

E-Reserves: Extending Library Services to Business Students Online (November 2002)

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Abstract—Traditionally, maintaining and distributing course reserve materials has been a fundamental service provided by the library in support of programs in the school of business. A reserve collection typically consists of course textbooks, sample exams, problem solutions, and periodical articles, which can be borrowed for use within the library for a limited period of time. With the advent of the internet and increased proficiency by faculty at designing and developing web pages, much of this material has moved from the library to individual web pages, which provide links to the course syllabus, electronic texts, and internet sites. Yet creating such pages is time consuming, and faculty are not always aware of the additional resources the library can provide to enhance electronic instruction. Information providers such as Proquest now make it possible for libraries to create web pages with links directly to journal articles or issues. As business schools move forward in developing online courses, collaboration between the faculty and the library is essential for ensuring student success. E-Reserves provides a model tool for this collaboration. This model is beneficial to both online and traditional students, who often prefer to access library resources from dormitories or campus labs.

Index Terms—Business faculty teaching materials, Electronic reserves, library and faculty collaboration, MBA program support

I. INTRODUCTION

Library reserves allow faculty to make single copies of items available or to distribute multiple copies of items such as course notes to the entire class. Traditional reserves are labor-intensive, and there is often a high demand for reserve material, which may mean students must wait for resources. Because items are often used more than one semester, new copies must often be made when old ones are worn out. Electronic Reserves can provide a solution. In an e-reserve system, which can run outside of a library automation system or as a supplement to it, users can retrieve a variety of electronic materials from any computer that has access to the server. Electronic reserves promises efficiency for circulation departments, can reduce demand on staff at the circulation desk, and makes material access convenient 24 hours a day to

students at home, in a dorm, or in a campus computer lab. Scanning an article preserves image quality; an alternative, linking to its URL from an electronic database, eliminates the need for scanning. Such linking requires that library staff search for acceptable titles and this may add to workload [1].

Existing research on electronic reserves has focused on the reserve process, general implementation, and copyright issues associated with electronic access to intellectual property, without focusing on its application to a specific discipline. After a discussion of the current literature, this paper will examine the potential applications of electronic reserves as a collaborative process between the William M. White Business Library and the faculty of the school of business at the University of Colorado at Boulder. An analysis of the current print reserves available at the library and the electronic resources on individual faculty web pages will provide insight into how such a collaboration can occur, and will examine the benefits such a system offers for students.

II. LITERATURE REVIEW

A. Case Studies

Case studies provide valuable insight into the benefits and problems that may be encountered in establishing an electronic reserves system. Articles on implementations at Northwestern, Santa Clara University, The Ellen Clarke Bertrand Library at Bucknell University, UNC-Chapel Hill the University of Missouri—Rolla, and the University of Washington Bothell Library document the installation of both homegrown and turnkey systems. These case studies indicate that the key issues surrounding use of electronic reserves include security, increased workload demands, and copyright management.

Northwestern University initiated one of the first e-reserve systems in 1994. Using a gopher server, the library created a system that provided electronic items in a system separate from the print reserve materials. Originally, materials for each participating class were placed on an individual, static web page, accessed through hierarchical menus that provided links to a list of schools, a list of departments, and a list of courses. The library soon migrated to a web-based server integrated into its NOTIS public access catalog [2].

Both Bucknell and Santa Clara University installed ERES

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from Docutek Information Systems. ERES consists of a series of cgi scripts written in Perl, which can run on any web-server with a Unix or Unix-like operating system. ERES provides a separate sub-directory for each course in the system and users can transfer files from individual machines to the server. This turnkey system lets individual users create and maintain their own course pages. The software allows differing user levels with administrative privileges. The administrator creates and deletes faculty accounts, which allow faculty and student assistants to create pages and make them password protected if desired. The system requires no HTML editing, and document formats include MS-Word and GIF files. Because faculty and students participate in the process, the distribution of responsibility is more evenly divided. Like the Northwestern system, there are separate web pages for each course, and the database key is either the instructor's name or course name/number. Once the system was installed at Santa Clara, the library mounted old exams, homework answers, and other material organized by course, and support for spreadsheets, word processing, PDF, GIF, and multimedia files was later added [3].

The Ellen Clarke Bertrand Library at Bucknell University purchased the Docutek ERES system and began limited implementation in 1997. In the fall of that year the pilot project provided access to exams, solutions, syllabus, and other non-copyrighted materials using GIF as the standard document format. The library experienced some difficulty with this format, and in 1998 began using PDF as the standard. This resolved issues of Macintosh and Windows incompatibility problems, since PDF works equally well on both platforms. PDF can also handle handwritten text and retains a document's original formatting [4].

In 1998 UNC-Chapel Hill conducted a pilot project for e-reserves using Contec North America's C-3 e-reserve system in the undergraduate library. Approximately 700 documents, including copyrighted material, faculty quizzes, and syllabi were included in the initial project. Like Santa Clara, UNC decided on a turnkey solution rather than creating an in-house system. Requirements for the system included providing usage statistics and managing copyright permissions. The library invited instructors to participate in a focus group, and six instructors agreed to participate. The first phase of the project represented 32 courses, 91 documents, and 118 quizzes. The library now offers access to online articles, however links from data providers are often dynamic—because there is no fixed URL, linking cannot always be successfully maintained. The library quickly discovered that the labor-intensive nature of the work resulted in increased staffing requirements, and there were format access issues to resolve [5].

In the spring of 1998 Curtis Laws Wilson Library at the University of Missouri-Rolla offered web pages providing links to Adobe PDF files on the library UNIX Web server. Initially the intention was to provide documents in text format,

after scanning them using OCR software. However the scanned documents often required editing and the staff quickly discovered that the scanner could not reproduce mathematical formulas and notes. After the initial attempt, the staff decided to use Adobe's PDF, which had the added benefit of handling multiple page formats and provided high print quality. Instructors had the option to place JPEG or GIF images into the electronic reserves system. The staff scanned the documents at 300 DPI in black and white in order to limit file size. The circulation staff manages the course reserves and the web accessible directory; students search the Web version of OPAC by class or by instructor to find links to the appropriate reserve materials [6].

In 1997 the University of Washington Bothell library initiated a pilot for home-grown e-reserves system to meet the need for remote access to course materials for nontraditional students. Materials in the pilot project included links to Web based resources in addition to chapters, syllabus, lecture notes, and other material suitable for distance learning. Through the creation of a central e-reserve site the staff hoped to move from links on faculty web pages to make the library the central access point for all reserve readings. The staff limited the pilot to four courses during the first quarter of 1997; by the winter quarter of 1998 they added six additional courses. One of the first decisions was that all items would also be available in printed form in the traditional reserves in case the system went down. Library staff held sessions with students to train them on the new system, to let them know they would need Adobe Acrobat reader, that the download times might be long, and that they would be asked to evaluate the program at the end of the semester [7].

B. Benefits and Difficulties

The problems and benefits reported by each of these institutions were consistent and provide guidelines for future implementations. The study at Bucknell identified several benefits. Users have access to course materials after traditional library hours, electronic access eliminates the problem of missing pages inherent in traditional print reserves, and there is no need to create multiple print copies. Such a system helps justify wiring the residence halls, and provides more efficient use of databases and other costly electronic resources. By accomplishing a successful implementation, student, staff and faculty interaction is improved [8].

The evaluations performed by the staff at Bothell showed that the students had a high level of satisfaction, most often citing ease of access as a major benefit, and printer slowness as the major hurdle. By the summer of 1998 the library had 33 courses with reserve materials online. The staff recommends that new projects keep track of the number of documents scanned and the number of participating classes, noting that processing can take up to 40 hours per week during peak periods. Additional recommendations include tracking PDF

access from the server log and the time of day access occurred, and creating guidelines for faculty requiring a four-week deadline before the term starts [9].

Other problems encountered at Bucknell included copies not suitable for scanning, and increased processing time when compared to traditional reserves. The staff discovered that smaller seminars often have a larger reading list, compared to large classes with fewer reserves items, and this led them to consider setting a minimum class size and to limit the number of items per class [10].

C. Copyright

In his article "Copyright and fair use in an electronic reserves system," Scott Seaman examines the major issues related to copyright and fair use. There are three possible situations which may arise when applying copyright law to electronic reserves: getting permission from the copyright holder to use specific material, providing access to items which do not fall under copyright, and applying standards of fair use. Generally these standards have been applied to photocopying materials for use in an educational setting, but with electronic reserves text is not only copied, but transmitted and displayed, allowing multiple users access to the same document. Copyright law states that "both transmission and display are exclusive rights owned by the copyright holder." Reproduction by scanning is much the same as photocopying, however the method of delivery to the user is much different, and Seamans points out that fair use, according to section 110, limits transmission to "a place devoted to instruction." He concludes "making a digital copy available to multiple users simultaneously requires authorization from copyright holder" [11].

Each of the case studies cited reported concern with the issue of copyright. Some libraries place responsibility to get permissions on the faculty, while others rely on a liberal interpretation of "fair use" to cover all materials. After their initial trial, the University of Washington Bothell library added additional guidelines stating that copyright would be obtained by faculty [12]. In many cases, faculty generated the material placed on reserve, therefore it did not fall under copyright restrictions [13]. The Contec system has the ability to generate a standard letter to publishers for such requests, and this initially led UNC-Chapel Hill staff to decide that the library would request permission from publishers for all material placed on reserve. But they quickly found that more information had to be gathered and input in order to make the user requests, placing a significant burden on the staff, who had to research incomplete citations or return them to the instructor [14]. At Missouri, the copyright policy page states that the library will "accept class notes, test, and other materials for which the faculty has sole copyright and/or ownership." In addition, the system displays a copyright notice before a file displays on the screen [15]. Bucknell took another approach: there, the library limits reserves to material the

instructor had not previously used and material only available on campus [16]. And finally, some libraries pay all royalty charges, or bill them back to the department [17].

Some concerns surrounding copyright can be addressed through security features.

System restrictions can limit electronic reserve access to enrolled students. There are several ways to accomplish this: through restricted IP access, or by password access to students, faculty and staff. Missouri use is limited to campus dial-up accounts and uses a macro that checks passwords [18]. In most cases for off-campus users coming in through an independent Internet Service Provider, this would require proxy server access.

III. ELECTRONIC RESERVES AT UNIVERSITY OF COLORADO

A. The Central Library Pilot Project

In the spring of 2002 Norlin, the central library for the University of Colorado at Boulder campus, initiated a pilot electronic reserves project. Norlin Library staff recruited faculty volunteers to participate in a trial of the Electronic Reserves Service. Four classes were selected for the initial pilot. By the second semester more than 30 faculty members registered for Electronic Reserves in 60 different classes. Links to the material were incorporated into the library's electronic catalog. Beginning in the spring, 2003, any faculty member who wishes to use the Electronic Reserves Service will have the opportunity to do so. The intent is to migrate exclusively to Electronic Reserves for all journal articles, book chapters, and other printed material by 2004.

B. The Business Library

Literature about electronic reserves has focused on general system implementation, without examination of its impact on any particular area of study. At the William M. White Business Library, reserve materials play an important role in supporting each of the business disciplines; faculty use the reserve system heavily to provide access to business course materials in accounting, finance, and marketing. Solutions manuals, study guides, books, article copies, microfilm, and cassette tapes are common formats found on the reserve shelves. In addition to course materials, departments place optional material such as scholarship information, calculators, exams, and media such as video tapes and CD-ROM data. There are occasional problems with this reserve system: sometimes items are misplaced; sometimes they are cross-listed and difficult to locate, and must frustrating for students is the fact that the material is available only when the library is open.

Branch libraries, including the business library, will be able to offer electronic reserves beginning with the spring, 2003 term. In preparation for the new system, the author conducted a study of the current print reserves collection at the business

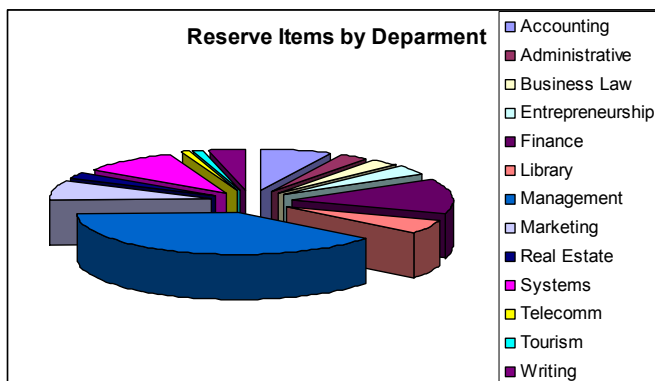
library, as well as an analysis of the electronic material offered by faculty of the school of business on individual web pages. The Leeds School of Business at the University of Colorado at Boulder consists of six academic departments:

- Accounting
- Finance
- Management
- Marketing
- Systems
- Tourism

The school offers an MBA Program, an MS in Accounting, non degree and certificate courses, a PhD Program and an undergraduate program. In support of these programs, during the fall semester, 2002, the William M. White Business Library at the Leeds School of Business maintained a print reserve collection of 467 items, 110 (24%) of which are held for courses in the MBA program.

Figure 1 shows the percentage of items placed on reserve by the various departments in the school of business.

FIGURE 1
RESERVE ITEMS BY DEPARTMENT



Accounting	34	7.28%
Administrative	13	2.78%
Business Law	14	3.00%
Entrepreneurship	16	3.43%
Finance	63	13.49%
Library	26	5.57%
Management	182	38.97%
Marketing	36	7.71%
Real Estate	12	2.57%
Systems	45	9.64%
Telecomm	4	0.86%
Tourism	5	1.07%
Writing	17	3.64%

Twenty-one of these items were cross-listed, and at the time of the analysis four items were marked as “lost.” Circulation of these items is especially heavy prior to exams or when an

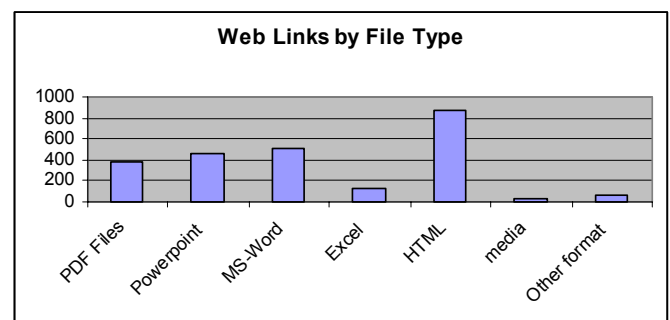
assignment is due, and students must compete for access to the materials, while students in distance classes must come into the library to access them. The majority of the material consists of photocopies of journal articles, which could easily be scanned and offered electronically.

Faculty are supplementing library reserves with the distribution of course materials over the Internet. The history of faculty web page development at the University of Colorado at Boulder has followed a pattern similar to those at institutions around the world. As new servers were installed, departments began to provide the faculty with email accounts and space to store files. Those with the technical knowledge could use this space to create web pages for outside access. Technical services offered an automated shell to make this process much easier—users can enter the Unix command “makepage” and all necessary directories and permissions are created within the user’s Unix account. Individual departments now encourage faculty to maintain such pages. Faculty web pages are increasing more sophisticated, offering personal information and links to the syllabus as well as links to reserve reading materials, often in PDF format. Of the 101 faculty listed in the business school directory, 48 (47.5%) maintained an active web page.

An examination of the faculty web pages provides valuable insight into how the faculty incorporate electronic documents into the learning experience. In categorizing and counting this material, the author counted all links except links to send email messages. A single document linked from more than one page was counted only once. Items were categorized as “Articles” only when the full text was available, regardless of the format it was offered in, and counted broken links regardless of whether they were external or internal. The scope of material was wide: in addition to the type of material offered in traditional reserves, there was also scholarship information, links to professional societies, courseware, grades, lecture notes, and research publications.

Figure 2 provides the breakdown for the types of files included, and figure y presents the types of documents.

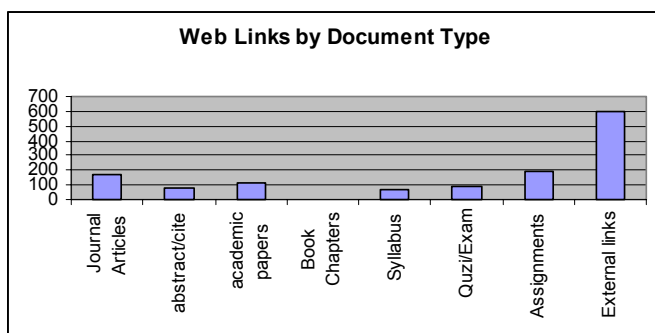
FIGURE 2
WEB LINKS BY FILE TYPE



File Types:

Web links by file type:

PDF Files	380
PowerPoint	459
MS-Word	511
Excel	125
HTML	877
Media	35
Other format	56



Document Types:

Journal Articles	168
abstract/cite	74
academic papers	116
Book Chapters	1
Syllabus	70
Quzi/Exam	92
Assignments	193
External links	604

It is interesting to note that the highest number of documents, after links to external sites, included HTML and MS-Word documents, created in-house for use as assignments. Journal articles made up the next largest category. The author discovered a total 167 broken links, indicating that material had been moved or that the website was no longer available.

While the majority of information available on these web pages does support instruction, links to specific courses are often hard to find, because course-related links are interspersed with items of personal interests, vitas, and departmental documents. By moving this material to the electronic reserves system, librarians could take on a significant portion of the processing, saving faculty valuable time. An automated link-checker could easily determine when links no longer function. Students would have one point of access for all electronic course materials, and the materials would be accessible off-campus to distance students.

One of the most exciting prospects in recent x is the ability to offer direct links to journal articles using static URLs. Many data providers are now offering this ability. Once the link is established, there is no need to scan the document. Such

linking helps justify the costs of such databases and provides a way to

C. Guidelines

While library books and professors' personal copies of books will still be placed on Reserve shelves the traditional way, on-line documents will begin to replace photocopied or paper items which had previously been kept at Reserve desks. Faculty will be able to place materials on Electronic Reserves for the non-commercial, educational use of University of Colorado students at no charge. Each course listing is limited to a total of 50 electronic items, in part because of workload, but also because of copyright considerations. The same materials cannot be placed on both electronic and paper reserves, and electronic documents will be deleted from the E-reserves system when they are no longer used for course instruction.

The University Libraries' policy for access to copyrighted materials placed on Electronic Reserves is derived from the fair use provisions of the United States Copyright Act of 1976. Materials not owned by the University Libraries will be purchased whenever possible; if purchase is not possible, a licensing fee will be paid to the publisher. The system is designed to display a copyright notice which students must acknowledge before they are permitted to access the materials. Students may access materials on Electronic Reserves by entering their name, university ID, and PIN code. Once verified, they can search for items in the database by faculty name or course number.

The library has established procedures for scanning and submission of documents, and is in the process of establishing workstations with scanners for faculty use. Instead of photocopying materials to bring to the Libraries, the faculty or graduate assistants can scan them according to the following specifications:

- Using Adobe Acrobat 4.0+, set the dots per inch at 150 dpi.
- Include a scanned copy of the library cover sheet as the first page of each individual electronic file.
- Limit pages from books to 25% of the entire content
- Only one article per journal issue may be scanned and placed on Electronic Reserve

When scanning is complete, the file can be saved on a floppy or Zip disk and sent through campus mail or dropped off at the library, or the file can be emailed as an attachment [20].

The business library staff must still determine the best method to encourage faculty to participate in this new system. One approach might be to team with faculty to migrate those documents currently linked to a faculty web page, and scan

those items in print reserves that are used for more than one semester. Because of copyright restrictions, the central library limits such scans to materials owned by the library.

IV. CONCLUSION

Electronic Reserves opens the door to a wide variety of formats which have not been feasible in the past, such as multimedia presentations that incorporate sound and video and provide interactive capabilities. Numbers indicate that faculty members are quickly promoting access to electronic reserves through web pages. Successful collaboration between the faculty and library will take some of the burden off faculty, and provide one access point for all classes, for both distance students and traditional students. Since the items are viewed, downloaded, or printed rather than checked out, they are always available and cannot be lost or damaged. Faculty members have already indicated a high level of support for such a transition, and everyone will benefit. Students will have access to materials at any time, problems with print reserve materials at circulation will be reduced, and faculty will have library assistance with the transition from print to electronic access.

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