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This study examines the manner in which e-journals are made accessible to users on 75 academic law library web sites. Information recorded included the utilization of MARC tags, the types of search functions provided, and the accessibility of links to both the database, *GPO Access* and the e-journal *Issues in Legal Scholarship*. The resulting data was then used to evaluate how effective library web sites were in presenting electronic periodicals to users. Conclusions drawn from these observations were used in conjunction with research regarding the information retrieval skills of library users conducted by other authors in order to formulate a suggested set of best practices for law library web site design.

Headings:

Libraries – United States – Special Collections – Electronic Journals

Library Web Sites – Design

FINDING A COMMON METHOD OF PRESENTING ELECTRONIC JOURNALS
ON ACADEMIC LAW LIBRARY WEB SITES:
OR, I'D RATHER BE HERDING CATS

by
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Over the last century, legal periodicals have served an increasingly important role in facilitating legal research. These secondary sources of information contribute currency, the perspective of informed interpretations of the law, and a source to find primary sources of information in specialized areas of law. When most sources of information were only available in print, legal periodicals often provided the first news and interpretations of an item of legislation. Today, legislation has become more readily available electronically, however the amount and types of legislation has changed so much that legal periodicals remain one important means of finding new developments in legislation and getting the guidance of legal interpretations.

Looking for information through legal periodicals is only a part of an extensive process of research. In addition to the use of legal periodicals, other information resources are consulted for direction and interpretation. These sources can include treatises, loose-leaf services, digests, case reporters, and citator services, all of which may include references to both primary and secondary sources of information. It is essential for a legal researcher to understand how legal materials are compiled and classified because of the way the materials are ordered and published, and because the types of information required will affect how research is approached.

Understanding the language, organization, and presentation of legal information gives lawyers and other legal researchers a level of researching skills that sets them apart from many other areas of study. Lawyers are expected to acquire and maintain current and effective research skills as part of their professional code. (Jacobstein, 1998) For this reason, the relationship between lawyers and law librarians differs from the relationship

between most users and librarians, in that law librarians are not expected to provide the expert research needed to answer reference questions as librarians would for patrons generally. Instead, law librarians are expected to provide sophisticated guidance to users who are performing their own research, and are expected to direct users to all resources available in the library's collection. Despite the resistance of those more comfortable with the highly-evolved finding aids traditionally found in print form, this guidance has come to incorporate use of electronic materials in the form of CD-ROMS, Internet resources, and online databases.

As finding aids and source materials increasingly migrate to electronic formats, and the traditional models of information searching evolves to suit the format, law librarians are increasingly called upon to provide bibliographic instruction on various efficiency and experience levels. Berring pointed out in 1986 that online database searching has and will continue to affect how legal literature is structured and presented. He wrote, "it seems clear that in law, more than in any other discipline, the structure of the literature implies the structure of the enterprise itself."(p. 29) Considering the importance placed on the kind of information found in legal periodicals, the mandate placed on the law librarian seems clear: Provide clear and consistent access to all viable information, and as information is found increasingly online, provide access to every format of information. Unfortunately, obstacles such as budgetary constraints, lack of staff, the amount of information being made available online and the impermanent nature of online materials is prohibitive to providing such access absolutely. (Boydston, 2002)

Serials of any format are notoriously subject to change without warning. Online serials can be worse because there is not a generally satisfying way to archive the information. Further, all online materials have an intrinsically unstable nature. However, despite these

obstacles, it may be possible to utilize existing structural hierarchies and classification systems, such as the West Digest System, the Library of Congress Subject Headings, Serials Solutions, and e-journal finders to devise a template which could be used to create library web pages. This sort of portal could not only facilitate access to items which have been cataloged by the library, but could also improve users access to resources for libraries without the staff or budget to catalog every item in every database to which it subscribes. The cataloging of online resources is a trend that will continue to proliferate. Establishing a standardized interface which links the user to the OPAC or provides an alternative to the OPAC for users who wish to browse by subject (for example) will provide a number of benefits. (Boydston, 2002)

The purpose of this study is to examine how law libraries are currently providing access to electronic law journals to determine what kinds of features are offered consistently and what kinds of features may belong in a standardized web page design.

Literature Review

Why Standardize?

It would be unfeasible to create a subject-oriented menu tree that would incorporate every subject heading available, even in one particular area of study. (Copeland, 2002) On the other hand, considering the structural nature of legal research, it would be possible to predict some features users would find helpful on a web page. Keys to interrelated search queries, cross-references, subject browsing, and other navigational tools can also be added for further assistance. (Solomon, 1993) Taking advantage of dynamic html, php, or xml, it may even be possible to allow users to customize their interfaces to the library's OPAC in order to reflect the types of information access points they find consistently

helpful. (Schaffner, 1998) Using hypertext, it may also be possible to allow users to generate lists of items found within the OPAC or subscription databases. The types of information used to generate these lists might also be used to automatically create MARC records for the OPAC, as well. (Briscoe, 2003)

Another benefit in standardizing the pages generated for a library's web site is that it would be more cost effective. Creating a standardized web design would reduce the amount of training necessary to load or update a site, and would allow for the involvement of support personnel in the process. The development of standards may answer questions of navigation and accessibility in a uniform manner, which would also promote interoperability between systems should libraries in local areas collaborate. (Copeland, 2002)

Dependency on keyword or Boolean searching does not provide the relevance of retrieval that the use of authority control and subject classifications can provide. In order to manage the unpredictability and huge amounts of content found on the Internet, it is important for information professionals to reference what is known about the ways users look for information and to determine how what is known about organizational structures may be applied in flexible and creative ways within these online contexts. (Greenberg, 1997)

According to Kuhlthau, the Information Search Process (ISP) consists of six stages. The first stage is known as Initiation, at which point a user becomes aware of the need to seek information. The second stage, Selection, occurs when the topic or type of information required is identified. During the third stage, Exploration, the user seeks to become oriented enough about the topic to direct the searching process. Formulation is

the stage at which the user's feelings of uncertainty in the search process is replaced by understanding gleaned during the Exploration stage. At this point the search query can be defined. The user acquires information regarding the problem during the Collection stage, and then completes the search to solve the problem in the Presentation stage. (Kuhlthau, 1999)

The first half of ISP is often confusing to the information seeker. For users dealing with a new information interface, unfamiliarity with the semantics used, figuring out different search structures, or having to divine where and how information is supposed to be accessed for each interface can prolong those feelings of disorientation. Users may feel challenged with each new OPAC they investigate, and may re-experience that confusion as they navigate between each library web site's method of indexing its content and structuring its information hierarchies. Once a user identifies an e-resource, such as an e-journal, the user is often directed to yet another interface, such as a web site outside of the library's pages or to a subscription service's search page. At each level of searching, as the user is referred to a new search environment, to some degree the orientation process is initiated again and the formulating stage can be delayed.

Kuhlthau has identified the ISP as a constructivist model of learning. During online searching, users are forced to think critically about the meaning and relevance of the information they find, in order to develop competency in searching. (1997) Some professional searchers rely on their own experience in navigating and formulating their searches within new search environments. However, in a study of 32 searchers of various levels of proficiency and experience, Iivonen and Sonnenwald discovered that as few as 31.3 percent of the study participants relied on their previous search experience when formulating their queries. (1998) One way for librarians to provide guidance and

assistance for online users, a service Kuhlthau calls a “zone of intervention” (1993), is to design their libraries’ online environments with a generalized, predictable format. This assistance may reduce the amount of time and energy spent in the initial stages of the ISP, and allow users to formulate, explore, and collect relevant data more efficiently.

Elements of Design

There are several elements of design and content which have assisted librarians when designing their web pages to be helpful to patrons they may never meet and who may never set foot in the physical library location.

One element of design many web authors consider is the type and location of navigational tools that may provide the most effective cognitive mapping. (Chen, 1999) For many web site designers, it is important to prescribe a hierarchical menu order for page navigation that reflects the popularity or accessibility of the information. Users are always oriented on each web page through the use of titles and by mirroring navigation consistently. (Hu, 1999)

Links to resources and the types of information provided may be determined by considering the types of users likely to utilize the information finding tools provided. (Briscoe, 2003) It is a common practice to provide multiple access points, even if they seem redundant, if their inclusion facilitates user access to particularly important information. (Christopher, 2002)

Many libraries utilize the chief access points of items such as e-journals by providing alphabetized title lists and subject lists to provide the most useful means by which to direct users to the information. Some libraries make use of existing MARC information to generate lists or guides for users automatically by incorporating records for e-journals

available through databases in the library OPACs. (Wakimoto, 2003) The content of the resources available are often annotated, and well-represented with appropriate references to subject matter. (Olsen, 89)

Some library web sites also offer users the ability to browse as a finding tool, especially if hypertext functionality is a feature provided by the system's OPAC or by available subscription services. These types of resources are more likely to provide "metabrowsing," or sifting through information about the items rather than through the items individually, which narrows the search process for users considerably. However, although browsing can take a lot of time and effort, it can also be valuable if the user doesn't know how to describe the information needed. By finding needed items through browsing, users may be able to improve their query searching with more accuracy by utilizing the descriptive language contained therein. (Wiesman, 2004)

The type of information being sought may affect the users' approach to a search query. For example, prescribed search patterns, citation formats, or types of resources to be consulted before others sometimes dictate legal researchers query patterns. (Jacobstein, 1998) Law library web sites are more effective when they are current in the semantics used to describe the area of knowledge served. However, it is also important to map the web site's navigation in a way that marries user expectations with standardized language as much as reasonably possible without allowing such restrictions to override the needs of the users or the resources of the staff. Whether in terms of cataloging or in web design, librarians strive toward creative solutions that make sense while still providing overall consistency. (Svenonious, 79-82)

A Glass Half Empty, Half Full

With some legal publishers discontinuing hard copies of some materials in favor of producing only electronic versions of their products, and many faculty and students expressing their desire to access materials online, providing online access to materials such as e-journals may seem unavoidable to many law libraries. In fact, many libraries are canceling print subscriptions to some periodicals which can be found in the databases to which they subscribe in order to save money and storage space. (Briscoe, 2003)

However, despite the growing trend toward making more and more resources available online, there are some problems associated with managing materials in an electronic format. For example, with the dynamic nature of content found online, when are electronic resources considered serials as opposed to successive versions of monographs? How do catalogers determine the difference between version, edition, new releases, or updates as with loose-leaf services? And even if these questions can be answered satisfactorily, it can be next to impossible for catalogers keep track of every item's evolution, or change of URL.

Another question faced by catalogers and web page designers is whether to apply the information structure applied to fixed formats to dynamic items. If a record applies to both print and online versions of the same material, the accessibility of the item may be affected using some search parameters. (Hedberg, 2002) Also, the online version of an item may not reflect the same holdings as the print version, which can be confusing and frustrating to users. (Christopher, 2002)

The amounts of serials now found online make cataloging all of them, much less detecting and replacing broken links or removed items, prohibitive to some libraries in terms of staff size. (Briscoe, 2003) Even when database providers offer cataloging of the

serials found in their packages, it may not be possible for some libraries to make room in their budgets for the expenditure. Additionally, providers of electronic cataloging for libraries do not always keep pace with their own databases' changing content, which is problematic for library catalogers and also frustrating to users. (Copeland, 2002)

Considering all the challenges, why bother making e-journal holdings available outside of the databases which host them, or cataloging them in the OPAC? There are several reasons.

The problem of outdated links and misleading content is being improved with advances in software and services. The use of hypertext to generate lists of current holdings, and the use of software designed to detect and repair broken links is making it easier for libraries to compile e-journal lists that accurately reflect available content. Using database aggregators such as Lexis or Westlaw not only provides users with abstracts, indexing, and automatic link maintenance, it also allows federated searching of many databases at once through a common interface. (Wittenbach, 2003) And, as mentioned previously, the use of subject lists allow users the ability to find information they may not have been able to otherwise describe.

Students are more technologically knowledgeable than ever, but are more accustomed to browser searching than database searching. They expect speed and convenience in accessing a library's holdings, but also expect it in a familiar context. (Zeter, 2003) As more and more faculty members and students expect to be able to access materials remotely, librarians should approach the question of whether to include online materials in the OPAC in the same manner they would any other resource. If an electronic resource fits within the criteria for collection development and acquisition that a print resource would, then it is appropriate to catalog it. (Jul, 1998)

The approach of providing access to materials such as e-journals online complies with the bibliographic objectives defined by the International Federation of Library Associations and Institutions (IFLA). The information required to identify, select, and obtain access to material that correspond to a user's search criteria should define whether a bibliographic record is made available. (IFLA, 2000)

In the course of this study, the methods used to make e-journals available online, and the problems and benefits of the practical application of these IFLA objectives will be examined and used to suggest ways to improve access for online library users.

Methodology

In order to evaluate how e-journals and databases are presented, 75 academic law libraries located in the United States were selected for this study. These libraries are listed individually in Appendix A. To qualify for evaluation, each library had to contain some representation of two electronic resources: the e-journal *Issues in Legal Scholarship* and the database *GPO Access*.

Issues in Legal Scholarship was chosen because it is a commonly used law review that can be found in Lexis-Nexis, Westlaw, and Legaltrac, three of the most popular legal databases and therefore could be observed in varying methods of online presentation.

GPO Access was selected because it is a government resource delivering access to a number of sources of important information, and is freely accessible on the Internet.

Being freely accessible, any user can view its information and any library could classify it among its resources. It also possesses the traits of both an information portal and a database, which leads libraries to treat it in differing manners. Some treated it as they would a serial, some as a database connection, and some treated it as an Internet reference

web site. Thus, *GPO Access* is the kind of resource that epitomizes the need for a prescribed manner of treating online materials.

To find academic law libraries for this study, a basic search was performed on Google.com and Dogpile.com using the terms, “law library .edu,” and “law library journals.” These searches not only brought up a number of law libraries, it also led to Washburn University’s list of law library catalogs, *Washlaw Web*, and to *Jurist’s A-Z* directory of accredited law schools. Most of the libraries included in this study were found on one or both of these two sites.

After selecting 75 qualifying libraries, each library OPAC and home page was examined in the following manner: First a title search was performed for *GPO Access* in each library’s Online Public Access Catalog (henceforth referred to as an OPAC). If the title was found, then it was determined whether the MARC record was available for public access. If available, the MARC tags visible in the record were recorded and the links leading to the database were followed to check their accessibility.

Second, the library’s OPAC was searched for the e-journal, *Issues in Legal Scholarship*. If holdings were found for it in the catalog, the number of records for each holding or database was documented. The links were then checked to determine whether they led the user to the item via the library gateway, linked to the item through the database, or linked to the web site of the journal directly. The e-journal’s records were analyzed in order to note each library’s use of MARC tags.

After each title had been searched and evaluated, the OPAC’s search functions were recorded in order to determine whether the MARC tags available in the majority of records were being used to make the records available to the users. Whether the catalog represented the holdings of the law library only, the combined holdings of the library

system as well as the law library's, or whether the collections of both the law library and the system were offered separately was also noted.

Finally, the law library's web site was investigated for additional links to each item. If the item could be found among lists of databases or e-journals, its representation was noted, and if the item could only be found (or also be found) in the system's holdings, its representation amongst those pages was noted as well. The interfaces to each type of resource, e-journal list, database, and OPAC, were each examined in order to note how and where the items could be retrieved.

Results

GPO Access

Records to *GPO Access* were found in 18 records, or 24 percent of the law library OPACs used in this study. Of those 18 records, 83.3 percent had MARC records available for public viewing. Also, of those 18 records, 55.6 percent had working links in the OPAC interface, while 44.4 percent led to redirected PURLs. All of the records found in the OPAC utilized the 246 MARC Title field. And 66.7 percent used the 856 MARC field to record the item's URL. Other fields featured prominently in the records are recorded in Table 1.

Table 1

<u>MARC Tags Used for GPO Database</u>		
<u>Field (n = 18)</u>	<u>Total</u>	<u>% of Dataset</u>
006 (m d)	6	33.3%
007	9	50.0%
1xx	10	55.6%
2xx (not 246)	11	61.1%
4xx	0	0.0%
5xx (url)	0	0.0%
6xx	11	61.1%
655	8	44.4%
7xx	9	50.0%
856	12	66.7%

GPO Access was listed in the OPACs of 27 libraries that also featured lists of e-journals, and in the OPACS of 9 libraries which did not have e-journal lists. Seven libraries listed the title in either a list of databases or in a list of e-journals without providing an OPAC record for it.

Issues in Legal Scholarship

Issues in Legal Scholarship was found 78.7 percent of the OPACs investigated in this study. Of these 59 records, 91.5 percent allowed public viewing of the MARC records. Upon examination of the holdings records, 84.7 percent provided one link to the title in each record, 5.1 percent provided links to more than one database providing the title in one holdings record, and 10.2 percent of the records listed separate holding records for each link to the databases providing the title. The most popular variable MARC field used in these cataloging records was the Electronic Location and Access Fields (856) found in 83.3 percent of the records. The Series Statement Fields (4xx) was almost as popular, being used in 81.5 percent of the records. The Fixed Field, Type of Material (006) was found in 79.6 percent. Other variable fields utilized for the e-journals are also recorded in Table 2.

Table 2***MARC Tags Used for
Issues in Legal Scholarship***

Field (n = 54)	Total	% of Dataset
006 (m d)	43	79.6%
007	40	74.1%
1xx	4	7.4%
2xx	23	42.6%
4xx	44	81.5%
5xx (url)	3	5.6%
650 (Law--Periodicals)	42	77.8%
650 (Other)	2	3.7%
655 (Electronic Journals)	25	46.3%
655 (Internet Resources)	2	3.7%
655 (Electronic Serials)	2	3.7%
655 (Other)	3	5.6%
7xx (vendor)	4	7.4%
7xx (publisher)	7	13.0%
7xx (alt. title)	1	1.9%
856	45	83.3%

Sixteen law libraries did not have *Issues in Legal Scholarship* cataloged for their OPACs. Instead, they offered the title in e-journal lists and in lists of databases to which they subscribed. Table 3 describes the types and frequency of links to the title as they were found on each law library's web site. Table 4 lists the databases which host the e-journal, and to which a number of the libraries subscribe.

Table 3**Frequency of Links to E-Journal Titles****Catalog Contains Only Law's Holdings**

Type of E-Resources	In OPAC	Not in OPAC	Total
Found in Law's lists, both e-journals & databases	11		11
Found only in Law's e-journals list	5	1	6
Found only in Law's databases list	10	9	19
System's list of e-journals, Law's list of databases	4		4
Only in System's list of e-journals or databases	12		12
Not in e-journals nor in databases lists	1		1
Subtotal	43	10	53

Catalog Combines Law and System holdings

Type of E-Resources	In OPAC	Not in OPAC	Total
Found in list of e-journals		2	2
Found in list of databases	6		6
Found in lists for both e-journals & databases	10	4	14
Subtotals	16	6	22
Total	59	16	75

Table 4**Libraries Subscribing to Databases Containing E-Journal**

Databases	OPAC & E-J Lists	OPAC not E-J Lists	Only in EJ & DB	Total
Berkeley Press	8	2	1	11
Expanded Academic ASAP	7	3	1	11
Legaltrac	32	18	12	62
Lexis-Nexis	37	24	12	73
Proquest Law	9	4	1	14
Westlaw	33	21	12	66
Subtotal	126	72	39	237

EJ = E-Journals

DB = Databases

Database Information

Considering that both *GPO Access* and *Issues in Legal Scholarship* could be found either in pages that listed e-resources or in collections of databases, it was relevant to investigate how easily retrievable these lists were. Of the 75 web sites examined, 49.3 percent provided a link on the law library's home page to list of library-subscribed databases. Links directly to particular databases and/or e-journals were found on 30.7 percent of the home pages. Navigation utilizing more than two pages to direct users to the databases comprised 10.7 percent of the web sites studied. There were some database lists with restricted access, representing 9.3 percent of the sites in the study.

All of the web sites in the study had some form of list of databases whether compiled by the library system, the law library, or by both. None of the database lists compiled by law libraries offered searching with an engine, but most databases allowed users to browse for items alphabetically or by subject. In order to assess how effective the variable fields of a MARC record could be if they were applied to cataloging databases, the information compiled in Table 5 records the types of search functions utilized by the database interfaces, and the availability of annotations, each arranged according to which libraries were responsible for compiling the lists.

Table 5

Search Functions of Database List Interfaces

Search Methods Available	Main	Law	Totals
Browse list alphabetically or by subject	47	58	105
Search with engine	14	0	14
Access points of retrieval			
For Lists with Search Engines	Main	Law	Totals
Title	2	0	2
Title or Publisher	7	0	7
Keyword	5	0	5

E-Journal Information

Not every library in the study had a list of e-journals with which to search for individual titles. Of the 75 libraries examined, 14.7 percent had no e-journal list available at all, and 6.7 percent restricted access to patrons with passwords or ID numbers only. Of the 59 libraries which did have lists of e-journals available, 67.8 percent were compiled by the main library in a university system, 6.8 percent were compiled by the law library, and 25.4 percent offered compiled lists of both the main library and the law library on the web site.

Sometimes it was difficult to determine whether the library offered any access to a list of e-journals at all, however. For 32.2 percent of the 59 libraries with lists of e-journals, users would have to navigate through over three links to find the desired information. For 28.8 percent of the libraries, users would have to navigate through at least two links to get to the list. Some libraries provided more direct access, 15.3 percent via a list of e-resources linked to the law library's home page and 16.9 percent linking to particular e-journals directly on the home page.

The information compiled in Table 6 reflects the types of search functions utilized by the e-journal compilations, as well as the availability of annotations, each arranged according to which libraries were responsible for compiling the lists. This information was recorded in order to assess how effective the variable fields of a MARC record could be outside of application in an OPAC.

Table 6
Search Functions of E-Journal List Interfaces

Search Methods Available to Users	Main	Law	Totals
Browse list alphabetically	48	19	67
Browse list by subject	31	5	36
Search with engine	49	8	57

Access points of retrieval			
For Lists with Search Engines	Main	Law	Totals
Title	18	2	20
Title or ISSN	20	5	25
Title, ISSN, or Publisher	11	0	11
Keyword	5	1	6
Narrow by type	6	0	6

Compiled by System	Annotated	Not		Totals
		Annotated	Not Annotated	
Browse list Alphabetically	3	45		48
Browse list by Subject	5	26		31

Compiled by Law	Annotated	Not		Totals
		Annotated	Not Annotated	
Browse list Alphabetically	2	17		19
Browse list by Subject	0	5		5

OPAC Information

Information about each library's OPAC was compiled for two reasons. First, because some users rely on them in order to determine whether a library has an item in its collection or not. Second, OPAC information was compiled in order to determine which fields of MARC data were most often utilized to retrieve items in the collection.

Most library OPACs in the study were fairly easy to find; 76 percent linked to the OPAC interface on the library home page, 21.3 percent provided a search engine with

which to search the OPAC which contained the law library's collection as well as a link to the OPAC interface. Only 2.7 percent did not link to the OPAC on the home page.

Of the 75 OPACs examined, 53.3 percent combined the law library collection with the collections of the other libraries in the university system, 14.7 percent represented the collections of the law library only, and 32 percent of the web sites offered links to both the law library and library system's OPACs when the catalogs were maintained separately.

The most common search functions in the 75 OPACs are noted in Table 7. The search functions of the OPACs that contained *Issues in Legal Scholarship* were compared with the search functions of those that did not contain the e-journal in order to assess whether similar functionality would still have been provided by the search engine interface.

Table 7
Search Functions in OPAC

Search Headings	E-Journal not in OPAC	E-Journal in OPAC	Totals**	Percentage
Author	17	56	73	97.3%
Title	16	59	75	100.0%
Author/Title	9	31	40	53.3%
Journal Title	6	25	31	41.3%
Keyword	17	55	72	96.0%
Subj. Headings	17	58	75	100.0%
Call Number	16	48	64	85.3%
Series Title	8	14	22	29.3%
ISSN	10	34	44	58.7%
Type/Genre	3	12	15	20.0%
Advanced Search*	4	10	14	18.7%

* Combined Search function

** Does not represent total amount of databases studied, but total amount of OPACs in which particular Search Heading was found.

Discussion

The observations made in this study suggest that there may be more variation in the way web sites are being put together to make e-journals available to the public than is needed. Several systems of organizing e-journals are already in place in the form of cataloging standards, which facilitate both accessibility & subject categorization.

However, it may be that the reason they are not being fully utilized may be two-fold:

First, when OPACs were initially evolving, programmers and software engineers concentrated on the refinement of search engines. A lot of emphasis was placed on keyword searching because many professionals in the field of Information Technology (IT) didn't understand the reason or need behind subject classifications or authority controls. Now that there is a proliferation of electronic content, many members of the IT community are finally beginning to understand that the relevance of the data retrieved by a simple keyword search isn't necessarily proportional to the quantity of the data retrieved. Although the MARC format is still viewed by some as unnecessarily complex, there is more interest in the ways metadata can improve the relevance of search results. Subject, title, and author searching are getting more attention as a means to improve or expand query results, as well as to generate dynamic lists of items grouped by common search terms or other characteristics. (Greenberg, 1997)

The other reason the presentation of e-journals hasn't been standardized is the inconsistency of responsibility for web authoring. With some libraries, responsibility for the web design is assigned to the IT department, in others it is delegated to the Technical Services department. Depending on the size of the library staff, it is even likely that members of library support personnel are being utilized to upload and maintain many aspects of the library web pages. This is not a problem, overall, but without

standardization it can lead to inconsistencies depending on how well the staff member assigned to the duty understands the task.

As information professionals, librarians know what the desired end result should be, whatever method is applied. The end result should be to provide a consistent and easily understandable way for users to find the materials they need. All formats and versions of the materials available should be indexed and accessible, even if the users don't know right away what they need.

To achieve these goals, librarians must overcome the obstacles of not having enough staff, or budget money (which often equals technical capability) to catalog the hundreds of databases, which in turn carry thousands of journals available.

The findings of this study seem to indicate that when the use of hypertext in an OPAC or database aggregator was available, the library web site provided more methods of access, such as subject browsing and the ability to search for journal titles. Accessibility to titles was also improved when links to popular databases were made available on more than one web page. Having detailed annotations for particular databases and individual titles was helpful, but not as necessary as knowing the general subject content contained in either resource.

Being able to search for both databases and e-journals by title and subject was at least as significant as being able to search for the items by keyword. Knowing the titles of the items sought in this study limited the ability to measure the value of browsing through lists of titles or subjects. However, searching for particular titles within especially long lists of materials proved time-consuming and wasn't always effective in producing the desired results.

Recommendations

When this study was first conceived, the idea of determining the best practices for providing access to e-journals and other electronic resources was expected to result in a composition of metadata, or in the creation of a sample for a standardized web page template. However, the observations made during the study led the author to take a more holistic approach in determining what best practices might benefit both users and library staff in a variety of settings.

There seemed to be, generally speaking, two types of presentation of e-journals by law library web sites. Those law libraries with the technological and budgetary capability most often provided redundant access points, loaded MARC records for each e-journal into their OPACs, and provided both e-journal and database lists that were searchable by access points and browsable by subject. Libraries unable to purchase cataloging for every record, or to allocate personnel for the overwhelming task, generally provided annotated lists of databases and lists of e-journals by title. Despite these two definable categories of providing electronic resources, there were still broad differences in the presentation of these provisions.

As indicated earlier in the discussion of Kuhlthau's stages of information processing, when users first encounter a new search interface, they can revert back to initial stages of confusion as they overcome the unfamiliarity of the new search environment; And complicating the fundamental awkwardness of orienting in a new set of navigational hierarchies is the fact that many library web sites present their materials in entirely different manners.

It would benefit law library web sites if the navigation were treated with the same regard as the composition of a book or journal's title page. Just as there are industry

standards in periodical and book publishing, it may help both web authors and users to define what elements of information should appear on a web site, and generally where they should appear.

Standardization in the presentation of elements such as title information, navigational hierarchies, and other content directives would greatly simplify the web author's job, and may even lend itself to some sort of automation for producing the web pages, allowing support staff more input into web site creation and maintenance. It may also allow for the creation of templates for use in such programs as Frontpage or Dreamweaver, thus making the process even more consistent and easier to handle. It would be easy to focus on details that could get lost in a sea of web pages. However before these more detailed and technological resources are considered, it seems important to define a broader sense of what design elements should be included on most web sites in order to balance the amounts of information being actually managed by library staff and presented to users.

The following guidelines were influenced by observations made while examining the web sites included in this study, and by the Legal Information Standards Council of North South Wales, Australia. (2000) These elements would improve user orientation when accessing academic law library web sites:

- ◆ Provide the name of the school as well as the library on all pages of the web site. Also include contact information such as the library's address, phone number, and email address.
- ◆ Indicate currency by providing the month and year of the last update to the site.
- ◆ Use consistent navigation menus, whether located at the top or to the left-hand side of the web pages, and include them on every page of the web site. Ensure

that the title of each page is clearly displayed so users can orient their location within the navigational hierarchy.

- ◆ Where appropriate, provide redundant points of access to links users will find important.
- ◆ Utilize 856 MARC fields or another form of URL metadata to allow linkage from the library OPAC to the electronic resource where the material may be found. Use of this field will also facilitate software designed to check and repair URLs and PURLs.
- ◆ Consider providing links to popular resources, such as Lexis or Westlaw on the main page and possibly the OPAC interface.
- ◆ Use the correct form of citation, if links to primary sources are provided.
- ◆ Links should be checked regularly and repaired if broken.
- ◆ If the technology is available, provide engines for title searching both databases and e-journals, and use metabrowsing techniques to search resources by subject.
- ◆ Provide clear and succinct annotations to databases and e-journals where possible.
- ◆ If links to sites outside of the library's domain are made available, inform users that they are leaving the web site.
- ◆ Distinguish between privately published sources of information and government sources of information when the difference may affect the reliability or objectivity of the source.

Use of these recommendations may help web designers understand the types of information beneficial for a helpful site, allow users to orient themselves quickly to the search tools, and may also help users evaluate the information provided by the web site.

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Appendix A

List of Law Libraries

University of Akron School of Law. C. Blake McDowell Law Center: Akron, Ohio

<http://www.uakron.edu/law/library/>

American University, Washington College of Law. American University Law Library:

Washington, DC.

<http://library.wcl.american.edu/>

Arizona State University College of Law. Ross-Blakley Law Library: Tempe, Arizona

<http://www.law.asu.edu/?folderid=2587>

University of Arizona James E. Rogers College of Law. University of Arizona James E.

Rogers College of Law Library: Tucson, AZ.

<http://www.law.arizona.edu/library/default.htm>

Ave Maria School of Law. Ave Maria School of Law Library: Ann Arbor, MI.

<http://www.avemarialaw.edu/library/>

Baylor University School of Law. Sheridan & John Eddie Williams Legal Research &

Technology Center: Waco, TX.

<http://law.baylor.edu/library/main.htm>

Boston University School of Law. Pappas Law Library: Boston, Mass.

<http://www.bu.edu/lawlibrary/>

Brooklyn Law School. Brooklyn Law School Library: Brooklyn, NY

<http://www.brooklaw.edu/library/>

University at Buffalo Law School. Charles B. Sears Law Library: Buffalo NY.

<http://ublib.buffalo.edu/libraries/units/law/>

University of California, Berkeley School of Law. Boalt Hall Law Library: Berkeley, CA.

<http://www.law.berkeley.edu/library/>

University of California Hastings College of the Law. Hastings Law Library: San Francisco, CA.

<http://www.uchastings.edu/library/>

University of California, Los Angeles School of Law. Hugh & Hazel Darling Law Library: Los Angeles, CA.

<http://www1.law.ucla.edu/~library/>

Capital University Law and Graduate Center. Capital University Law School: Columbus, OH .

<http://www.law.capital.edu/library/>

Chapman University School of Law. Harry and Diane Rinker Law Library: Orange, CA.

<http://www.chapman.edu/law/library/default.asp>

University of Chicago Law School. D'Angelo Law Library: Chicago, IL.

<http://www.lib.uchicago.edu/e/law/>

Cleveland State University Cleveland-Marshall College of Law. Cleveland-Marshall

College of Law Library: Cleveland, OH.

<http://www.law.csuohio.edu/lawlibrary/index.html>

University of Colorado at Boulder School of Law. University of Colorado Law Library:

Boulder, CO.

<http://www.colorado.edu/Law/lawlib/>

Columbia University School of Law. Arthur W. Diamond Law Library: New York, NY.

<http://www.law.columbia.edu/library>

Cornell University Law School. Cornell Law Library: Ithaca, NY.

<http://www.lawschool.cornell.edu/library/defaultflash.asp>

Creighton University School of Law. Klutznick Law Library: Omaha, NE.

<http://culaw2.creighton.edu/Library/index.aspx>

University of Denver College of Law. Westminster Law Library: Denver, CO.

<http://www.law.du.edu/library/default.cfm>

Duke University School of Law. Duke Law Library: Durham, NC.

<http://library.law.duke.edu/>

Duquesne University School of Law. Duquesne University Center for Legal Information:

Pittsburgh, PA.

<http://www.lawlib.duq.edu/>

Drake University Law School. Drake Law School Library: Des Moines, IA.

<http://www.law.drake.edu/library/>

Emory University School of Law. Hugh F. MacMillan Law Library: Atlanta, GA.

<http://www.law.emory.edu/library/index.html>

Florida State University College of Law. Florida State University College of Law

Library: Tallahassee, FL.

<http://www.law.fsu.edu/library/>

Fordham University School of Law. Leo T. Kissam Memorial Library: New York, NY.

<http://law.fordham.edu/library.htm>

Franklin Pierce Law Center. Franklin Pierce Law Center Library: Concord, NH.

<http://www.library.piercelaw.edu/>

George Mason University School of Law. George Mason University Law Library:

Arlington, VA.

<http://www.gmu.edu/departments/law/libtech/>

Georgetown University Law Center. Edward Bennett Williams Law Library:

Washington, DC.

<http://www.ll.georgetown.edu/>

Georgia State University College of Law. Georgia State University College of Law:

Atlanta, GA.

<http://law.gsu.edu/lawlibrary/>

University of Georgia School of Law. Alexander Campbell King Law Library:

Athens, GA.

<http://www.law.uga.edu/library/index.html>

Golden Gate University School of Law. Golden Gate University Law Library: San

Francisco, CA.

http://internet.ggu.edu/law_library/

Gonzaga University School of Law. Chastek Law Library: Spokane, WA.

<http://www.law.gonzaga.edu/Library/default.htm>

Hamline University School of Law. Hamline University School of Law Library:

Saint Paul, MN.

<http://web.hamline.edu/law/library/>

Harvard Law School. Harvard Law School Library: Cambridge, MA.

<http://www.law.harvard.edu/library/>

Hofstra University School of Law. Barbara and Maurice A. Deane Law Library:

Hempstead, NY.

http://www.hofstra.edu/libraries/lawlib/law_library.cfm

University of Idaho College of Law. University of Idaho College of Law Library:

Moscow, ID.

<http://www.law.uidaho.edu/library/>

University of Illinois at Urbana-Champaign College of Law. Albert E. Jenner, Jr.

Memorial Law Library: Champaign, IL.

<http://library.law.uiuc.edu/>

University of Iowa College of Law. University of Iowa College of Law Library:

Iowa City, Iowa.

<http://www.law.uiowa.edu/library/>

The John Marshall Law School. Louis L. Biro Law Library: Chicago, IL.

<http://www.jmls.edu/catalog.cfm?dest=dir&linkon=section&linkid=23>

University of Kansas School of Law. Wheat Law Library: Lawrence, KS.

<http://www.law.ku.edu/library/>

University of Kentucky College of Law. Alvin E. Evans Library: Lexington, KY.

<http://www.uky.edu/Law/Library/>

Lewis and Clark College, Northwestern School of Law. Boley Law Library:

Portland, OR.

<http://www.lclark.edu/~lawlib/>

Louisiana State University Paul M. Hebert Law Center. Louisiana State University Law

Library: Baton Rouge, LA.

http://www.law.lsu.edu/library/f_lib01.htm

Loyola Law School, Los Angeles. William M. Rains Law Library: Los Angeles, CA.

<http://www.lls.edu/library/index.html>

Loyola University New Orleans. School of Law. Loyola University New Orleans School of Law Library: New Orleans, Louisiana.

<http://law.loyno.edu/library/>

Loyola University Chicago, School of Law. Loyola Law Library: Chicago, IL.

<http://www.luc.edu/law/library/>

Marquette University Law School. Marquette University Law Library:
Milwaukee, WI.

<http://law.marquette.edu/cgi-bin/site.pl?2130&pageID=145>

Mercer University Walter F. George School of Law. Furman Smith Law Library:
Macon, GA.

<http://library.law.mercer.edu/>

University of Michigan School of Law. University of Michigan Law Library:
Ann Arbor, MI.

<http://www.law.umich.edu/library/>

University of Mississippi School of Law. University of Mississippi Law Library:
University, MS.

<http://library.law.olemiss.edu/>

New England School of Law. New England School of Law Library: Boston, MA.

<http://www.nesl.edu/library/>

New York University School of Law. New York University Law Library: New York, NY

<http://www.law.nyu.edu/library/index.html>

University of North Carolina at Chapel Hill. Kathrine E. Everett Law Library:

Chapel Hill, NC.

<http://library.law.unc.edu/>

Northeastern University School of Law. Northeastern University School of Law Library:

Boston, MA.

<http://www.slw.neu.edu/library/>

Northwestern University School of Law. Pritzker Legal Research Center: Chicago, IL.

<http://www.law.northwestern.edu/lawlibrary/>

University of Notre Dame Law School. Kresge Law Library: Notre Dame, IN.

<http://www.nd.edu/~lawlib/>

Pace University School of Law. Pace Law Library: White Plains, NY.

<http://csmail.law.pace.edu/lawlib/>

University of the Pacific, McGeorge School of Law. Gordon D. Schaber Law Library:

Sacramento, California.

http://mcgeorge.edu/campus_resources/library/index.htm

University of Pennsylvania Law School. Biddle Law Library: Philadelphia, PA

<http://www.law.upenn.edu/bll/about/>

Regent University School of Law. Regent University School of Law Library:

Virginia Beach, VA.

<http://www.regent.edu/acad/schlaw/library/home.html>

Roger Williams University School of Law. Roger Williams University School of Law

Library: Bristol, RI.

<http://law.rwu.edu/Law+Library/>

University of San Francisco School of Law. Dorraine Zief Law Library:

San Francisco, CA.

http://www.usfca.edu/law_library/

University of Southern California Law School. Asa V. Call Law Library:

Los Angeles, CA.

<http://lawweb.usc.edu/library/>

Stanford Law School. Robert Crown Law Library: Stanford, CA.

<http://www.law.stanford.edu/library/>

Temple University Beasley School of Law. Temple University Law Library:

Philadelphia, PA.

<http://www2.law.temple.edu/page.asp?page=gradlibrary>

University of Texas at Austin School of Law. Tarlton Law Library: Austin, TX

<http://tarlton.law.utexas.edu/index.php>

Vanderbilt University Law School. Alyne Queener Massey Law Library:

Nashville, TN.

<http://law.vanderbilt.edu/library/>

Vermont Law School. Julien and Virginia Cornell Library: South Royalton, VT.

<http://www.vermontlaw.edu/library/index.cfm>

Villanova University School of Law. Villanova University School of Law Library:

Villanova, PA.

<http://www.law.villanova.edu/library/>

University of Virginia School of Law. Arthur J. Morris Law Library: Charlottesville, VA.

<http://www.law.virginia.edu/home2002/html/librariansite/library.htm>

Wake Forest University School of Law. Professional Center Library: Winston-Salem, NC

<http://www.law.wfu.edu/x41.xml>

William & Mary Marshall-Wythe School of Law. William & Mary Marshall-Wythe

School of Law Library: Williamsburg, VA

<http://www.wm.edu/law/lawlibrary/index.php>

Yale Law School. Lillian Goldman Law Library: New Haven, CT

<http://www.law.yale.edu/library/>