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Information Portals: The Next Generation Catalog

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ABSTRACT

Libraries today face an increasing challenge: to provide relevant information to diverse populations with differing needs, while competing with Web search engines like Google. In 2009 the University of Nebraska-Lincoln (UNL) Libraries joined with other libraries and Innovative Interfaces as development partners to design a new type of discovery tool. Information portals as a concept best supports the research and instructional needs of our communities by organizing and presenting information that incorporates licensed databases, text, multimedia, and other relevant sources. The discovery tool under examination by UNL, Encore, integrates searches of the catalog, locally created full-text and image sources, and articles from licensed databases, with navigation options that facilitate narrowing and expanding search results. This information portal development is an ongoing process with the goal of providing a tool that is as easy to use as Web search engines but preserves the quality that library users expect. This article explores the requirements for an information portal and describes the challenges UNL faced when implementing Encore. Statistics from the initial implementation are presented, along with recommendations for future usability studies to evaluate where additional improvements should be made.

Introduction

The expectations of researchers and the availability of digital information have dramatically altered the behavior of researchers. In the past, libraries could depend on scholars coming into the library to do their investigations. This is changing. Research activity is taking place wherever the researcher is located, wherever they can find a network connection. This accessibility is distancing researchers from library staff so we can't depend on personal contact to guide people to the best sources. Their impressions are formed by the Web site and the services we offer over the Web, without ever contacting a library staff member in person. Statistics from the University of Nebraska-Lincoln Libraries (UNL) show a rising trend in this direction. In 2007-2008 most searches (81 percent) were conducted outside of a library facility, as contrasted with 57 percent in 2002-2003. Off-site researchers need services such as document delivery and reference at least as much, if not more, than in-house visitors. How libraries respond to these expectations will influence opinions about the library, and whether libraries are seen as dynamic information gateways or as book depositories. This is the primary reason why Libraries are turning more attention to their Web sites.

Literature Review

Research is a complex process, and the probability of a successful outcome is dependent on a combination of researcher's expectations, preferences, and external conditions. Time, physical constraints, and information overload were identified in an article by Yazdan Mansourian and Nigel Ford (2007) as factors causing researchers to end their searches before they had exhausted resources. Libraries can't control external factors like time, but we can begin to address issues involving preferences, expectations, and information overload through interface design.

One of the least popular features of the OPAC has been the ability to limit post-search. It appears most individuals are not willing to sort through complicated input forms and prefer a simple keyword search. A study of international students found "nearly all the interviewees stated that they generally use keyword-searching and seldom use author-search" (Winnie Tam, Andrew Cox, and Andy Bussey 2009 page.359). This information confirms what the UNL Libraries were experiencing, where keyword search is selected two to one over any other type of search.

Researchers may also lack the sophisticated vocabulary of experienced library users. Mansourian and Ford conducted another study that included faculty, lecturers, and graduate students. They identified two important factors in failed searches: the perceived lack of linguistic ability, and the failure to select appropriate keywords. Since researchers may lack the vocabulary used in metadata schemes developed by experts, adding functionality for augmenting controlled vocabulary with user suggested tags and providing automated search help, such as related queries or spell checking, would benefit novice searchers.

Researchers expect library search engines to operate in a similar manner as Web search engines (Jullian Griffiths and Peter Brophy 2005). The "Google factor" has long been a recognized frustration among librarians. Jan Brophy and David Bawden compared Google with library catalogs and concluded that Google was superior for coverage and accessibility, but the library was superior for quality. They cited the ease of use as a positive factor for Google and likely reasons for its popularity:

> "Intriguingly, improving the skills of the searcher is likely to give better results
> from the library systems, but not from Google. This has implications for user
> awareness training programs. It may be seen as a worrying factor, given the

tendency identified above, and emphasized in the findings of Griffths and Brophy

(2005) for ease of use, and by implication lack of need for training, to be the

major factor in choice of source" (Brophy and Bawden 2005, page 510).

Librarians need to compromise between powerful search interfaces that are too complex for

students and featureless interfaces that are too basic to be useful when drill-down is needed for

large results sets.

A 2009 study by OCLC found direct linking to online content, evaluative content like

summaries and tables of contents, relevant search results, item availability, and a simple keyword

search with an available advanced guided search were desired features for search engines. (Karen

Calhoun, Joanne Cantrell, Peggy Gallagher, and Janet Hawk. 2009). Today's users expect more

than a citation; they are looking for quick and direct access to the best information. The study by

Tam, Cox, and Bussey (2009) of undergraduate and postgraduate students at the University of

Sheffield provides additional evidence for this view, showing facets, tag clouds, borrowing

suggestions and relevance ranking are the most desirable and useful features from the

perspective of international students. These features are becoming more common across the

Internet, and librarians would find it beneficial to incorporate them into their discovery tools.

User contributed features of tagging, reviews, and commenting are also becoming more

common features on commercial sites. A 2009 study confirmed that tagging can also be a useful

tool in a catalog, particularly when there are a large number of tags. "A hybrid catalog

combining both LCSH and a folksonomy would result in richer metadata and be stronger than

the sum of its parts, giving users the best of both worlds" (Marliese Thomas, Dana Caudle, and

Cecilia Schmitz 2009, page 431). Libraries should not overlook tagging and other commenting

features that empower the community of library users to participate in organizing information in

ways that are useful to them. These features give searchers a reason to come back to library

search engines.

Strategies for searching appear to be less impacted by the changes in Web technology.

Traditionally, some researchers begin with the idea for a specific topic and broaden their strategy

as they browse results, but in other instances the individual may not be able to fully describe

what they are looking for, but "know it when they see it." These types of queries begin as broad

searches that are narrowed as results are browsed. A third type of search may begin as one of the

previous types but diverges after the searcher finds some unexpected gem. This type of search

isn't a strategy per se, but a serendipitous discovery. Serendipitous discoveries are valuable

because they are not expected; they challenge pre-existing ideas of the searcher to suggest new

ways to look at the topic.

Allen Foster and Nigel Ford (2003) conducted a study to analyze serendipity in

searching. While recognizing the difficulty of analyzing it as part of the search process, they

concluded that it did impact research: "in the present study, it emerged as an important aspect of

how researchers encounter information and generate new ideas…" (Foster and Ford 2003, page

337). This implies that research outcomes could be improved by designing search interfaces with

features which encourage opportunities for serendipity during the discovery process. This is

particularly true of multi-media information that may not be obvious sources for research.

Text is no longer the sole source for legitimate research. Scholars are turning to

multimedia formats to present their findings as noted in Thomas Burkdall's 2009 article on the

persistence of writing. "Mikhail Bakhtin's heteroglossia, the polyphonous text, can exist on

many levels in an audio essay or in a multimedia narrative. Adding a song, using a particular

tone of voice, or applying a special effect may all communicate a message simultaneously"

(Thomas Burkdall 2009, page 58-59). Locating different formats can be challenging, particularly

if a researcher doesn't know they exist. Likewise, individual researchers do not always have

ready access to the bandwidth, hardware, or software required to take advantage of the new

packaging. Local repositories may be the best way to provide access to multimedia collections

because of their ability to supply pertinent metadata for discovery, control over bandwidth,

reduced network latency, and workstations (in libraries) for their community of researchers.

All of this research is suggesting that librarians need to create new discovery tools that

empower researchers to quickly locate information in a manner consistent with Web evolution.

Library tools can't be static, they need to mimic Internet search engines and offer interactive

options like tagging and reviews. However, librarians also have a professional responsibility to

manage quality and provide an enriched experience that will assist users when they lack research

expertise. This is not an easy assignment; the next section will borrow the concept of a celestial

sphere from astronomy as a model for building "information portals" to achieve these goals.

Information Portals

There are similarities between Web surfing and star gazing, so it might be useful to

borrow some insights from the field of astronomy as a model for organizing and providing

access to data. Early astronomers noticed that the night sky changed based on the location of the

observer so the concept of the celestial sphere (an imagined projection around the earth) was

developed as a way to position astronomical objects for identification and measurement. Just as

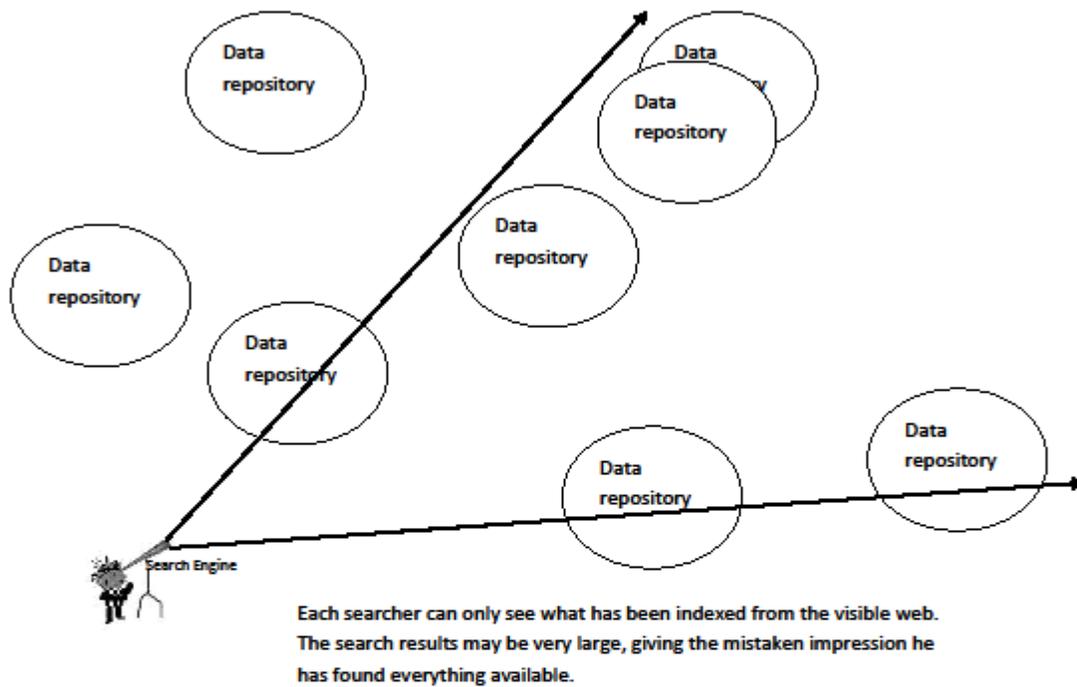the universe is subject to measurement and mapping, the Web can also be observed.

Information on the Web is stored under hostnames associated with Web sites. Data that is

collected and indexed is called the visible Web. The invisible or deep Web consists of data not

included by search engines — for a variety of reasons. These sites might be intentionally skipped

because authorization is required, because the data is dynamically constructed from databases, or because it is not HTML coded (PDFs, audio, video, multimedia formats, etc.). There is no way to accurately estimate the number of pages in the deep Web. These Web sites are the "black holes" in the universe of information; if someone doesn't know they exist, they probably won't find them.

The universe may be limitless but it has observable horizons. The celestial sphere was invented to provide a way to address objects in the universe in relation to earth. It became the best method for breaking a limitless universe into something understandable and that could be referenced by astronomers and navigators. We connect the dots between the stars to form the constellations and map the constellations against the celestial sphere.

Likewise, we are limited in our ability to see the entirety of all digital information. Internet search engines (which only capture the visible Web) routinely retrieve more results than people can reasonably use. It is also quite possible to miss the latest and most relevant information because it hasn't been indexed. Content such as images or video are frequently overlooked or inadequately indexed. Web searchers may think they have access to everything because their search results are enormous, but in reality their result sets are limited to a specific informational horizon (see Figure 1).

Figure 1
Information horizon from the view point on an information seeker

Each searcher can only see what has been indexed from the visible web. The search results may be very large, giving the mistaken impression he has found everything available.

Using the concept of a celestial sphere as a model, we can create a new model for referencing information on the Web. Like a celestial sphere, an "information portal" will position resources in relation to the perspective of the searcher. For a university this means bringing together the best resources available that fit the institution's mission. These resources are like constellations, reflecting the language, cultural, and research interests of the area. An information portal would provide a customized search interface that includes online catalogs of library print holdings, full-text materials from databases, multimedia databases, institutional repositories, and other specialized collections that meet the needs of the local research community. These dynamic, growing collections would be indexed in as close to real time as possible. They would also incorporate Web 2.0 features and online services (see Figure 2).

Figure 2
Knowledge sphere
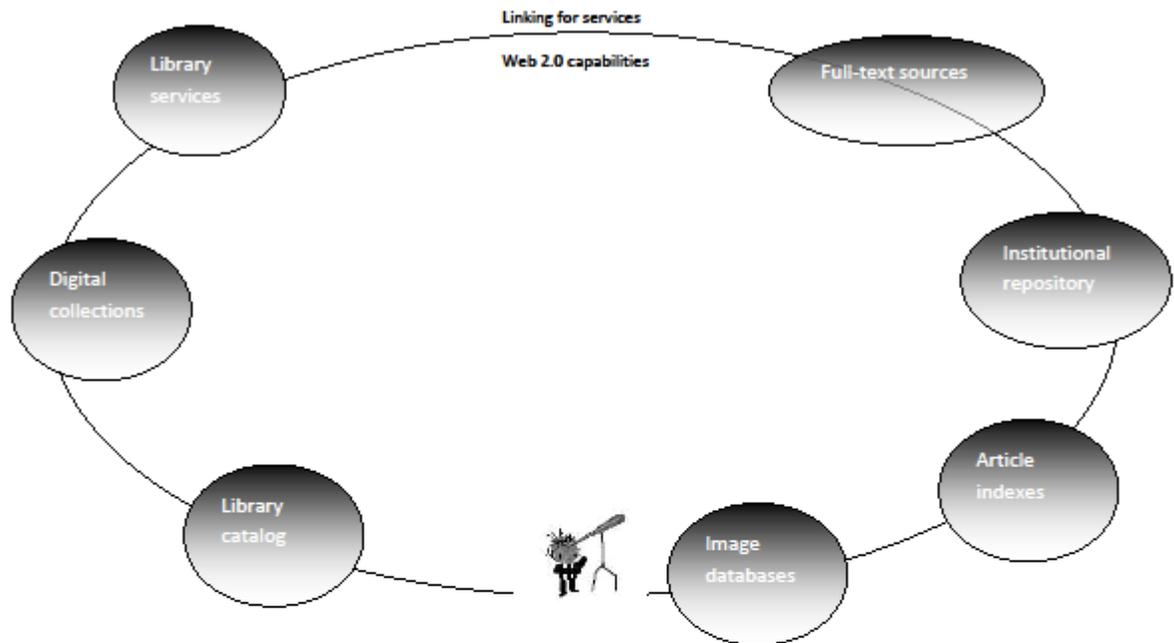
An Information portal organized by the library to reflect the
strengths and subject interest of the community integrated with
services places the researcher in the center of information.

Requirements

By conceptualizing information using the following principles, it is possible to construct an information portal that places the searcher at the center of the research process. The following list contains requirements to support the expectations and preferences of today's researcher. The portal provides:

1. A clean, well designed Web site that will encourage quick retrieval of information and minimizes the need for searchers to physically go to the library.

2. Search engines with current indexing of the latest information.

3. A broad scope of content including multimedia as well as text and print sources.

4. Aggregate searching that pulls together relevant information.

5. Online and on-demand services that are relevant to the searchers immediate needs.

6. Seamless chaining or connection of searches between databases so searchers don't have to figure out where to go to get full text or find supplemental resources.

7. Search interfaces that respect the search process by providing:

    a. For the possibility of serendipitous discovery of the unconsidered.

    b. Functionality for user tags, reviews and ratings that help searchers select from results lists.

    c. Capability for researchers to change the focus of their search from a narrow strategy to a broader strategy.

    d. Capability for narrowing searches.

    e. Spell checking and other features that guide users to improved results.

Information Portals for the next-generation library

An information portal includes a combination of databases licensed for institutional use and freely available, open source data. The content of the portal reflects the mission of the institution and the users served. When the information portal reflects the interest of the local community, it has the best mix of the latest and most relevant content for searching. When this information portal includes a broad spectrum of contributions from across the campus it also highlights the intellectual contributions of researchers, and as such, plays a role in marketing the value of the university to a wider community. This provides an added incentive for scholars to contribute their research to the information portal through an institutional repository.

The information portal uses tools based on open standards such as Open Archives Initiative (OAI) for data harvesting and OpenURL for data linking. OAI is useful for pulling or "harvesting" metadata from sources into the information portal. The protocol can provide access to hidden databases that are not accessible by Web search engines or unique collections that because of their specificity become lost in search results. OpenURL can also be used to create dynamic menus customized for the local community for on-demand services. These links can include full-text availability, document delivery, print options, and suggestions for related databases— all of which, increase the probability for successful retrieval of information. Because the links are dynamically built they offer options that are relevant to a particular record or search. This provides a powerful way for libraries to connect with searchers' individual needs in a context sensitive manner that previously required staff intervention or library-savvy users.

An information portal combines all of these features into a single interface that supports searching across formats, indexes repositories that are rich in content and depth, and integrates the results into a single result set. The information portal also brings together services (e.g. document delivery, full-text linking) with item discovery. It is designed to support traditional

strategies employed by searchers like the ability to narrow and broaden searches, and should facilitate the serendipitous discovery of information through a combination of presentation and content.

Encore as an Information Portal

The UNL libraries serve a student body of 24,000 with 1,500 faculty and staff with a mixed population of international, national, and local students at the graduate and undergraduate levels. In 2009 the University of Nebraska-Lincoln Libraries worked with Innovative Interfaces (http://iii.com) to harvest data for inclusion into Encore (http//encore.unl.edu). The choice to partner with a vendor was a strategic decision for UNL that enabled staff to concentrate efforts on developing digital content and online services, leaving search interface design to the vendor. UNL was already using III's catalog, WebBridge and ResearchPro, and these products are fully integrated into Encore, adding gravity to our decision to use Encore. The digital material UNL faculty and staff are developing is permanent, and serves as the foundation for portal development. No one expects any portal to remain static, but the information contributed to the portal must be managed and preserved for future generations, and is central to the library's mission.

The Encore product III is developing is a next-generation catalog that meets most of UNL's requirements for an information portal. The turnkey product includes options for "recently added titles" (academic libraries), or "popular choices" (public libraries), and integrates search results from the catalog with articles from the library's subscriptions, and local collections harvested through OAI. Results from the catalog show real-time availability of items for check-out.

III provides a variety of options to libraries for local customization. Integration of articles and harvesting collections are local decisions based on local conditions, so not all implementations of Encore include these features.   Community reviews, annotations, and tagging are features that some libraries have included in their Encore implementation. WebBridge, III's OpenURL resolver, is another option libraries can use to provide services for catalog and article results. Encore offers the ability to customize many of the labels to meet local requirements and selection of style-sheet options for displays. UNL customized the colors of the interface to meet university Web site requirements.

The III search interface provides facets for narrowing search results by availability, publication date, location, where the words were found (i.e. author, title, subject, tag), harvested collection name, articles, subjects/keywords, or community tags. Searches can be broadened using the "related searches" cloud that presents terms/phrases from subject headings and matches from authority records that run as new queries. Spell check is provided along with a feature that suggests similar terminology when a search fails. For example, the search in UNL's Encore for "sunny resorts" has no matches but the phrase "summer resorts" is suggested as an alternate search.

Researchers can also send their query directly to ResearchPro, which is an aggregate search engine (customized by UNL Librarians) for full-text article databases. Results from Encore and ResearchPro are connected using WebBridge for OpenURL linking to additional services like full-text availability, interlibrary loan and the popular call number map. ResearchPro provides direct access to PDFs and HTML full-text files (when available).

The UNL version of Encore includes data harvested from growing collections of Text Encoding Initiative (TEI) full-text sources (Lewis & Clark Archive, Willa Cather Archive, Birds

of Nebraska Collection, etc.), Encoded Archival Description (EAD) sources (finding aids from

the University Archives), the Digital Commons institutional repository (more than 36,000 full-

text items), ContentDM multimedia collections (79 collections with over 209,000 media items),

and the catalog (over two million records) into a single searchable database that also includes

articles from six databases. By combining research databases at UNL, the portal exposes data

that would otherwise be missed in searches of the catalog alone. This combination of resources

will improve the chances for a serendipitous discovery of information.

Beginning in April 2009 III added optional functionality to Encore that pulls sample

article results from the library's licensed subscriptions into a preview box that appears with the

query results. For UNL this was consolidation of two databases selected by UNL librarians

(Academic Search Premier and Business Source Premier). Additional databases may be added

later depending on the ability of the system to handle searches within reasonable response times.

Another popular new feature allows researchers to limit article results from these databases to

full text and peer reviewed.

Out of the box, Encore results are ranked using a relevancy algorithm that gives a higher

ranking for matches in the title field than matches in other fields. After inter-filing records based

on the matching algorithm, records of specific types are prioritized: resource records for online

databases are listed before books, and serials records are listed before either resource records or

books. Record types are identified by labels: resources records have a globe icon, printed

materials are labeled print material, and locally harvested records from the TEI, EAD,

ContentDM, or DigitalCommons collections are labeled "UNL E-source."

The last software update added the capability for users (identified by patron type) to

promote records. Because UNL has records for dissertations and thesis in our results, the later

date of the dissertation would appear before titles that librarians wanted to see higher in the

results. For example, "Gone with the Wind" was appearing below a government document on

wind turbines and birds, by promoting the record for the novel it now appears at the top of the

list.

Figure 3 shows a typical response from an Encore search that includes the articles

preview window and facets for harvested collections matching the search. When a mouse over is

made over an article in the preview window, the abstract for that article appears.

Figure 3
Encore search results screen

Facets for narrowing
results to:
Availability

or Fields where
query matched

or Format

or Harvested
Collection

or Library location

or Language

or Publication date

or Subject location

or Items on reserve

Related searches
capability to narrow
the search to uniform
titles or
start a new search
with subject headings

Send search
to aggregated
search engine
for articles

Send query to
Worldcat

Narrow by Tag
subject
heading

Sample articles from
aggregate search on
Academic Search
Premier and Business
Source Premier

Images from
Yahoo

Recently
cataloged

Expand the
search

Library services are provided using III's WebBridge OpenURL resolver. These are customized links we configure into WebBridge that are appropriate for a single title. For example, if an item is checked out there will be an option to recall the title and to request the item through interlibrary loan. Items located in the two largest branch libraries have options to pull up a stacks map (using a PHP script developed at UNL) to help locate the call number. All items with call numbers have the option to SMS the call number to cell phones (using another locally developed script).

Searchers can mark records for e-mail, save to a list, or export to RefWorks (http://www.refworks.com) for citation management. The list option allows records to be saved into groups under an individual patron record. Searchers can also send their query to a group of databases through ResearchPro to expand their results to article databases beyond the initial sample.

Web 2.0 features for ranking and tagging are included in Encore. Libraries can select to tag or not, but UNL has determined tagging is an important feature for our users. Tags can be added by anyone with a library account to any record (including harvested records). This service has been popular among UNL librarians who add tags for information that isn't ordinarily included in catalog records. For example, abbreviations used in citations are being added to journal records, and book awards have also been added to group popular fiction. Faculty members from outside the libraries are adding tags to pull together records for their classes. One department has created a virtual library by tagging records of interest. A breakdown by patron type shows the groups most active in record tagging (see Chart 1).

Chart 1
Tags added to Encore by patron type
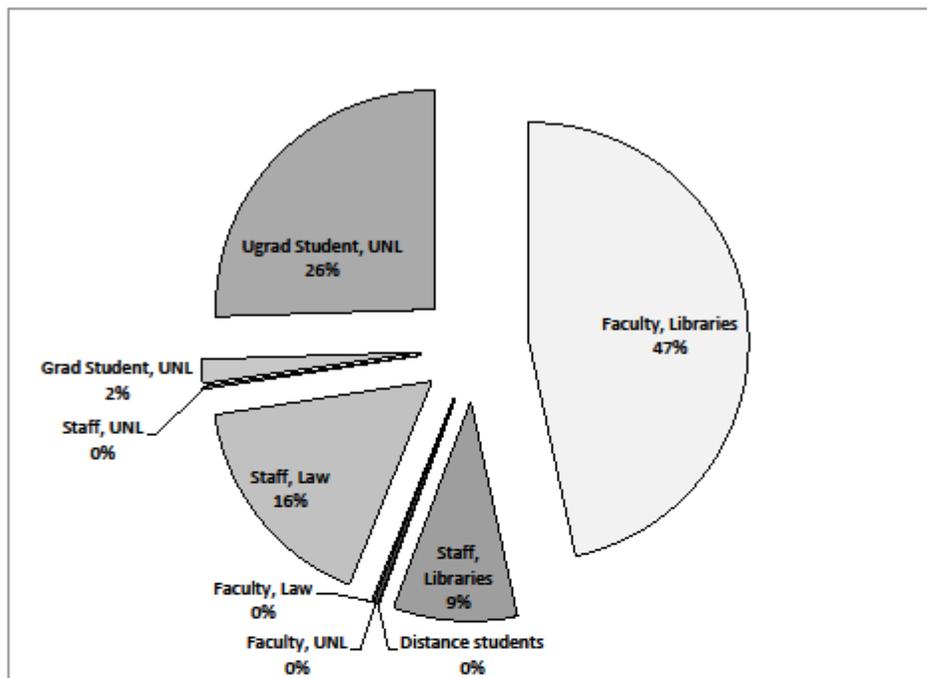
Librarians make up the majority of tagging, but the number of undergraduates that make tags is increasing as the functionality becomes known.

All tags are searchable and can be included in the subject cloud. There is an administrative interface for managing the tags (and community reviews for libraries that are using that option) that provides the ability to delete inappropriate tags. As of the time of writing, no tags have been created that needed to be deleted because they were inappropriate. The amount of time needed to manage the tags is minimal, averaging fifteen minutes a month.

Challenges during Implementation:

OAI harvesting has been the most challenging aspect of this experiment. DigitalCommons is pre-configured for harvesting. ContentDM also has built-in options for OAI harvesting that allows UNL librarians to map the metadata from the collations to Dublin Core (DC) for harvesting. The locally developed collections that were TEI and EAD encoded were more challenging. These are full-text documents using Extensible Markup Language (XML) that contains metadata specific to the collection. The Libraries adapted an open source program, OAI-PMH2, developed by the Virginia Tech Department of Computer Science (http://www.cs.vt.edu), Digital Library Research Laboratory (http://www.dlib.vt.edu), and Virginia Polytechnic Institute and State University (http://www.vt.edu) for the OAI XSLT transformations needed for the XML-coded collections. For each collection harvested we created two files, a stylesheet that maps the metadata from the collection into Dublin Core, and an XML configuration file that defines the OAI collection, which a Perl script uses for the transformations. We are currently exploring the use of Saxon XSLT processor for the transformations. This process creates a URL that is used by the Encore harvesting engine to extract the metadata based on a harvest schedule.

UNL was afforded a great deal of flexibility in determining which fields would be harvested. For some collections, we determined that it was important to include abstracts or

description information in addition to author, title and keywords. The harvest engine would take whatever DC fields were included in the feed, so we were able to select the most pertinent metadata.

We encountered some problems with the OAI feeds. For ContentDM and DigitalCommons the issues were related to inconsistent metadata, because many of the collections were contributed by content experts with no training in metadata principles. As a result, they were not consistent in selecting descriptive words, and occasionally omitted fields they considered unimportant but that were important for OAI. The TEI and EAD collections posed additional challenges. The collections were developed as siloed collections (to be searched as a collection) and were not coded for aggregate harvesting. As a consequence they lacked the rich metadata that would make the records particularly valuable in an OAI harvest. The library is evaluating these situations and looking for ways to improve our workflow for metadata creation.

The new facets created to exploit narrowing and expanding searches exposed weaknesses in our cataloging. In the past, catalog maintenance focused on item records and access points in bibliographic records. Information stored in fixed fields was not considered important since patrons rarely used post-limiting options. Pulling format, availability, and language into the search results has made narrowing the search easier for the researcher but it has drawn attention to the fixed fields. These cataloging practices are also being reviewed.

Analysis

Encore went live on April 8, 2009. In the first months the search box was added to the main Web site under the search box for the OPAC. The catalog search box was removed before fall semester and replaced by a link to the OPAC labeled "classic catalog." Beginning in March

2009, search data has been collected using Google Analytics. Since this time Encore has been

visited from all 50 states (plus the District of Columbia) and 84 countries. Sixty percent of the

traffic is coming from the UNL network.

We have not conducted any usability assessments yet, although one is being planned.

Anecdotal comments have come through online suggestions and through library staff. The

statements relayed through library staff and suggestion forms imply faculty members prefer the
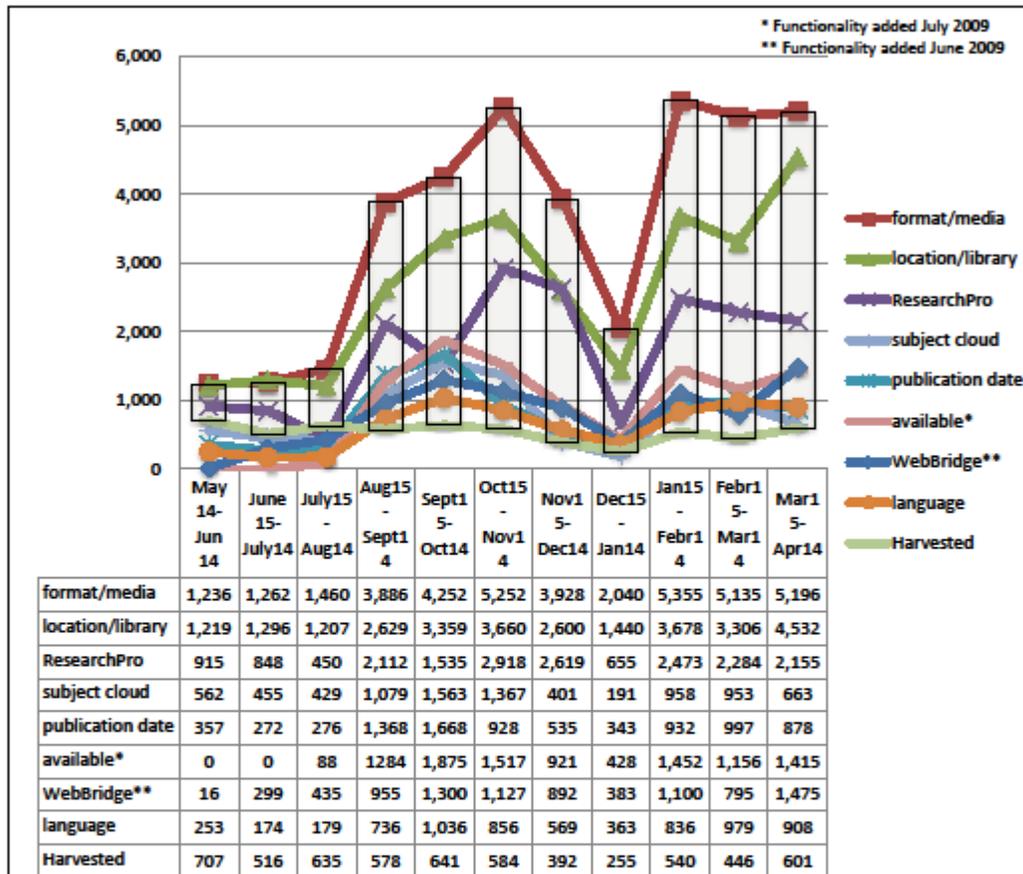
classic catalog while students prefer Encore.

Analysis of the Google statistics has revealed some interesting trends but it is impossible

to know whether the traffic came from faculty or students. People are not leaving Encore to go to

the classic catalog; only 4 percent of the traffic coming to the classic catalog was referred from

Encore, while 34 percent of the exit traffic from the classic catalog was going to Encore. Some

of the classic catalog traffic (21 percent) is coming directly to the classic catalog (not referred

through a Web site or search engine). We don't know if this is due to bookmarking or preference

for the classic catalog. Overall, these trends may suggest a shifting away from the classic

catalog, and although the number of searches in the classic catalog are down from previous

years, with over 600,000 visits during the fall semester we are committed to ongoing support of

the classic catalog.

What we can tell from analyzing statistics is that the new features are getting used.

Searches that narrow to include one or more of the OAI-harvested data are averaging 4 percent

of the activity in Encore. Activity that involves a facet is significant and growing; facet use

(including harvested data) comprises 19 percent of the activity in Encore.

The top facets in order of use are: format or media type (which narrows the search results

by media type), location/library (used to narrow to a particular library), ResearchPro (broadens

the search to an aggregate search of many databases for articles matching the query), subject

cloud (narrows the search to a subset of results with those subject terms), publication date

(narrows the search based on when the item was created), availability (narrows the search to

items on the shelf, which is very popular with undergraduates), WebBridge (provides services

such as document delivery or interlibrary loan when an item isn't available, or the call number

map and text messaging options), language (narrows the results to a particular language),

harvested collection (provides serendipitous discovery of items the searcher may not have

thought existed or narrows the results to a subset of items that was harvested from a particular

collection), and place (narrows results based on geographic location of the query). All the facets

show growth in usage (see Chart 2).

Chart 2
Facet Use May 2009- April 2010

* Functionality added July 2009
** Functionality added June 2009

	May 14-Jun 14	June 15-July14	July15-Aug14	Aug15-Sept14	Sept15-Oct14	Oct15-Nov14	Nov15-Dec14	Dec15-Jan14	Jan15-Febr14	Febr15-Mar14	Mar15-Apr14
format/media	1,236	1,262	1,460	3,886	4,252	5,252	3,928	2,040	5,355	5,135	5,196
location/library	1,219	1,296	1,207	2,629	3,359	3,660	2,600	1,440	3,678	3,306	4,532
ResearchPro	915	848	450	2,112	1,535	2,918	2,619	655	2,473	2,284	2,155
subject cloud	562	455	429	1,079	1,563	1,367	401	191	958	953	663
publication date	357	272	276	1,368	1,668	928	535	343	932	997	878
available*	0	0	88	1284	1,875	1,517	921	428	1,452	1,156	1,415
WebBridge**	16	299	435	955	1,300	1,127	892	383	1,100	795	1,475
language	253	174	179	736	1,036	856	569	363	836	979	908
Harvested	707	516	635	578	641	584	392	255	540	446	601

Researchers are using the facets to narrow and broaden searches. With the exception of December (a typically slow month for the libraries) there has been consistent use of the facets. Media type has been the favorite facet for narrowing searches. Even the smallest harvested collection, "Birds of Nebraska" is getting used.

Over the past eleven months there has been steady use of facets and services. The down bars in chart 2 clearly show growth across the facet use that became quite dramatic after the fall semester began. This trend towards increasing use adds credibility to evidence previously cited in this paper that students will use these features when they are provided.

One of the benefits of harvesting is the exposure of small, esoteric collections. For example, the Birds of Nebraska collection contains digitized newspaper articles and other sources from 1854 to 1923 that were collected by James E. Ducey. Internet search engines do not bring this collection to the top of results. A search of "Purple Martins" did not include this collection in the first 30 screens of results in Google, but in Encore it was listed in the collections facet on the first page. This exposure is promoting the collection and encouraging usage.

Further Research

Do people understand all the features? Perhaps not: during the fall semester the Encore help pages were viewed 214 times. Usability testing will help clarify what aspects need improvement, what additions will make it more useful, and how the interface can be made so intuitive that user training is not needed.

As the Internet continues to expand by trillions of pages it will become increasingly difficult for traditional search engines to return pertinent information. Academic libraries are well positioned to supply access to quality information that meets the needs of faculty and students through concepts like the information portal, a concept that brings together the best of the resources and services we have to offer while placing the scholar at the center of research.

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