 nothing as expensive as this arrangement should ever be taken for granted. It is possible that we could lose the right to provide access to scanned material if there was a dispute about the terms of renewal. One small response to this issue is to ensure that we use, as far as possible, material from electronic journals accessed under license in the teaching and learning process.

Any university relying on the CAL/ AVCC agreement must have in place procedures to enforce the terms of the act and comply with the requirements of the Electronic Use Survey.

Electronic books accessed under license should form part of Electronic Reserve in the future as they potentially provide a means to provide access to all of a book rather than the limited proportion that we can provide under the terms of the Copyright Act. However the business models that are proposed by vendors in this area are, thus far, broadly unacceptable to most libraries. It is to be hoped that this situation will improve as the market matures.

Equipment: provided for on-campus students has come under pressure as a result of the development in Electronic Reserve. This has manifested itself in demand for extra workstations and pressure on printing facilities and access and charging models. All of these issues can be dealt with and are really implicit in the move to on-line education. They must be considered carefully as it has not proved to be difficult to provoke an occasional backlash in adoption of technological solutions

Conclusion

The description of Electronic Reserve development at Flinders University outlines the importance and value of small scale, consultative and iterative development of digital repositories of scholarly information. By working closely with allied educators, an Electronic Reserve system has been developed to service the needs of quality online educational environments. Ongoing issues associated with Electronic Reserve abound and include scalability, copyright, interoperability, bandwidth and change management. They will continue to be addressed in the same collaborative and iterative approach.

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