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E-Reserve in Blackboard: Chalk It Up to Collaboration

Ophelia Cheung
Susan Patrick

ABSTRACT. Ryerson University Library in Toronto, Canada, embarked on an electronic reserve pilot project in 2004. The project soon took on new directions, including integration with Blackboard, using its new Content Management System (January 2005), employment of SFX links to offer database options for accessing articles (April 2005) and experiment with streaming a digitized video (May 2005). The reasons for these innovations are multifold. User's convenience of access via a portal like Blackboard is paramount. The SFX multi-database menu is revolutionizing electronic reserve access, though the concept has yet to be tested widely. Streaming AV content is ideal for distributed learning. From the staff perspective, the OpenURL Connector for SFX links is convenient for locating databases and creating links. SFX links are maintained centrally by the Collections Team in the Library and may reduce the occurrences of broken links. Some technical issues remain to be resolved. Extra library authentication after the Blackboard log-in and multiple clicks for downloading articles through SFX are the major ones reported. Excessive copyright clearance costs for digitized videos, lengthy course packs, business cases and so on are delaying or prohibiting some electronic reserve requests. The project has expanded the Library's collaboration with other e-learning stakeholder groups on campus and heightened copyright awareness in the University community

KEYWORDS. E-Reserve, blackboard, SFX links, video streaming, copyright, collaboration

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INTRODUCTION

E-Reserve has been in existence since the early 1990s. An estimated 250 electronic reserve systems were in production in the United States in 1999.[1] However, Ryerson Library only officially started its electronic reserve pilot project in 2004. The Library had begun in 2003, at faculty's requests, to link course lists to full-text articles in library subscribed databases. In 2004, when we had new staff to set up E-Reserve, we extended the service to automatically check all reserve requests against our databases and created durable links to the articles. We also began seeking copyright permissions from rights holders/publishers and paying for the copyright fees to scan documents for E-Reserve. Despite the brief history of our electronic reserve service, we were bold enough to venture into new territories and meet new challenges, including the following:

• Integrating with Blackboard course management system, the University's Web portal to support e-learning (January 2005);
• Utilizing SFX links to reduce chances of broken links and offer students multiple database options for access to an article (April 2005);
• Streaming videos within Blackboard to break down barriers of physical location and access (May 2005);
• Collaborating with Distance Education (DE) to create a database for managing electronic reserve requests (September 2006).

When the electronic reserve pilot project was first started in spring/summer 2004, electronic links to full-text articles were restricted to library catalogue access. The electronic reserve module was part of the integrated library system by Innovative Interfaces Inc (III). There were faculty who requested links to be incorporated in their Blackboard course pages. All we did at that time was to e-mail them the durable links created for their course readings. There was minimal communication between electronic reserve in the Library and the Office of Digital Media Project (DMP) in the University. (DMP is the University department providing assistance in the use and production of multimedia technologies for e-teaching and e-learning, including Blackboard administration.) We had no idea how the materials subsequently appeared in Blackboard, and how students accessed them. However, this was soon to change.

E-RESERVE IN BLACKBOARD

Towards the end of 2004, we were approached by DMP for a pilot project using the new electronic reserve module in Blackboard Content Management System. Being so new to E-Reserve, we were both excited and cautious at the opportunity of accepting yet another new challenge–shifting to course management system delivery of electronic reserve content.

We balanced the pros and cons of such collaboration with DMP. The Library catalogue's proxy server prevented non-Ryerson users from access to copyrighted content through the library authentication process (library barcode and PIN). Blackboard, however, provided controlled access to materials by specific course, a requirement by publishers for copyright reasons. Apart from copyright control, students' convenience was a consideration. For courses that were delivered through Blackboard, students would not have to exit Blackboard to retrieve Reserve readings from the library catalogue. It would be one-stop shopping for them. The project would also set the stage for the Library's entry into the University's mainstream computing, and enable us to be a partner in the portal development to support e-learning. DMP would help to promote our service to students and faculty. They also provided the technical support for this initiative. We would not have to worry about server space for scanned documents. What were our concerns then? From the staff perspective, as long as we wanted to maintain dual access–same article accessible from the Catalogue as well as Blackboard–work would be doubled. The workload would be too much for one staff member to handle, and budget concerns prevented staff increases to the department. There was no simple way to transfer data from the Library system to Blackboard or vice versa. Even if we did not maintain a dual system, since some courses were not offered in Blackboard (and the majority were not), our staff would have to learn to process materials in two different ways. Even copying and pasting took time. Loss of Library branding in the Blackboard environment was another concern. When students clicked on a link to access articles direct, they would not know where those full-text materials came from. The Library wanted students to be aware that these were materials purchased and delivered to them by their libraries.

Despite the number of apparent drawbacks, we looked at how other libraries managed their electronic reserve in Blackboard. We read with interest the experience of Northwestern University. "The library did not choose Blackboard . . . the Northwestern environment drives electronic reserve decisions."[2] We finally decided to take up the new challenge, as we thought the pros outweighed the cons. Convenience to students was the major driving force behind our decision to integrate electronic reserve with Blackboard. The copyright requirement for limiting access to specific courses was another deciding factor. Our confidence in participating in the Blackboard electronic reserve pilot project was bolstered by talking to other users of Blackboard Content Management System, notably Seneca College in Toronto, through a conference call in February, and attendance at the first Canadian Blackboard Users Conference hosted by Seneca in May, 2005. Three courses were mounted in the Blackboard Content Management System during the 2005 Winter Term (January to April). The process worked like this:

1. DMP was the Blackboard administrator and the Library was given an account to access the electronic reserve module.
2. The instructor requested a list of materials to be loaded on E-Reserve, either through e-mail or via the online Reserve Request form.

3. Library staff created the electronic reserve list of links to full text documents and added it to the Blackboard electronic reserve folder (in the Blackboard Content System).
4. Through the help of the DMP co-ordinator, the instructor added the link to the electronic reserve list in the Course Documents or other content area of a course.
5. DMP added an electronic reserve folder to the Blackboard Content Collection module.
6. Library staff posted links in the Blackboard Content Collection.
7. DMP added Library staff as Blackboard course builder.
8. Library staff inserted the folder in the Blackboard course shell.
9. Students could then view the materials.
10. If a course was offered in Blackboard, we created a dummy record in the Library catalogue indicating such. No duplicate records were created.

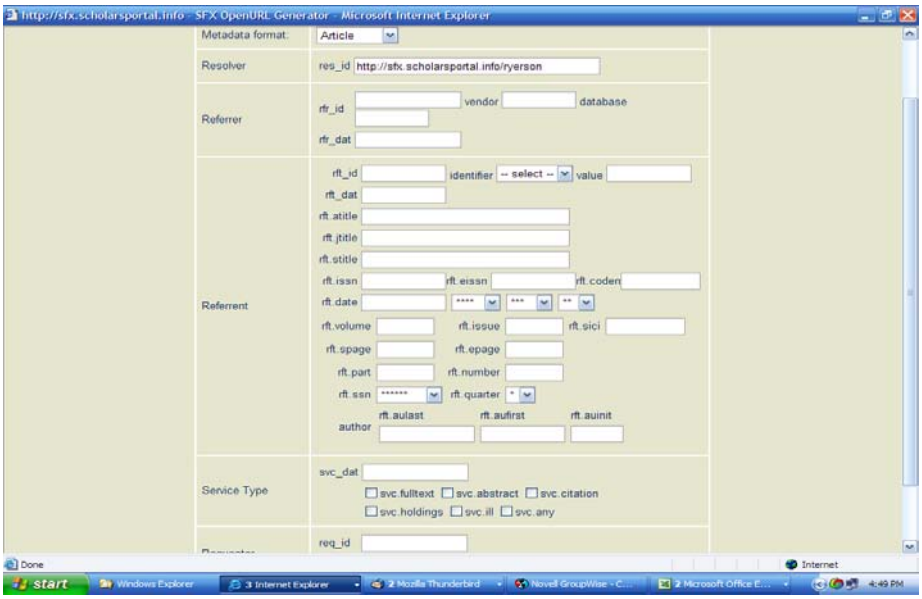
SFX LINKS

A couple of months after one course tested the use of electronic reserve in Blackboard, we were approached by the Collections Team in the Library with another new idea–SFX links. SFX is the link resolver developed by Ex Libris, using the OpenURL standard for interoperability between information resources. These links are vendor-independent. Our staff only had to fill in an OpenURL Connector form (Figure 1), with the standard details such as author, title, ISSN and so on, and the databases which contain the article desired would be automatically located.

The relative ease of this process, compared with looking up database-specific instructions to create durable links for individual articles, was too tempting to resist. We were also persuaded that the SFX links would offer the stability sometimes lacking in the direct-link-to-one-article environment. The Library has no control over publishers' merging, acquisition activities or licensing agreements with aggregator databases. When links suddenly became broken and only citations/abstracts remained, users had no idea what it meant except to blame the Library for "frequently changing the databases," as one faculty put it. SFX links are maintained centrally by the Collections Team of the Library and may reduce the occurrences of broken links. Even though it appeared contrary to electronic reserve practice of direct linking to one article only, we liked the multiple database options, giving students a choice, and a chance to select other databases, should a link fail to work. After all, it would be the same interface that students are seeing when they search our library databases. The SFX project or Get it! menu as it actually appears on the screen, is a consortium undertaking, with over 20 Ontario university libraries participating. Apart from this consistency with library database search menus, it displays the Library branding and also citation of the article, solving two of the concerns with electronic reserve integrating with Blackboard screens.

As with almost all new initiatives, the SFX project and electronic reserve employment of SFX links were not without growing pains. We had one faculty member agreeing to participate in the electronic reserve Blackboard pilot project as well as SFX

FIGURE 1. OpenURL Connector



links in May 2005. There were complaints from students in July about SFX links' sporadic breakdown and multiple clicks for downloading articles through SFX. Some database links were connected to the journal and table of contents. Students had to scroll to look for the issue that contains the article. Our staff member also discovered shortcomings with SFX applications. The OpenURL connector apparently accommodated the majority of our databases, for example, ProQuest, Ebsco. However, she had to resort to database-specific instructions for some databases. She also learned by trial and error to omit certain fields, for example, ISSN to speed up the functioning of the OpenURL connector. It was a dilemma whether we should go back to the "old-fashioned" way of making direct links to articles or continue with SFX applications, faced with interruptions of service happening more often than we desired. While we prefer the status quo at this stage, we will liaise with the Library's reference service and the virtual reference "Ask a Librarian" service to get a better sense of the number of complaints about link breakdowns. We will also update our electronic reserve Web page to explain the SFX possibilities and inadequacies, and the channels through which users could obtain some assistance for alternative access to electronic reserve article during SFX system interruptions. We feel that the SFX multi-database menu is

revolutionizing electronic reserve access, though the concept has yet to be tested widely.

VIDEO STREAMING

The Library's collection of over 5,000 videos (the sixth largest video collection of Ontario's 20 universities) is an important teaching resource for our faculty, and is heavily used, both for class presentations and individual review. With the increase in distance education courses, in particular, access to videos was becoming a problem. The Library was anxious to go ahead with video streaming. Its merits for supporting distributed learning are obvious–simultaneous remote access 24/7. Nursing students, in particular, are a large community of off-campus users in a department which relies heavily on instructional videos. In the past, we had purchased videos for one remote location and, in another case, had sent out a set of library videos by mail to another, but these were not satisfactory long-term solutions. In addition, nursing videos, being heavily used, are often physically damaged, and are expensive to replace. There was a different problem with the Business School, which often wanted multiple copies of expensive videos. (Ryerson's Business School, being the largest in Canada, has high enrollments for courses, and divides them into smaller sections with a number of different instructors, many of whom want to have class screenings of the same videos on the same days.) However, in January 2004, after the library initiated discussions with the university's Computing and Communications Services (CCS) about offering streamed videos, we were told that there was not enough bandwidth available to proceed with this venture. The idea had to be shelved for the time being.

In November 2004, the Library was approached by one of the DE (Distance Education) Coordinators about digitizing and streaming a Library video and mounting it on the university's Windows Media streaming server to make it available through a course Web page. When we mentioned the bandwidth issue, and were told that this was not a problem for them, we realized that the timing was auspicious to re-look at streaming library videos.

However, as well as technical considerations like bandwidth, there were copyright implications with video streaming. To comply with Canadian Copyright Laws, the Library must purchase public performance rights (PPR) for any video to be screened in the classroom, but these rights do not cover permission for digitization, which must be requested in addition to PPR.

For this first request to digitize and stream a Library video, we contacted the distributor for copyright permission. As we wanted only to digitize one part of a series which we held in VHS and 16mm formats, we were given permission to do so at no cost if we purchased another copy of the complete series in DVD. Distance Education subsequently handled all the technical aspects and was soon offering the streamed video through the Blackboard course management system Content module. The students could simply click on the Content tab within their Blackboard course, then on E-Reserve, then on the video title, and the Windows

Media Player opens with the streamed video. With this success, CCS was consulted about expanding the range of streamed videos, and in January 2005, the Library and DE were given the go-ahead to proceed.

Over the next few months, the Library received increasing requests from DE for permission to digitize and stream Library-held videos, again linking them through Blackboard for courses in a range of subject areas. At this point, we developed procedures for processing streaming requests. Streaming was also new territory for our video distributors. Most did not yet have a pricing structure for digitization rights, and were operating on a case-by-case basis. Some refused outright to have their videos streamed. With others, we began discussions on pricing for various models of access:

• In perpetuity for the whole university through the Library OPAC (authenticated through EZproxy as is done for our licensed databases);
• For a limited time, such as one or two semesters;
• For a limited group, such as one class through the OPAC electronic reserve or through the (course-specific password protected) Blackboard course management system.

The restricted Blackboard model was preferred by most distributors, and for this reason, streamed video requests were integrated with EReserve, and requests for streamed videos were added to the online electronic reserve Request form. Requests for Library-held, or newly ordered Library materials, are processed through the Audio-Visual acquisitions staff member. A form was developed for AV and electronic reserve to use for requesting digitization permission for both audiovisuals to be streamed, as well as for text-based material to be scanned. We also had to consider the cost factor, and costs are monitored and approved by the Audio-Visual Librarian, so far on a case-by-case basis. About 10 library videos were streamed, at an average cost to the Library of $250 each for streaming rights.

We found that distributors were asking for more information about the use of the streamed videos than publishers requested for scanning print material. The library AV acquisition staff member was merely acting as an intermediary between DE and the distributors during the process. He was spending valuable time passing messages back and forth between the two groups, and streaming requests were getting delayed. DE had all the required information, and in several cases DE instructors had already spoken to distributors about streaming rights. In addition, one Nursing professor successfully negotiated with the distributor and secured free streaming rights for DE for a popular ten-part nursing series, held in the Library. While we are leaving the streaming request option on the electronic reserve form, particularly for on-campus courses, we realize that in the interest of speed and efficiency, the form may be by-passed in some cases and DE may go directly to the distributor and even pay for rights from their own funds.

We expect demand for streamed content to increase with the growing enrollment in distributed learning courses at Ryerson, and we recognize the need to

keep the channels of communication open to avoid any duplication of effort over streaming, as well as to insure that any streaming of library materials is done within copyright restrictions. The shared database project helped address any concern managing these issues.

E-RESERVE/DISTANCE EDUCATION SHARED DATABASE

In December 2005, DE approached the electronic reserve unit to set up a database of electronic reserve requests that can be accessed by the Library, DE staff and faculty making the requests. The concept was based on a previous database they created for the Ryerson Bookstore, which allows DE instructors to request book purchases, to monitor the departmental approval process and check for items received. The Bookstore apparently benefited from the ease of communication with faculty clients. The rest of the Continuing Education (CE) Department, of which DE is a part, embraced the idea of a shared database with the Bookstore, and their faculty also requested participation.

Keen on consolidating the success and speeding up the processing of electronic reserve requests in anticipation of increased demand, the DE Department offered to provide all necessary technical support to the E-Reserve/DE project. They would absorb the cost of programming, load the data on their server and be responsible for future maintenance of the database. Unlike the Bookstore database which was built from scratch, the E-Reserve/DE database would stem from the existing Microsoft Access-based files created by E-Reserve's Copyright Lead Hand, the staff member responsible for coordinating, directing and tracking permission requests to publishers.

As this project involved a non-Library partner, electronic reserve was careful to consult widely with the Library's systems personnel, Audio Visual Services and Library Council, the librarians' group responsible for policy and administrative decisions. A small DE/E-Reserve working group was established in January 2006 to examine the data required to build the database. The group identified the appropriate field names, levels of access and required data for different user groups (faculty making electronic reserve requests; library/DE staff looking up information; DE/E-Reserve/AV acquisition staff processing the requests). When completed, the faculty would be able to log into the database, input course reading requests and have the electronic reserve staff check them against the Library holdings. If the request involved copyright clearance and/or scanning of documents, staff would be able to check the progress and outcome of the requests at any time. This capability allowed staff to determine a new alternative for filling the request if necessary, such as print course-packs, depending on the copyright cost and funding availability. Many hours of phone calls and e-mails would be saved by all parties concerned (faculty and DE/AV/E-Reserve staff) through this new tool. It is also hoped that this database would become a central location for digital rights permissions related to course readings, providing information on the requestor of permissions (faculty; DE; the Library),

the format (text; AV) and the terms and conditions for permissions granted (gratis vs. cost; perpetual rights vs. specific durations, etc.). A different level of access would enable AV or electronic reserve staff to look up the contact information of rights owners and generate request letters for copyright clearance. Faculty, with their access permissions to the database, would not see such details but would obtain some idea of the amount of time and cost (if any) involved.

It is obvious that the project would provide ease and convenience to all parties concerned. The target for completion is September 2006, the start of a new academic year, and usually the busiest term. Although it is too soon to assess the outcome of the project, the endeavor is indicative of another collaborative partnership effort made by electronic reserve in the interest of facilitating delivery of e-teaching and e-learning materials within the University.

TECHNICAL ISSUES

A big obstacle to enticing Blackboard users to use electronic reserve is the single sign-on issue. DE constantly queried why accessing from remote locations had to go through a library authentication after logging-on to Blackboard. They failed to understand why the Library could not forgo its own barcode and PIN when the University has managed to provide uniform access to e-mails and computer lab accounts. According to the Systems Librarian in the Borrower Services Team (of which electronic reserve is part), our integrated library system, Innovative Interfaces Inc. (III), has made some progress in introducing an External Patron Verification package using LDAP (Lightweight Directory Access Protocol) which can be used to validate library users against an external LDAP server. However, Blackboard patrons could not authenticate against the Library patron database. Some libraries may have created a workaround, creating PHP scripts to link the student information system with a portal server, a Web server, and the Library server. Customized CPIP connections would be needed. The student information system might have to be compatible with either Oracle or LDAP as well. The Library does not have the amount of programming support for such undertaking and so it was not a viable option. The good news is the University's Computing & Communications Services (CCS) and the Library's Systems Committee are now very interested in pursuing the idea of a single sign-on, and the integrated library system vendor, III, is also investigating a solution to the problem. Electronic reserve will monitor new developments in III's Blackboard Courseware Integration Project in late 2006 and assess its implications for our Library's environment.

COPYRIGHT ISSUES

Lack of understanding of the Canadian Copyright Laws, the copyright process, the time required for getting permissions from rights holders/publishers and the cost for payment of copyright fees is another big issue. Some faculty were not aware that copyright clearance is required for certain documents, such as book chapters, articles from the Library's print journals or other documents that the Library or faculty themselves do not have rights to convert from print to digital formats. Some thought that materials used in an education setting would be exempted from copyright. Some assumed that the rights obtained by the University Bookstore to compile print course-packs could be applied to digital copying for course pages. Some faculty under-estimated the amount of time needed for clearing copyright. Almost 50% of electronic reserve requests in our first year of operation were incomplete. The Library's ability to pay for copyright clearance created another level of challenges. The existing guidelines stipulate that the Library cover no more than $150 per course for copyright charges. Due to rising costs it was difficult to stay within the limit. It was particularly difficult to manage costs related to book chapters, which sometimes amounted to over $400 per course. The factors affecting the cost of copyright were identified as either the number of students involved or the number of pages to be scanned. Evaluation of copyright cost and payment was accomplished on a case-by-case basis. Business cases and lengthy course packs were doomed to be excluded from electronic reserve funding due to the high cost of obtaining copyright permissions to digitize large amount of materials or the charges levied by publishers.

A significant outcome of the electronic reserve development was the leadership role electronic reserve took to educate the University community about copyright awareness. There are other stakeholder groups on campus, including the Bookstore (compiling print course-packs); Distance Education (leading provider of university-based adult learning and on-line distance education); Office of Research Services (Ryerson's central research administration office and point of contact for financial support for university scholarly, research and creative activities); the Learning and Teaching Office (support and provide resources to faculty in their teaching); and DMP (assistance in the production and use of multimedia technologies for teaching and learning, including Ryerson's Blackboard learning system). However, there is no central coordinating office to deal with the copyright permission process or offer advice on copyright issues. The Library, and electronic reserve in particular, became by default the channel through which faculty obtained assistance. In June 2004, electronic reserve initiated the establishment of a Library Copyright Committee, consisting of librarians/staff from various library services. A copyright e-mail account was established to receive queries on library-related copyright matters, administered by the Copyright Lead Hand in E-Reserve. A joint workshop with DMP providing general guidelines on digital copyright was offered to faculty/staff in May 2005, and again in November 2005. Electronic reserve also presented a number of workshops for Library staff and for faculty on electronic

reserve and copyright during the annual Ryerson Faculty Conference in May.DMP has made a link from their services Web site to the revised library copyright Web page, directing faculty to consult us when they decide to load teaching materials online. DMP is the Blackboard administrator; electronic reserve is the copyright clearance administration and creator of legal Web links to information resources.

PROMOTION OF E-RESERVE

Requests for electronic reserve in Blackboard have increased significantly. DE is the biggest provider of online courses, and therefore a logical partner of E-Reserve. Most of their courses are offered in Blackboard. Unfortunately, it does not necessarily translate to satisfaction with the course management system and access. One DE coordinator recently remarked on the slowness of the system and faculty frustration. We conducted a Web survey of faculty using Reserve services in May 2005. Almost all faculty (94%) using electronic reserve said they would use the service again but the indicated preference for Blackboard was only 50%. According to the DMP's Blackboard coordinator, part of the reason faculty do not place E-reserves in Blackboard is that they do not want to receive Blackboard training or be bound by any course management system. For example, a seminar was presented by a faculty member in January 2005 demonstrating the relative ease and simplicity of creating, posting, and managing Web-based courses using Academia, an open-source courseware tool implemented in Pliant, a programming language and Web development framework.

In the summer of 2005, DMP inserted an announcement about electronic reserve in Blackboard in the portal's administration news column. Electronic reserve is planning to further promote the service in the "What's New?" page on the Library Web site. We will also make announcements on the faculty listserv. As indicated in our recent analysis of faculty Reserve requests, electronic reserve now constitutes about 34% of the total requests and has almost taken over the reprints, which are down to 13%. (Reprints were 48% of total Reserve items in 2003, before electronic reserve came into being.) It was gratifying to learn that 93% of the electronic reserve users said they would use the service again. However, 61% of the respondents still used the Print Reserve service. As many as 24% used both print and electronic reserve and 15% used electronic reserve, exclusively. Some of the respondents were not aware of available electronic reserve services. We knew from an earlier survey conducted at Ohio University that "many faculty members are unaware of many of BlackBoard's features" and "more promotion and better communication about these services is needed."[3] What we didn't realize until later, was how seriously we have over-estimated users' understanding of library jargon and the way to look up library resources. If our "partners" in electronic reserve had difficulties distinguishing "E-Reserve" from "E-Resources," this is illustrative of the efforts needed to edit and revise the content of our promotional materials, aside from the medium of communication.

THE FUTURE– COLLABORATION WITH OTHER DEPARTMENTS

Competition is inevitable among services offered on campus. The swiftly changing technology supporting these services only accentuates this competition and forces us to continually assess our identity, experiment and rethink the way we offer services. Brice Austin depicted a few scenarios in his article titled "The Futures of Course Reserves."[4] Some faculty continue to create their own class Web presence rather than using a course management system. Bookstores and commercial vendors are investigating the conversions of print course-packs to electronic format. All of these activities serve as threats to the expansion of E-Reserves or even the existence of this type of library service. Amidst these threats, electronic reserve discovered one survival tactic that involved active collaboration with other stakeholders within the University in facilitating the E-Learning process. In less than two years, our electronic reserve unit has made a dramatic leap in collaboration with services within the Library and external partners. We collaborated with Audio Visual services to highlight the video streaming feature of electronic reserve and DE is promoting streamed videos to their instructors for the Fall 2005 term. Our partnerships with DMP and DE in delivering electronic reserve in Blackboard are stronger than at any time previously. We will continue to evaluate the use of the newly created E-Reserve/DE Shared Database as it is fully launched during the Fall 2006 term. DMP is assisting our electronic reserve unit with analysing the Blackboard use statistics related to electronic reserve materials. We are particularly interested in how frequently the scanned documents are being used, since copyright permission costs are involved and the data will help us assess the cost-effectiveness of the new service. Discussions with DMP have begun on how to conduct a student satisfaction survey regarding electronic reserve course readings in Blackboard at the end of the Fall semester in December 2006. In the mean time, a test survey may be conducted with a couple of courses prior to a broader examination. The Library will be included in evaluating the potential use of the survey software, Opinio, which DMP is planning on installing on their server. At the library's request, a library tab will soon be added to the Blackboard main screen, drawing faculty and student's attention to priority library services, resources and information. All these developments are indicative of the expanding vision of electronic reserve and its supportive and collaborative role in the new trend of teaching and learning online in higher education.

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