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MyLibrary: the library's response to the campus portal

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Abstract

Purpose – In August 2004, the Library Collections and Systems team at Lehigh University released MyLibrary @ Lehigh within the campus portal to the university community. The purpose of this article is to explain how what began as an integration strategy of the library's electronic resources into one complete stand-alone application became the library's response to the fast-growing campus portal.

Design/methodology/approach – Explains how MyLibrary@Lehigh was developed and implemented.

Findings – It became evident during its development and integration stages that MyLibrary@Lehigh would greatly enhance the success and usage of the campus portal. As a repository of all of the library's electronic resources, MyLibrary@Lehigh has become the one-stop shop for the library within the campus-wide, one-stop shop of the campus portal.

Originality/value – MyLibrary has become a clear choice as an open-source solution.

Keywords Data collection, Electronic media, Libraries, Portals

Paper type General review

Introduction

In the summer of 2002, the Library Collections and Systems (LCS) team was re-organized and began to investigate how to present the library's many web pages and resources more effectively. Aside from the OPAC (online public access catalog), known as ASA, the library web site consisted of separate web presentations, such as an A-to-Z list of electronic journals, a subject-oriented site updated by various reference librarians (known as InfoDome), and a newly developed database finder. The latest updates of ASA, InfoDome, and the e-journal list had been completed prior to December 2001 and were in need of significant revisions. Revision of these resources presented many obstacles, including their antiquated programming and HTML design, location on multiple (and old) servers, and little or no connection to the catalog. In response to the needs of our distance education students and the growing corporate and ISP blocking of our standard-proxy service for off-campus access, we began searching for a single solution for presenting the library's electronic resources to both on- and off-campus users. The enrollment in distance education has grown in recent years, which has added to the revenue stream of tuition, but has also challenged our library and technology services group with providing the best access possible. The solution we chose would have to meet their needs every bit as much as those of our traditional, on-campus students.

Through our research, MyLibrary became a clear choice as an open-source solution. The different packages of proprietary software that we reviewed were not flexible enough to give us control of the interface and presentation, or to provide sufficient integration with the catalog. The decision to integrate MyLibrary was easy to make, despite knowing that this would require more time than a commercial solution to get

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MyLibrary @ Lehigh ready for productive use. The time it took to integrate MyLibrary fully, and the processes required, ended by being more rewarding than ever anticipated.

MyLibrary is an open-source application developed by the University Libraries of Notre Dame led by Eric Lease Morgan. As stated on the MyLibrary web site (http://dewey.library.nd.edu/mylibrary/):

> MyLibrary is a database-driven website application designed to collect, organize, and disseminate much of the data and information typically found on library websites. It is a set of software providing a means for librarians to manage the content they desire to share with their patrons and at the same time provide a means for patrons to assimilate the content in a manner suiting their work habits.

The software comprises a set of Perl modules, libraries, and scripts designed to work with a relational database, such as MySQL or PostgreSQL, to output customizable sets of electronic resources that are broken up into certain categories, such as electronic journals, databases, references, and so forth. The current development, version 3.0, is being written in object-oriented Perl, which will continue to expand the functionality of MyLibrary. MyLibrary v.3.0 will allow exporting of content through XML and enable syndication of MyLibrary content to a portal, e-mail, RSS feeds, and MARC records. It should be noted that MyLibrary@Lehigh is based on MyLibrary version 2.63.

Connecting the catalog, librarian, and patron through MyLibrary

Through the MyLibrary planning sessions, it was decided that there should be as few source points of data as possible streaming into MyLibrary. Along with basing the disciplines to present in MyLibrary on current programs presented within the university's course catalog, it was also decided that we needed a consistent coding structure to determine which electronic resources would be in MyLibrary, and which discipline each would be assigned. The answer came from the library catalog and the acquisition process. The library's budget is broken up into many fund codes based on the disciplines the materials represent. Though these fund codes were initially developed for monograph and paper periodicals, it became clear that this same coding strategy would alleviate a great deal of decision making.

The fund codes represent each major academic area of the university that the library supports, in most cases academic departments. The fund codes break up the library budget so that the collection management librarians can plan and purchase monographs and serial subscriptions for their subject areas. It became clear that MyLibrary resources should be mapped from the catalog in the same way that purchases are mapped into the catalog. Using the fund codes that are shown in Table I as a base, a "P" was added as a prefix to represent electronic periodicals for the e-journal section of MyLibrary. An "E" was added as a prefix for electronic books and references. The appropriate modified fund code is then placed in the catalog MARC record of each electronic resource being used in MyLibrary.

Processing each electronic resource with a fund code in itself provided the first reward, as it allows us to track our current electronic subscriptions more easily in the catalog, and assists with collection management decisions. With the modified fund codes placed in the catalog records, the catalog became our single source for electronic resource data.

Once each electronic resource had been assigned an initial fund code, the reference librarians needed to organize the electronic resources in each of their disciplines. The goal is to promote a starting place for each discipline area, giving the user options of

Discipline name	Discipline ID	Fund code
Accounting	11	ACT
Art and architecture	6	ART
Biology	12	BIO
Chemistry	13	CEM
Chemical engineering	14	CHE
Civil engineering	15	CIE
Computer science and engineering	16	COM
Economics	17	ECO
Education	8	EDN
Earth and environmental science	7	EES
Electrical engineering	18	ELE
English	19	ENG
Finance	20	FIN
History	22	HIS
Industrial engineering	21	INE
International relations	23	INR
Journalism	24	JRN
Law	25	LAW
Marketing and management	26	MAR
Mathematics	3	MAT
Mechanical engineering	27	MEH
Modern languages	28	MLL
Materials science engineering	9	MSE
Music	4	MUS
Philosophy	2	PHL
Physics	29	PHY
Political science	10	POL
Psychology	30	PSY
Religion	31	REL
Sociology	32	SOC
Theatre	33	THE

Table I.
Fund code to MyLibrary discipline map

most important, most used, or most helpful resources. By design, this process enables the MyLibrary@Lehigh system to give the patron access to the expertise of our reference librarians (Morgan, 2003, p. 24). Librarians now have the opportunity to influence the research techniques of the users by highlighting resources in the default-discipline view and through a revisable message channel.

Though the original state of MyLibrary was not intended to be a "comprehensive inventory" of electronic resources (Morgan, 2003, p. 25), MyLibrary@Lehigh has become just that. The previously described work of the reference librarians, however, has minimized the risk of information overload. The patron is encouraged to add to, or subtract from, the small set of electronic journals, databases, and general and subject references presented to them. Patrons can choose from discipline-defined lists, which are not just from the discipline to which patrons are related, but also from all disciplines presented in MyLibrary. Further, they can choose from an A-to-Z list in each area (e-journals, databases, general or subject references) and add their own URL subscriptions, not found in MyLibrary, to their bookmark section. This provides users with the last word on what they do and do not need, want, or use.

Given the ability to customize and personalize the resources in MyLibrary, patrons are essentially connected to the library catalog in the manner that bests suits their academic and research needs. Most importantly, the name, e-mail, and phone number of the reference librarian(s) in charge of their discipline are presented in MyLibrary to encourage virtual and face-to-face interactions between the users and the librarians. This makes MyLibrary the solution to the connection between the catalog, the librarian, and the patron that the previous Lehigh Library web sites and systems were unable to maintain.

Making the MyLibrary connection

It should be made clear that full implementation of MyLibrary@Lehigh required a significant amount of time and energy. The librarians reported around 30 hours of planning and selection of electronic-resource default views. This planning included analyzing the purchases of electronic resources and deciding which fund code it should be assigned. Because it is important for an electronic resource to have one specific fund code as its main identifier from the catalog, some negotiations took place to determine which subject area had more use of the electronic resource. This was necessary for subject areas such as biochemistry, business administration, pharmaceutical chemistry, and other cross-departmental studies.

The process of coding each and every electronic resource with a fund code required the attention of our entire cataloging staff. It is estimated that it took 100 hours of staff time to touch each electronic-resource catalog record. This process, though time consuming, was simplified through the careful planning and recording of the relationship between an electronic resource and its fund code.

The remaining work was technical, including the data-harvesting scripts that needed to be written according to the API of the Sirsi Unicorn® Integrated Library System (ILS) in order to extract pertinent data for each electronic resource and massage that data into the MyLibrary database backend, which is MySQL. After a series of Sirsi API calls, Unix and sed scripts, Perl scripts were written to massage, populate, and update the MyLibrary database and to enable full automation.

The data extraction from the ILS required the inclusion of the ILS catalog key so that there would be a direct, relational link between the catalog and MyLibrary. The e-journals were selected through the API by outputting the catalog key, title, fund code, and the URL. Because a number of e-journals have multiple URLs, the output was a little tricky to handle. The following is an example of various outputs:

- 671|Psychophysiology|PPSY|
- 671|Psychophysiology|http://www.blackwell-synergy.com/servlet/useragent?func = showIssues&code = psyp Available to Lehigh users|
- 675|Notes and queries|PENG|
- 675|Notes and queries|http://www.bodley.ox.ac.uk/ilej/journals Vols for 1849-1869|
- 675|Notes and queries|http://www.ingenta.com/journals/browse/oup/notesj Available to Lehigh users|
- 675|Notes and queries|http://www3.oup.co.uk/notesj/contents.html Available to Lehigh users|
- 676|The Journal of general psychology|http://asa.lib.lehigh.edu/cgi-bin/pubid?Pub = 14345 Selective full text issues available|

As you can see, there are three different types of records. Record 671 has a fund code with only one URL. Record 675 also has a fund code but has three URLs. Record 676 has no fund code, and therefore only outputs the single URL assigned to it. To accommodate records like record 675, I came up with a simple algorithm to employ the # of URLs times 10,000,000 plus the catalog key, for use as the MyLibrary database key. Therefore, for record 671, the MyLibrary database key is simply 10000671 for Psychophysiology. Record 675 has 10000675 for Notes and queries |http://www.bodley.ox.ac.uk/ilej/journals; 20000675 for Notes and queries|http://www.ingenta.com/journals/browse/oup/notesj; and 30000675 for Notes and queries|http://www3.oup.co.uk/notesj/contents.html. Record 676 is ignored because it has no fund code attached to it.

While testing the data harvesting, an issue about the consistency of formatting within the catalog became apparent. Some URL fields had notes of availability, and some of the titles had various explanations, such as "computer file", or "electronic resource." These were reformatted using regular expression substitutions through sed scripts.

With the automated data-harvesting scripts in place, when a cataloger inserts or updates an electronic resource, MyLibrary will automatically receive that new information. This allows the catalog to become the one and only data source of electronic resources and promotes the catalog as the data center of the library.

The programming and scripting work done for this data harvesting does not just have the sole purpose of supporting MyLibrary. As mentioned above, a number of areas of the library's web presence required significant updating. The A-to-Z list of electronic journals was rescripted in January 2005 using the main MyLibrary harvesting scripts, and so providing the second reward of the MyLibrary implementation process. The previous scripts for building the A-to-Z list used dozens of sed and awk scripts to manipulate the electronic journal information. The newly released A-to-Z list now represents the same information found in MyLibrary, but available directly from the library web site and library kiosk PCs, for users who do not have access to the portal or MyLibrary. Integration of MyLibrary with the EZProxy pass-through proxy software from Useful Utilities allowed off-campus users to view IP-restricted subscriptions without any browser configurations, and completed the revitalization of the presentation of the library's electronic resources.

Responding to the campus portal phenomenon

Lehigh University decided to purchase the SCT Luminis portal in December 2001 and released it to full pilot testing in the fall of 2002. Two of the deciding factors in this purchase were that the Luminis portal follows JA-SIG uPortal open-source standards, and that the Luminis portal was already integrated with Lehigh's SCT Banner administrative systems (Foley and Taggart, 2004, p. 3). The latter proved to be a key factor in the vast portal usage increase that occurred in 2003. Lehigh envisioned the portal to be "a single point of service to access different types of personalized information" (Foley and Taggart, 2004, p. 1). This vision led to portal integration of both SCT Banner Self Services and Blackboard, a course management system already being used by faculty and students. Though the portal was released as a pilot in the fall of 2002, dependency on the portal as a single point of service was not truly evident until the release of the first year student (FYS) tab inside the portal in June 2003. The FYS portal tab was used as an alternative to summer orientation sessions that were

previously held on campus. The FYS tab provided all of the information necessary for incoming students to meet virtually with their advisors, select their fall-term class choices, determine their library and computing needs, and gather information about student services, such as residence halls and meal plans. Not only did this FYS tab save new students the travel expenses of a trip to campus and save the university the expense of holding a summer-time orientation weekend, but "this early and extensive interaction with [the] portal indoctrinated the freshmen to view the portal as their initial and primary source for campus information and resources" (Foley and Taggart, 2004, p. 4).

With the foundation of the portal as the hub of personalized Lehigh information, the library needed to respond by not only releasing MyLibrary as a library web application, but also by specifically integrating MyLibrary into the campus portal. MyLibrary was going to represent the library initially as the only library presence within the portal. This required excellence in the implementation and presentation of MyLibrary. MyLibrary had to be seen by potential users as easy to use and clearly meeting their academic and research needs. Without the students, faculty, and library staff regarding MyLibrary as a viable tool for research, promoting new and exciting electronic resources, and communicating effectively, all of the work just accomplished would be worthless.

To ensure that MyLibrary fits appropriately with the campus portal, the MyLibrary user base is fed from the SCT Banner system building on the founding requirements of implementing the Luminis portal software. While the campus portal is meant to be an information one-stop shop for the university, users also desire to log in only once in order to access everything within the portal. To make this single sign-on capability possible, the user database of MyLibrary had to be created so that users would not need to register for MyLibrary separately. The LDAP authentication option that was added to the version 2.63 release of MyLibrary provided the foundation to build a single sign-on more easily. Feeding MyLibrary the user information, however, was a bigger issue.

While the SCT Banner system (herein Banner) is used partially as a user database, the various types of users are presented differently in the administrative system. A student record, for example, is controlled by the registrar. A faculty/staff record is controlled by human resources. Confidentiality issues notwithstanding, finding the lowest common denominator of required information (unique ID, name, user name, e-mail address, major/discipline) was not difficult. Extracting this information from Banner, however, proved to be complicated.

In the end, student records were the easiest. Current Banner codes for academic majors were mapped to MyLibrary disciplines in a similar fashion as the fund codes and course catalog. The major issue for the student records is that some eager students find the MyLibrary tab in the portal before their Banner records are inserted, and thus find that they do not have access to MyLibrary.

Staff records did not pose a problem either, as employee versus faculty designations were clear. Any staff members working for non-academic departments were assigned to a general staff discipline from which they could customize. Faculty and academic staff records were the most difficult, because, as the university expands its offerings in majors and programs, many faculty members are teaching across departments and even across colleges. Determining the best discipline for the professor in charge of the computer science-business program, for example, is not necessarily one that the librarians can easily make. In the end, the user may very well want some electronic

resources from both areas in their personalized MyLibrary, but not all of the electronic resources that the librarians choose for each discipline. One area has to be selected as a default, and a key piece of data from Banner, the department in which a pay cheque is delivered, provided the resolution for determining that choice. It was discovered that this information was used as a person's home department in Banner, and thus it seemed appropriate to use that same philosophy for a user's "home discipline" in MyLibrary. Thus far, we have not heard any complaints from faculty members about their having been assigned the incorrect department.

After the logic about which users would be extracted and how they would be extracted from Banner was finalized, more Perl scripts were used to massage the user feed from Banner into the format required by the MyLibrary MySQL backend database. Single sign-on work was now ready to begin, except that the beginning of the fall semester was on us. It was decided that since there were legacy applications already in the portal that required a separate login, we could temporarily ask users to log in to MyLibrary. As single sign-on work proceeded on the test environments, MyLibrary was seen to have a slow response to the sign-on connector. After some investigative work, it appears that the main issue is the length of time it takes MyLibrary to extract information from the database. Work is still continuing to explore enhance the performance of the database and the MyLibrary system.

Patrons have found MyLibrary to be very easy to use. From their initial login, they are presented with the default lists for their discipline as selected by their reference librarian. Editing the lists is very easy. Each electronic resource area, such as electronic journals, research databases, and subject references, has an edit button. The edit button allows the user to remove resources from the user's customized list, as well as to add other resources in that category that are organized by discipline, or the entire list in alphabetical order. Patrons have control of the resources that appear in their personalized MyLibrary. And no matter which discipline they are assigned to, they can add resources from any discipline they choose.

Some users may qualify for assignment to more than one discipline – for example, students with double majors or faculty members who teach in a multidisciplinary program. A great feature of MyLibrary is the ability to change profiles, which gives the user complete control of the discipline they are assigned to and which default resources they can see. After a user changes their profile, they are given the option to keep the customized resources they have, replace them with the default list for the discipline they are changing to, or merge the default list of the new discipline with the list they have customized. A student, for example, that double majors in music and architecture can customize the music resources they were assigned initially, change their profile to architecture, and merge the two lists together. This gives the user complete control of which electronic resources they see, regardless of their assigned discipline.

MyLibrary@Lehigh success validated through usage

The work put into developing, integrating, and implementing MyLibrary@Lehigh has been a great success. The usage statistics and demographics support this clearly. After the 2004 fall semester, 24.4 percent of the users (including non-academic university staff) registered in MyLibrary were using MyLibrary.

Following a slow start, monthly usage grew dramatically in the first semester. As Figure 1 shows, the average daily usage grew with each month of the fall semester and

throughout the second semester, with only a slight dip in December 2004, attributed to final exams and the ending of semester research. The second semester statistics evened out with still continued growth.

But daily usage is not the only indicator of the importance of the MyLibrary@Lehigh to users, students, and faculty alike. The patron table in the MyLibrary back-end database stores important demographic information for the profile, as well as the number of total visits by each patron. These data have provided excellent insight into which disciplines are seeing the most usage, the breakdown of users based on their university status (that is, undergraduate students by year, graduate students, various faculty categories, staff), and the breakdown of disciplines grouped by the reference librarian for those subjects. This knowledge helps the librarians to advertise more, more effectively, and to make better selections.

During the initial investigation and decision process about whether to invest in MyLibrary, it was concluded that MyLibrary would be used mostly by graduate students and faculty, since most undergraduates do not perform as intensive research as the former groups. Despite this conclusion, we expected some juniors and seniors would use MyLibrary to their fullest advantage, as their projects became more research oriented. But, as we began to see the usage growth of the campus portal after the first year student tab release in the summer of 2003, the possibility of all undergraduates increasingly using MyLibrary became a reality, brought about by their immersion into the portal from the beginning of their Lehigh experience. And the demographic usage data clearly support this (see Figures 2 and 3).

Of the users, 34 percent are freshman and sophomores and 26 percent are graduate students, although graduate students account for 40 percent of the total usage of

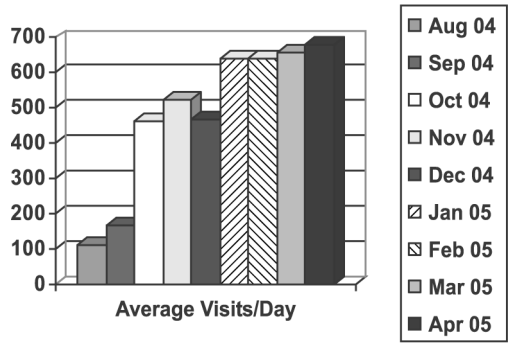

Figure 1.
Average daily usage of MyLibrary

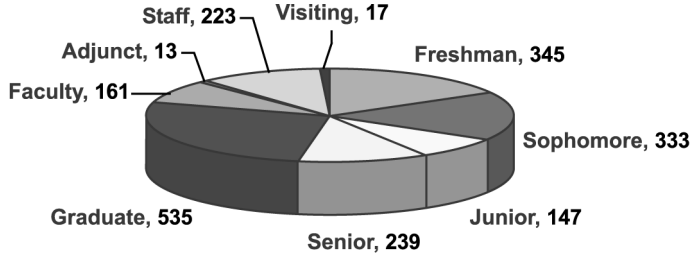

Figure 2.
Number of unique users/status

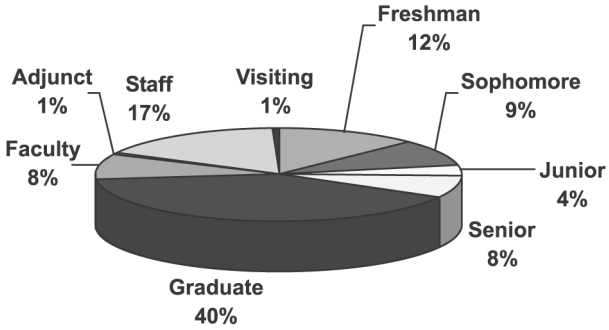

Figure 3.
Total visits/status

MyLibrary. The students who have begun their Lehigh experience through the portal (and this includes new graduate students) are clearly seeing MyLibrary@Lehigh as the home for library research. After only one semester of use, we are very pleased with the impact MyLibrary@Lehigh is having.

As library resources continue to flood the Internet in online subscription form, future students will become more and more dependent on them, in place of the paper forms of these resources. It is imperative that the library reacts to this trend and continues to lead the way in assisting research and scholarly study through resources and applications like MyLibrary. It is clear that students will use online resources to their fullest advantage. Giving them a place to do so within the campus portal, organized and highlighted by their research librarians, and which makes them virtually one click away from getting the help they need, MyLibrary provides students with the appropriate response from the library.

For more information on MyLibrary@Lehigh, please visit the MyLibrary@Lehigh repository at http://mylibrary.lehigh.edu/repository/

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