Mining e-Reserves Data for Collection Assessment:
An Analysis of How Instructors Use Library Collections to Support Distance Learners

Michele Behr
Western Michigan University

Rebecca Hill
Central Michigan University

Abstract

With both budget dollars and buying power shrinking for academic library collections, the selection of materials is a series of crucial choices. With increases in numbers of online programs, how can we determine if what we are buying is in fact what our users need? E-reserves are an increasingly popular way to provide digital copies of course readings via an online interface. This paper reports on an analysis of items placed on e-reserve at two large, publicly-supported institutions in Michigan. An inventory of these items reveals: what types of academic materials are being used; what percentage are from the libraries' electronic or print collections or from non-library sources; and whether periodical articles placed on e-reserve are from scholarly publications. The results of this analysis will provide useful insight into collection assessment, as well as the nature of materials being used by teaching faculty in support of distance learners.

Introduction

Academic librarians employ a great deal of effort in the selection of materials that will support the instruction and research taking place at their institutions. However, their power to buy these materials is more limited than ever before. The state of Michigan has 45 public academic institutions (National Center for Education Statistics, 2008-2010) and financial support for them is dropping. For the fiscal year 2010-2011, Michigan's public institutions were faced with a 2.8% cut in initial gross higher education appropriations. This amounts to an initial loss of 2.3 million dollars for Central Michigan University and 3.2 million dollars for Western Michigan University (Jeffries & Jen, 2010). Such a loss affects all financial aspects of a University and inevitably trickles down to library finances. With both budget dollars and buying power shrinking for our academic library collections, the careful selection of resources becomes even more critical.

At the same time, our student populations are shifting to become more decentralized, especially in the online environment. According to a report on online education by Allen & Seaman, the number of students taking at least one online course in the fall of 2010 was greater than 6.1 million. Although the authors found that the increase in the number of students taking online classes is slowing, they reported that the percentage of students in higher

education taking at least one course online was still 31% (Allen & Seaman, 2011). As we gain more online students, how can librarians determine if the materials they are buying are in fact what these distance users need?

One answer to this question may be the examination of items on electronic reserve. The American Library Association defines reserves as "materials selected by faculty that are required or recommended course readings" (2003). Electronic or e-reserves are reserve materials in electronic format. These digital copies of course readings available via an online interface are not only convenient for our patrons, but provide librarians a unique view of readings instructors select to support curricular goals for their courses. As an alternative to using click-through counts or circulation statistics to assess the use of a library's collection, reserves allow us to really see the materials faculty members want their students to use – and e-reserves provide this data for distance students in particular.

E-reserves are almost ubiquitous in today's academic library and research environment, but what, specifically, are these materials? Where are they coming from? Are they scholarly research articles whose access has been purchased by the library or news items available online? Are students reading selections from the library's print books? What about its e-books? These can no longer be considered idle speculations. In the state of Michigan recession woes have been felt worse than many; per capita money income from 2005-2009 in the state was lower than reported nationally, while the percentage of people living below the poverty level in 2009 was higher (U.S. Census Bureau, 2011). With these figures and the cuts in state appropriations in mind, analysis of these questions is timely.

At Western Michigan University and Central Michigan University, thousands of items are placed on e-reserve each semester for both on- and off-campus classes. An inventory of these items may help to illuminate the end-users of our collections, and discover whether or not librarians' selections are being used in support of our students – our distance students in particular. By having data from more than one school of comparable size and geography, we hope to be able to draw conclusions where the data are similar or different.

Literature Review

A review of the literature for studies done on the types and sources of materials on electronic reserves showed that such research is few and far between. The most comprehensive study found was published in a SPEC Flyer and Kit from the Association of Research Libraries (ARL), authored by Cindy Kristof in 1999. A survey of ARL libraries was done to gain an overall picture of electronic reserves services in those institutions at the time. Of 56 responding ARL libraries, the "five most common types of material placed in electronic reserves systems were instructors' course notes and sample tests (94%); instructors' exercises/problem sets (88%); journal articles (69%); and book chapters (59%). Materials such as links to web pages, syllabi, homework solutions, and student materials were also mentioned" (Kristof, 1999a). The percentages refer to the amount of respondents that reported having that type of material in electronic reserve. In the data from the survey, other material types mentioned by respondents included photographs/slides, movie clips and sound clips (Kristof, 1999b).

This study was published at a time when journal articles were just beginning to be comprehensively available in electronic format. Almost ten years later, however, the types of materials mentioned in the study were still being offered through library e-reserve systems. At Pennsylvania State University Libraries, items "eligible for electronic reserves include… photocopies of articles, book chapters, past exams and instructors' notes" (McCaslin, 2008).

Since the 1999 ARL study, many papers have been published on electronic reserves systems in academic institutions. However, most of these tend to concentrate on a), the history of e-reserves at an institution; b), the process of placing the material on reserve (generally with a discussion of the technology used); or c), a focus on copyright compliance in the e-reserve context. But while the format and source of e-reserve items were not the focus of the research, some of the published literature has explained how the considerations above have influenced the types of materials placed on e-reserve, and included some examples.

At the University of Kentucky, the very first e-reserve request to Distance Library Learning Services "consisted of 20 articles" which were nearly all held in the library's licensed resources; by the next year library staff were linking to URLs when possible (Wilson, 2002). However, it was not uncommon for an institution (through the library or another department) to begin offering e-reserves in the form of faculty-generated content and scanned print items, with a subsequent move to electronic items from the library's collection. Buehler, et al. (2001) wrote that when e-reserves services began at the Rochester Institute of Technology, "the vast majority" of materials "were created by faculty", and that "[a] myriad of scanned materials were printouts from PowerPoint presentations". However, when the library became responsible for the scanning of materials, the librarians there began searching for electronic versions of requested articles as the preferred format for e-reserves (Buehler, et al., 2001).

This preferred format soon gained more official credence. By 2003, enough institutions were engaging in e-reserve services that the American Library Association (ALA) published a statement on Fair Use and electronic reserves. While concentrating on the application of Fair Use criteria to such services, the statement notes that "[e]-reserve systems include text materials, both factual and creative" and "serve the interests of faculty and students who study music, film, art, and images" (American Library Association, 2003). The statement emphasized that e-reserve materials were not simply blocks of scanned text but also included a wide range of multimedia. This was also noted in the responses to the ARL survey published several years earlier (Kristof, 1999b).

The ALA statement also specified that "licenses to [electronic] resources often include the right to use them in e-reserves systems. In such cases, no permission is required and a fair use analysis is unnecessary" (2003). These types of license agreements allow libraries to save money on copyright clearances as well as staff time spent in scanning print materials, but also mean that the materials on e-reserve may be more likely to be held in library collections. This was the case reported at the Rochester Institute of Technology (Buehler, et al., 2001) as well as at Pennsylvania State University (McCaslin, 2008). The movement toward linked electronic reserves material is most clearly illustrated at the Reed Library at Fort Lewis College, whose staff members provide URLs from within licensed databases as the preferred e-reserve method for periodical articles:

Linking to content in appropriately licensed library databases eliminates costs that would otherwise go toward copyright permissions for the reproduction of needed material. While not every article faculty may want to put on electronic reserve can be found in a   database… the push towards linking to articles in databases is beneficial for both   library personnel and faculty (Oliver, 2009).

Although not a part of the published literature, frequently academic library websites have posted guidelines on the use of e-reserves. Many of these include the process of putting material on e-reserve, gaining copyright clearance and accessing the materials – the important information that faculty and student users at institutions need to know. There are fewer guidelines that specify the types of materials acceptable for e-reserve, though a Google search of "e-reserve material types" returned a good number of such online guidelines. Many of them specifically mention two main types of e-reserve materials – journal articles and book chapters. For these institutions as well, a push toward using library collection items for e-reserves can be seen.

Some examples of academic libraries that provide concise lists of the types of material on e-reserve are the University of Idaho Library (UIL), the University of Washington Libraries (UWL) and Southern Illinois University Carbondale Morris Library (SI Morris Library). Material types listed on these websites include journal articles and book chapters as well as other specific item types – course syllabi, lecture and class notes, presentations, links to websites, practice exams and exercises, test files, solutions files, student papers, images, audio files and video files (UIL, n.d.; UWL, 1998-2011; SI Morris Library, 2011). Again, some of these are the same types of materials reported as far back as 1999 (Kristof). The amount of the different item types placed on e-reserve, however, is either unknown or unpublished.

It seems then from the available literature that the types of e-reserve materials libraries place for their institutions depends not only on what the faculty request, but also on the push and pull of copyright restrictions. There are even fewer examples of reported *numbers* of items placed on e-reserve. The 1999 ARL study states that "[t]he number of items or files that libraries had in electronic reserves varied widely, from zero to 60,000" (Kristof, 1999a). Recent studies have reported more conservative numbers. McCaslin (2008) writes that between Fall 2001 and Spring 2005, numbers of items on e-reserve ranged from a low of 4,092 in Spring of 2002 to a high of 6,929 in

Spring of 2004. Similarly, Oliver (2009) notes that "items placed on [e]reserve peak in 2005, with 1,262 items" when examining the years 2003 to 2007. These numbers may not be comparable, due in part to the relative sizes of the two institutions (Pennsylvania State University and Fort Lewis College, respectively).

So what does this mean for two large public institutions in Michigan? By comparing two schools of similar size and geographic location, we hope to gain a more relevant comparison of the number of items on e-reserve at the present time. The gradual move from instructor-generated content to licensed and open web materials seen in the literature may also be reflected in this data as we examine the formats and sources of e-reserve materials. Finally, e-reserve data may be useful to subject selectors. A study from the University of Oregon Law Library, while not examining e-reserves in particular, finds that closely examining the sources of items in a library's collection can have a directional impact on collection development policy (Breakstone, 2010). With this research, we hope that our study of the types and sources of items on e-reserve may shed light on future collection development directions for our institutions.

Background

Western Michigan University (WMU) is a state-supported, research institution located in Kalamazoo, Michigan. Total enrollment at WMU for Fall 2011 was approximately 25,000 students, with about 5,000 of those students enrolled in graduate programs (Western Michigan University Office of Institutional Research, 2011). WMU offers 141 undergraduate programs, 69 masters programs and 29 doctoral programs (Western Michigan University, n.d.). Courses and programs are also offered away from the main campus through WMU Extended University Programs (EUP). Serving the University's information needs are WMU Libraries, whose collections contain approximately 2.5 million print and non-print titles (electronic subscriptions were at about 45,000 titles in 2011). Facilities include the main Waldo Library, as well as branches for Education, Music & Dance, and Archives & Regional History.

Central Michigan University (CMU), located in Mount Pleasant, Michigan, is the fourth largest public university in the state and is composed of the main campus, Off-Campus Programs and CMU Online. Serving the information needs of CMU and its over 200 academic programs (Central Michigan University, n.d.) is Central Michigan University Libraries, which are made up of the main University Library, Off-Campus Library Services (OCLS) and the Clarke Historical Library. The total enrollment for Fall 2011 at CMU was about 28,000 students with an off-campus enrollment of approximately 7,000 (Central Michigan University Office of Institutional Research, 2011). The library currently holds approximately 1.3 million volumes , with about 21,000 electronically-available periodicals (including via full-text databases) as of 2010.

Distance Education and Courseware

WMU distance students are primarily taking classes on a part-time basis – 90% of the undergraduate students are part-time, while 68% of graduate students are so enrolled. This means that they are largely non-traditional students who are working full time. About 90% of these students reside within the state of Michigan with the remaining 10% living out of state. WMU EUP operates 7 regional sites throughout the state in Battle Creek, Benton Harbor-St. Joseph, Detroit, Grand Rapids, Lansing, Muskegon, and Traverse City. WMU has also seen an increase in enrollments in online courses and programs. In the Fall of 2011 approximately 4,000 students were enrolled either online or at regional sites. Undergraduates accounted for 55% of the off-campus enrollments, with the remaining 45% being at the graduate, primarily Masters level (Western Michigan University Office of Institutional Research, 2011). Off-Campus degree programs are primarily concentrated in the areas of education, health, and business.

Central Michigan University has a long history of serving off-campus students, and the Off-Campus Programs division (under various names) has been specializing in doing so for over 40 years. Today, CMU has over 60 class centers across North America, many of them on military bases. The majority of off-campus students (75%)

are studying at the graduate level (Central Michigan University Office of Institutional Research, 2011), and many are non-traditional students who choose to pursue either the Master of Science in Administration or the Master of Arts in Education degrees. With a strong impetus from University Administration to create more online classes, a third division of the University came into being officially around 2008 – CMU Online. Online courses are offered to both the on- and off-campus populations, and consist of both undergraduate and graduate students. OCLS has extended its services to the online population as well, recognizing that students taking online classes – even while living on campus – are distance students.

In recent years WMU has used WebCT and Blackboard Vista as the primary courseware platform. In 2011 the Desire2Learn (D2L) system was chosen to replace Blackboard Vista and all online classes are scheduled to be running in D2L by Spring 2012. Central Michigan University uses the course management system Blackboard for all courses regardless of location, and this is the platform to which electronic course reserves are uploaded.

Library Services for Distance Learning Students, Staff and Faculty

In order to support the research needs of the off-campus community the WMU Libraries have provided instruction and delivery services to these students and faculty for many years. The goal at Western Michigan has always been to provide library services for the off-campus community that are equivalent to services offered to students taking classes on campus.

Collection development at WMU Libraries is the responsibility of the Collection Development Committee, the Associate Dean for Collections and Technical Services, as well as the individual librarian liaisons for each academic department. Liaisons are responsible for programs (which are also offered off-campus) and are mindful when making requests for purchase to ensure that collections are as accessible as possible to off-campus students. It should also be noted that the Libraries are involved in the curriculum process when academic departments offer programs away from the main campus for the first time. The curriculum change process involves a stage where the Library Administration is informed in order to assess collections that are available to those students, and what additional books, subscriptions, databases or other resources are needed in order to be able to support those students.

Similarly, librarians and library staff at Central Michigan University have been supporting the needs of distance learners for decades. The five full-time librarians of CMU Libraries' Off-Campus Library Services focus specifically on serving that patron population.

Collection development at Central Michigan University Libraries is the responsibility of the on-campus reference librarians, each of whom specializes in particular subjects and recommends materials for purchase in those areas. However, three of the OCLS librarians also have collection development responsibilities, with oversight of funds intended for the purchase of materials focused on topics specific to distance learning students and faculty. These topics (generally within the areas of business administration, educational administration and health care administration) are ascertained from common reference interactions, as well as knowledge of assignments from off-campus and online instructors. The three OCLS librarians buy books primarily in electronic format in order to be most helpful to distance students and instructors, and can take new databases under consideration with the main librarian selector for a given subject.

Electronic Reserves Services

Western Michigan University.

WMU Libraries have offered electronic reserve services for approximately ten years. Electronic reserves are primarily administered by the Resource Sharing Center (RSC). Although previously the Docutek system was used as the platform, ARES from Atlas Systems was implemented in 2007 and remains the system used for e-

reserve services. When an online course is set up in the e-reserve system, the link is sent to the instructor or instructional designer who must add it to the online course. Each course in ARES is set up with a password. When the students access the e-reserve site, whether they are in an online class or not, they are required to enter a password. This does present a barrier to using e-reserves in an online class since it is not as seamless as just uploading PDFs to the course management system, which can be accessed without any other password or additional steps.

Faculty have two options for setting up an e-reserve site for their course. If they prefer to have WMU Library staff do most of the leg work, all they have to do is set up an account and then send their course information and reading list. RSC staff then create the class and add the items. Items in the WMU Libraries' print collections are scanned and saved as PDFs and uploaded to the class, and links are added for electronically-available articles and e-books. RSC staff also clear copyright as part of the e-reserve process.

Faculty who prefer to have more control over their e-reserve site may choose the second option, which is to do most of the work themselves. They can set up the course and upload materials on their reading lists. If they choose to do this themselves the materials are listed as "awaiting review by staff." RSC staff must then check the copyright status of the citations. They also will remove PDFs of any articles available electronically and switch over to a link to that item before "clearing" it to be viewed by students.

The e-reserve service has been growing steadily in recent years. See Table 1 for WMU e-reserve statistics.

Table 1

E-Reserve Statistics from Western Michigan University

Year	E-reserve Items
2011/2010	**3836**
2010/2009	**3321**
2009/2008	**2980**

Central Michigan University.

The development of e-reserve services at Central Michigan University Libraries was driven in part by copyright considerations. With a long history of information delivery to distance students, it was necessary for CMU Off-Campus Programs (and later CMU Online) to have a copyright clearance department. As the Off-Campus Library Services department is a part of Off-Campus Programs (as well as of the University Libraries), this copyright department was physically based in the library and library staff handled copyright clearance on early versions of electronic reserves. For example, prior to 2006 the department would create electronic course packs, which were saved onto CDs and sent to instructors, who would then place the material into Blackboard. Under the jurisdiction of Off-Campus Programs, copyright costs for this service were divided among the number of enrolled students and added as a fee for the course.

In the meantime, the main University Library was also beginning to provide electronic reserves services by uploading materials directly into a course's Blackboard shell. However, because there was no library-maintained

copyright department, only those items that qualified for fair use or that were in the public domain could be placed on e-reserve. And due to applied copyright restrictions, the same item could not be placed on e-reserve for more than one semester for the same course. This was inconvenient for on-campus faculty who had specific articles or book chapters that were crucial to their curriculums; and as they broadened their teaching formats, they wanted to know why a copyright clearance service was offered for their online classes but not for their face-to-face classes. The reason was that CMU Online had a system for paying for copyright clearance, whereas the main University Library did not.

In 2009, the CMU Copyright Committee (with University-wide representation) proposed that on-campus classes receive copyright clearance services as well as off-campus and online classes. The CMU Libraries applied for and received a CMU 2010 Grant, part of which was used to fund a study to determine the feasibility of offering the copyright clearance service across the entire University. In July of 2009, the Off-Campus Library Services copyright department was merged with the Libraries' course reserves unit to become the Course Reserves & Copyright Services office. This new department took charge of the copyright clearance investigations and instituted an e-reserves pilot program for on-campus classes, which began in January of 2010.

The pilot was a success – in 2011/2010 over 2900 items were placed on electronic reserve (this includes duplicate citations for multiple sections of the same course) (Central Michigan University Libraries, 2011a), the cost of copyright clearances was found to be manageable, and a post-pilot study found that 97.6% of participating on-campus faculty were satisfied with the new service (Central Michigan University Libraries, 2011b). After the grant was concluded in June of 2010, support was sought and gained by University Administration to proceed formally with the e-reserves service. Since then, University-wide electronic reserves have continued as a permanent service of CMU Libraries, funded by the University.

So while the process of placing items on e-reserve has a long history at Central Michigan University, handling such a large volume of courses is still very new. To date, there is no automated system or vendor-supplied product that is used to coordinate the CMU Libraries' e-reserves service. The citations are supplied from course instructors, at which point library staff search for the items in the library collection – electronic versions are preferred, scanned copies if electronic is not available. If an item needs to be requested it is manually cleared for copyright by library staff members, who obtain permissions and pay usage fees. Once the full text is ready, library staff members upload the e-reserves into the Blackboard shell for the course. All citation lists and full text materials are saved in PDF, Word document, and Excel formats on an external hard drive. Only a handful of library staff is responsible for gathering and maintaining this data, clearing copyright when necessary and uploading e-reserves into Blackboard course shells, and all manually.

The Central Michigan University e-reserves service saw a large jump in items from 2010/2009 to 2011/2010 as a result of the pilot project. See Table 2 for CMU e-reserve statistics (Central Michigan University Libraries, 2011a); the totals include duplicates for multiple sections of a course.

Table 2

E-Reserve Statistics from Central Michigan University

Year	E-reserve Items
2011/2010	**2902**
2010/2009	**1436**
2009/2008	**1667**

Methodology

Pulling Citations

To begin our investigations, we needed to pull out citations for all items on reserve for the Fall 2011 semester. At Western Michigan University, RSC staff members were able to select all items with an "active" status in the ARES system and export than into a Microsoft Excel file. In order to examine the types of items on e-reserve at Central Michigan University, it was necessary to gather this data from the CMU Libraries' Course Reserves and Copyright Services department.

CMU also offers staggered, compressed terms for its off-campus and online courses. In 2011, the fall semester also included Fall I (beginning the third week of August), Fall II (beginning the third week of October) and Fall III (beginning the first week of November) (Central Michigan University Off-Campus & Online, n.d.). Because the e-reserves are cleared for copyright and uploaded into a course's Blackboard shell by hand with limited staff, it is often the case that some of the e-reserves needed later in the Fall are not uploaded until midway through the main semester. Thus, gathering data on e-reserves through CMU Libraries required more steps than those at Western Michigan University.

It was first necessary to combine the e-reserve citations of each course into one sample. The Course Reserves staff provided the total e-reserves citations for the first two months of Fall 2011 only – this included the reserves ready for the total Fall semester for on-campus, as well as the Fall I semester for off-campus and online classes. Excluding duplicates for multiple sections of the same course, there were a total of 1336 citations. These citations came from the Course Reserves & Copyright Services office mainly as lists in Microsoft Word document format and as individual PDF files. Ten of these citations were excluded initially because they were requests from faculty that Course Reserves was unable to provide due to copyright restrictions – either a request contained too much material to be protected under Fair Use, or the rights holder of the material was unable to be located. This reduced the number of citations to 1326, which were then entered by hand into one master Microsoft Excel spreadsheet and cleaned so that the source of each citation could be identified.

Sample Sizes

For the purposes of this study, we decided to randomize the sample by alphabetizing the titles and then examine a portion of the total. The e-reserves from each institution were examined separately. At Western Michigan University, one third of the total (every third e-reserve citation) was taken to result in a final sample size of 815, a manageable number to provide useable data.

During the data entry process at Central Michigan University an additional 13 citations were removed from the sample because they were either references to entire print books (placed on physical course reserve), or because they did not contain enough information to identify the citation's source. This left a total of 1313 citations for CMU. The titles of each citation were then sorted in alphabetical order to randomize them, and every other e-reserve citation was selected to make a final sample of 656 citations. The one-half sample was chosen in order to result in a sample of comparable size to that of Western Michigan University, which had a larger overall number of citations for the full Fall 2011 semester.

Sample Analysis

Once the final random samples were ready for each institution, each citation was analyzed to determine its format and source. The format codes used were based on the most common types of items found and are described as follows:

- BC – Book chapter (or book section) from a print book
- EB – E-book (either a section or an entire electronic book)

- FI – Files (usually PDFs or Word documents provided by an instructor)
- JA – Journal article (i.e., periodical article)
- LC – Law cases available on the open web
- MM – Multimedia
- R – Reports/research briefs/working papers (available as stand-alone documents, usually online, but not obviously part of a periodical)
- RE – Reference entries (from encyclopedias, handbooks, etc.)
- WS – Websites

As e-books are a relatively new format for electronic reserves, they were noted separately from print book sections that had been scanned to be placed on e-reserve. Files generally consisted of instructor-supplied content such as syllabi, homework assignments, sample tests, and problem solutions. Of the many types of materials available online (e.g. open web law cases and some reports) the designation WS (Websites) was saved for whole websites, often containing excerpts or reviews of an author, artist or organization's work.

For a citation's source, the following codes were used:

- LCE – Library collection, electronic
- LCP – Library collection, print
- NL – Not in library collection
- OW – Open web

Finally, all periodical articles (JA) were examined to see if the citation was from a scholarly publication. Scholarly (or refereed) status was determined by using Ulrich's Periodicals Directory database. For every item with a JA format, scholarly status was noted as yes (Y) or no (N).

In order to determine format, source and scholarly status, each citation had the following information categories, filled in depending on the type of item and how much information was provided: Title, Author, Date, Journal Title, Volume & Issue, Book Title, Book Author/Editor, Publication, Chapter (Books), Pages, Instructor, and Course. If crucial identifying information was not provided in the original data, research was required to find it. A Note field was used for any additional information about a particular citation that would help to identify its format and/or source; in many cases it contained a link to the item's location within a licensed database or on the open web.

Not every field was filled in for each citation, depending on its format – periodical articles would not have a book title, for example. Also, not every field available for one format (for example, BC) was necessarily filled in, depending on either the type of the item (for example, not all books have chapter numbers) or how much information was available (for example, not every citation listed a book's publication information). In order to display how the citations were entered and coded, Figure 1 contains two examples of citations on e-reserve at Central Michigan University during the Fall I semester. Instructor names and course designations have been removed for privacy. The citations from Western Michigan University were entered in a similar fashion.

It should be noted that the data from Central Michigan University included 82 book sections without given titles. These were listed as "(book chapter/section, title not given)" or "(plates from a book")" and were therefore sorted together in groups when the sample was alphabetized. This may contribute to error in the final sample, although the effect may have been reduced by taking every other citation rather than a smaller percentage of the whole. With both Western and Central Michigan University Libraries – as with any data set – standard margins of error apply.

Figure 1

Example Entries from the Central Michigan University Random Sample

Title	Author	Date	Journal Title	Volume & Issue	Book Title	Book Author/Ed.	Pub
In the shadow of the boss' boss	Tangirala, Subrahmaniam, et al.	2007	Journal of Applied Psychology	vol. 92 no. 2			
Emotional development in the early years	Broderick, Patricia C. and Blewitt, Pamela	2010			The Life Span: Human Development for Helping Professionals	Broderick, Patricia C. and Blewitt, Pamela	Pearson

Chapter (Books)	Pages	Instructor	Course	Format	Source	Scholarly (JA)	Note
	309-320	XXXXXX	XXX###	JA	LCE	Y	
4	113-147	XXXXXX	XXX###	BC	NL		

Results

   The results of our analysis are shown in the following tables as each citation was examined for item source and item format, and whether or not periodical articles were from scholarly publications. As we also had access to the publication years for each e-reserve item, we also decided to include this data for supplementary analysis.

Format

   The majority of WMU e-reserve items were periodical articles, followed by book sections (either whole chapters or sections of chapters), although at approximately 48% and 38% respectively, the amounts were very close (as seen in Table 3). The majority of Central Michigan University citations were of the same two types – this time book sections followed by periodical articles. These were present in the sample in approximately equal amounts for CMU (about 44% for each).

Table 3

Formats of E-Reserve Items

Item Format	WMU (amt.)	WMU (%)	CMU (amt.)	CMU (%)
Print Book Sections	307	37.67%	**291**	**44.36%**
E-Books	15	1.84%	18	2.74%
Files	38	4.66%	19	2.90%
Periodical Articles	**392**	**48.09%**	286	43.60%
Law Cases on the Open Web	0	0.00%	17	2.59%
Multimedia	3	0.37%	3	0.61%
Reports/Research Briefs/Working Papers	4	0.49%	10	1.52%
Reference Entries	30	3.68%	8	1.22%
Websites	26	3.19%	4	0.61%
TOTAL	**815**	**100%**	**656**	**100%**

Source

The vast majority of the materials on e-reserve for Fall 2011 from Western Michigan University came from library collections, whether in print or electronic format – this represented about 83% of total citations, as shown in Table 4. Similarly, the majority of the Central Michigan University citations also came from sources owned by the CMU Libraries, either electronically or in print– a total of about 68% owned. The remaining items were either protected by copyright but not owned by the Libraries, or available on the open web.

Table 4

Sources of E-Reserve Items

Item Source	WMU (amt.)	WMU (%)	CMU (amt.)	CMU (%)
Library Collection - TOTAL	677	83.06%	449	68.45%
Electronic	324	39.75%	234	35.67%*
Print	353	43.31%	215	32.77%*
Not in Library Collection	94	11.53%	140	21.34%
Open Web	44	5.40%	67	10.21%
TOTAL	**815**	**100%**	**656**	**100%**

percentages add to less than 68.45 due to rounding

Scholarly Publications

        Table 5 shows the results of the analysis of the journal article citations with regard to their scholarly status. The 392 periodical article citations from WMU and the 286 periodical article citations from CMU were examined using Ulrich's Periodicals Directory to determine whether or not they came from scholarly (refereed) sources.

        We found that the majority did come from scholarly publications in both cases, and in nearly equal amounts (70.40% from WMU, and 71.68% from CMU). The remaining citations were from non-scholarly sources such as trade publications, magazines, and newspapers.

Table 5

Periodical Articles on E-Reserve from Scholarly and Non-scholarly publications

Periodical Articles	WMU (amt.)	WMU (%)	CMU (amt.)	CMU (%)
Scholarly Publications	276	70.40%	205	71.68%
Non-scholarly Publications	116	29.60%	81	28.32%
TOTAL	**392**	**100%**	**286**	**100%**

Median Publication Dates

        As we looked at our data sets we decided to more closely examine the periodical articles and book sections (which accounted for the vast majority of our citations), in order to get a general sense of how current the materials were. Table 6 shows median publication dates for book chapters and journal articles for both institutions.

Table 6

Median Publication Dates for the Most Common E-Reserve Types

E-Reserve Type	Median Publication Date
WMU Book Sections	2000
WMU Periodical Articles	2004
CMU Book Sections	1999
CMU Periodical Articles	2003

Analysis

        With our results in hand we can turn back to our original questions. As our budget dollars and buying power are shrinking, how can we determine whether what we are buying is in fact what distance learners need? Judging by the analysis of e-reserve items for the two schools in this study it appears that our collections are serving our users quite well. Overall 83% of the items on e-reserve for Fall 2011 at Western Michigan University came from the institution's library collections. At Central Michigan University that number was somewhat less but still a clear majority: 68%. The differences in the collection sizes and overall budgets at the two schools most likely

explain the differences between these two numbers. As listed earlier, WMU Library collections are approximately twice the size of those from CMU Libraries. There is a sizable difference in the materials budget between the two institutions as well, with the WMU overall materials budget being about $7 million for fiscal year 2010/2011, and the CMU budget being about $3.8 million (American Library Directory, 2010).

Differences in budget and size aside, at both institutions we observed the strong push toward library-owned materials that was noted in the literature review; the e-reserve items owned by our libraries far outweigh those files generated by faculty members. Placing those materials on electronic reserve which the library already owns – either outright or through licenses which allow that use – saves a great deal of time and money spent in acquiring copyright permissions. While convenient for the libraries, however, it does not appear that we are "forcing" faculty into using our collection items – with a good portion of items on e-reserve NOT owned by the libraries (12% at WMU, 21% at CMU – see Table 4), it shows that our faculty clearly have the option to request whatever materials they choose for electronic reserve. So although we do have some room to improve, it does seem that our acquisition selections are serving the needs of our distance users in the e-reserve context.

Looking at the breakdown by format, we can now answer our original questions about what kinds of materials constitute our e-reserves. As also seen from the institutions we examined in our literature review, we found that book chapters and journal articles accounted for the vast majority of the items on e-reserve at both schools. CMU has roughly equal numbers of book sections and journal articles, while WMU had about 10% more articles than book chapters (see Table 3).

The next most predominate item type for WMU was instructor files followed by reference entries. For CMU, the next most predominant types were instructor files followed by e-books – it seems that instructor-generated content, though giving way to library-owned materials, still has a significant place among e-reserves. The small number of websites on e-reserve for both institutions may be explained by the fact that websites are very easy for an instructor to include as links in an online course shell, and so they may choose to use that option for these resources rather than include them in reading lists for e-reserve. This may also be a partial explanation for the small number of multimedia items, which instructors may instead choose to show either in person or via an online lecture format.

With the shift in recent years toward electronic collections it is somewhat surprising that such a large portion of e-reserves for both schools are still coming from print collections. At WMU 43% of the items from the library collections were scanned from print originals; the corresponding number from the CMU collection was 33%, and although electronic collections items were the majority here, it was not by a very large margin (see Table 4). This is likely to be due in part to faculty members' desire for book sections in particular to be placed on e-reserve as a part of their curriculums. Unlike periodical articles, many books are not yet available electronically; we will see this again as we take a closer look at publication date for our e-reserve materials and the number of print book sections should be examined with this in mind. The relatively small number of e-books in both sets is quite noteworthy in this case, as well. For both schools this number was less than 3%. Although e-books are a convenient format for distance learners, it does not appear that they are heavily used by instructors at our institutions at this point in time. Again, this may be due in part to many books (especially older titles) being currently unavailable electronically.

Examining the citations for periodical articles on e-reserve in more detail shows that most of these came from scholarly sources (see Table 5). The percentages of peer-reviewed to non-peer-reviewed sources were nearly identical between the two institutions. Considering many of our academic programs are more practitioner-type fields such as business, nursing, and education, it may follow that trade journals are an important source of information for these students, and this may explain the quarter of periodical articles that were found to be from non-scholarly publications.

In order to get a sense of the currency of the materials on electronic reserve, the median publication date was calculated for the most predominant formats: book sections and periodical articles. Table 6 shows that for WMU this date was 2000 for book sections and 2004 for periodical articles; the corresponding dates for CMU were 1999 and 2003. These dates were somewhat surprising, especially for periodical articles since one might expect journal literature assigned to classes to be more current. Students are often told that they may not use sources in a

paper that are more than a few years old; however, it does not appear that teaching faculty follow that rule themselves. Reserves staff at both institutions report that a number of instructors use the same materials semester after semester, so as time goes on the assigned materials are getting older, and are not updated to reflect more recent published research.

Next Steps

Gathering and analyzing the e-reserve data for this project gives us a baseline to conduct further research. Obviously our samples only represent a very small period of time – one semester. Some of the results may be peculiar to this one semester and the individual courses that were offered. The results would be more meaningful if they could be gathered over time to see if there are changes in any of the categories, or if any long-term trends can be ascertained. While Central and Western Michigan Universities are similar institutions in many ways, it would be valuable to compare our results with other institutions of different sizes, types, and locations.

Another logical next step would be a more in-depth analysis of the items which came from outside of our library collections. If these items are assigned for courses being offered, why are these materials not in our collections? After a superficial glance through some of these titles, it appears that many of these items come from resources that fall outside our collection development guidelines. For instance, some of the book sections on e-reserve at Western Michigan University come from textbooks, which are specifically excluded from WMU collection policies. Some of the periodical articles from titles not owned are more appropriately classified as "newsletters" or more popular type of literature that are ordinarily not collected; even some of the scholarly materials may be from outlying titles that could have been dropped somewhere in the serial review process. Of course, neither institution will likely ever be able to buy everything an instructor wants to use for a class, but further analysis of these resources can shed light on collection gaps which could be filled.

The relative age of the materials on e-reserve, particularly for journal literature, is informative particularly for information literacy efforts. Faculty are among the most challenging of our patron groups when it comes to information literacy. While faculty members emphasize currency of research in most fields, this is not reflected in their course reading lists. They may find it difficult to keep up with changing interfaces of the core databases in their field, and may not be keeping up with new resources that are available. However, our data shows us that we do need to find better methods of reaching teaching faculty to assist them with updating aging reading lists for their courses. Librarians may consider further efforts at outreach to faculty to show them how to access more current journal literature and other research in their fields. An example of this could be RSS feeds on the library website which show new articles from heavily-used periodical titles, or new books added to the library's collection.

Conclusion

Analysis of materials placed on e-reserve provides a useful lens through which to view how well our collections are serving our students, particularly our distance learners. Virtually all academic libraries are being forced by decreasing budgets and decreasing buying power overall to make each purchasing decision as carefully as possible. Items placed on e-reserve by faculty represent items that have been found to be valuable in support of curricular goals for classes being taught and therefore provide an excellent tool for analysis. Our study of items placed on e-reserve at Western Michigan University Libraries and Central Michigan University Libraries showed quite similar results between the two institutions. Overall, the majority of materials are in fact coming from our library collections. Selections from books and periodical articles account for the vast majority of the citations faculty request for readings for their courses. While our collection policies in recent years have turned toward less traditional materials including e-books, open access journals and multimedia materials, these items do not seem to be represented in any significant numbers of our e-reserves materials as of yet. However, our Libraries' efforts in making our materials available electronically (either by scanning print items or using electronically licensed materials) is clearly having an effect on how students and faculty use our collections. As these e-formats are

particularly convenient for online and off-campus learners, it will be interesting to see how the types of materials placed on e-reserve evolve as more and more information becomes available online – which can only benefit our increasing numbers of distance users.

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