Managing the Library's Subject Web Pages Without HTML Coding

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Abstract
Most libraries spend a fair amount of time compiling subject-based resource pages to direct users to quality resources in their field. Often the same resource descriptions and links appear on several pages, and are reflected elsewhere in the library's pages or online catalog. This work quickly becomes both repetitive and unmanageable, and requires all librarians to be equally adept at creating Web pages. The authors report on two different approaches to creating and maintaining active Web subject bibliographies without manual HTML coding.

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The Common Challenge

Wesleyan University and the Tri-College Consortium faced a challenge common to many libraries in creating subject-specific Web pages for their patrons. The creation of such pages by individual subject specialists required the librarians to learn to manipulate HTML either directly or through a web authoring package. Although the latter option is often easier than direct coding, it still requires learning a new application, possibly for the sole purpose of making subject guides. The busy subject specialist must spend time formatting pages, keying data about the resources, and troubleshooting unexpected displays.

Many of the resources, such as major reference works, indexes, journals, and web metasites are used in several different subject pages. As the resources listed change in coverage, library holdings or URLs, each instance of their use in different pages needs to be found and updated. Pages quickly became out of date because it is repetitive and difficult to locate and correct all the instances. The difficulty some staff find in web authoring also discourages timely updating of existing pages. As different librarians create these pages, they also may not be aware of descriptions already written by their colleagues. A considerable amount of duplicate data entry and correction is done.

Our goal, therefore, was to find a quick and easy way to create and update subject research guides. Both our institutions had embarked on this course independently, beginning work in 2000. In January of 2001, we discovered each other’s work through a fortuitous discussion and found that, though our initial motivations were the same, different institutional conditions had lead to two different solutions.

Two Approaches

Both of our solutions are based on creating a relational database to help us manage the resources and to generate research guides dynamically. Instead of separate, static research guides, librarians should be able to quickly enter or select resources to update each guide through a simple staff interface. The resource database is updated for changes in URLs and other information, or to delete outdated materials. Guides can then be compiled for the user on demand pulling the most recent information from the database.

The Wesleyan Approach

Local development using open source software, independent of the library's catalog.

Over the last few years, Wesleyan University Library started to move the maintenance of its web resources into MySql with PHP as the scripting language to generate web pages on the fly. Before we started the project, we already had created and managed our list of subscribed indexes, databases and journals in MySQL databases.

As a member of the CTW Library Consortium, we made a collective decision NOT to catalog free Internet resources in the consortium’s online catalog. There was also no plan
for the three institutions to develop subject research guides collaboratively. Wesleyan's solution, therefore, built on the existing MySQL database of online resources.

Before the dynamic subject guides project began, librarians were already using a standard template to maintain the static subject guides. Due to the different skill levels in using html authoring software and the librarians' competing responsibilities, we were having hard time keeping these guides up-to-date. We had some idea of how often people were accessing the guide pages, but we had no idea if our users actually followed our recommendation to explore the resources they needed to use for a particular subject.

We chose to maintain the existing look-and-feel of the subject pages and encouraged librarians to decide on a standard set of categories and the order of presentation in which to list resources. Librarians had the freedom to list resources using in as many of these categories as they saw fit. They also had the ability to write individual descriptions, telling users why a particular resource is good for a particular subject.

The guides are designed to point users to electronic information as well as print reference sources. We listed general research tutorials on the subject resource guide pages to remind users of the proper research methodology. (Figure W1) Headers, opening narrative and links on the right side to research tutorials are standard to every subject page. Changes to the standard text can be made once for all guides, such as adding an announcement of a new service, or changing the URL for a tutorial page. The lower half of the guide lists the categories of resources in a standard presentation.

If users choose to print out the guide, they will see an annotated bibliography in a special print format. Thus, even though all the Wesleyan subject guides look very similar, they contain distinctive descriptions to the selected resources by type.

In building the guide, the librarians use a staff interface (Figure W2). They can use a pull-down list to add, modify or delete a subscribed web resource to the guide (Figure W3). For these resources, librarian is not allowed to enter the URL since it is already in the master list of subscribed indexes and databases. The existing record provides the title and URL. This allows us to dynamically update all subject web pages whenever a URL is changed for the subscribed resources. The librarian can add her own descriptive information appropriate to the particular guide. In the "Display rank" filed, the librarian assigns a priority, forcing more important resources to the top of a list.

Another web form allows the librarian to add a print resource (Figure W4). She types in the title and call number of the reference materials, skipping the URL block. As before a description and Display Rank can be added.

The same form can be used to add a free web resource, this time using the URL field (Figure W5). The data entered in these forms goes into a database and the guide page display for the patron is built by retrieval from that database.
The Wesleyan subject resource database was built in-house using student programmers supervised by a staff member. At least two students work on the project and they are hired so that an older student can train a new student in the application before he/she graduates. The team approach lets them pass on knowledge of the design for on-going maintenance and provide reliable support. Using students in creation automatically provides us with user input on the design, while librarians are consulted more formally.

The Wesleyan system was built following the Open Source philosophy. It is mounted on an Apache webserver, using RedHat Linux, MySQL and PHP3. It is hosted and maintained in-house. The public view of the system can be seen at: http://www.wesleyan.edu:9092/libr/php/subjects

Tri-College Consortium Approach

Outsourced development using commercial software, anchored in the Consortium's catalog.

The Consortium members, Bryn Mawr, Haverford and Swarthmore Colleges, share a single library system. From the beginning of the joint catalog, we have tried to have a single, shared bibliographic record for each title. When we decided to include cataloging for Web materials, we followed the same philosophy - one resource, one record. Our current OPAC includes cataloging for subscribed web resources, cataloging for individual titles of aggregate full text subscriptions, and cataloging for selected free web resources. Cataloging is contributed by catalogers and reference librarians in all the colleges.

We also determined that web publications should have separate records, not be appended to records for the print version, and that two different publishers of the same title/resource required two separate bibliographic records. All of these practices contributed to our solution to the web guides problem.

Although our cataloging practices have been merged for more than ten years, our web page practices have been separate from the beginning of our web use. Each library has its own set of web information pages for the patrons, and each was creating its own set of subject, research, and course guides. In 1999, the Consortium decided to make coordinating our web work a high priority, because sharing this work offered an excellent opportunity to reduce duplicate effort, share expertise and better serve our students. Initially we intended to share static web guides, to create a common template and make a single guide for the Consortium for each subject.

While working on shared guide development, we became increasingly aware of the staff costs for building and maintaining guides. As mentioned above in the common challenges, we determined that we needed to free subject specialists from HTML, and find a way to automatically update URLs and other resource information.
Because of our shared OPAC, and our existing commitment to cataloging web resources, it was natural to build our dynamic web guides on that resource. Because our OPAC software (Innovative Interfaces) is a propriety database, we could not use it directly. We therefore decided that,

Resource information will be created and maintained in the OPAC through standard cataloging practices.

OPAC information will be batch-loaded regularly into a SQL database where appropriate fields will be selected for use in the Guides

The SQL database will be used to populate Web Guides

Development will include a easy interface to help librarians select and arrange the resources in the guides.

In the spirit of the original intent of sharing web work, we also decided that

All Guides will be Tri-College guides

Relevant resources from all the colleges will be included (including print resources)

Staff from all colleges may share in the creation of any one guide

Virtually all the resource data in the guides is pulled from our library catalog. Records needed in the guides are marked, then copied out of the catalog at least once a week in a MARC file. The file is loaded into the SQL database, overlaying existing records based on the unique record ID. We load author, title, summary notes, updating frequency, URLs, resource type, and holdings/call numbers for public display. We also load subject, corporate authors, and series information to be available for searching. The unique OPAC ID is used both to overlay and as the primary key.

The public view of a guide emphasizes its Tri-College nature in the header, while college availability is shown in the holdings statements and in the circles letters to the right, which serve as the links to online resources as well. (Figure T1). Resources are divided into a limited set of agreed-on categories. The guide author determines which categories are used and in which order. The author may set up subcategories as appropriate to the guide and category.

In the staff interface, a new guide is started by first searching for resources from the SQL database (currently with about 14,000 records). Adding more resources later works exactly the same way. (Figure T2). A resource list is retrieved from the search, and the guide author selects any she needs (Figure T3). After selection, the author assigns a category to each resource (Figure T4).
The guides is displayed to the staff member in an abbreviated form during most of the construction process (Figure T5). The editing options show above the display. The "Preview Guide" button displays the full public version for review.

The author can add free-form subcategories to any category which will apply only to this guide (Figure T6). Categories, subcategories and resources can be re-arranged as desired (Figure T7 shows re-ordering of resources). Resources can also be deleted. Subcategories and categories which have no resources are not displayed to the public.

The program as it is now has three services available to the public. Subject guides are intended to be fairly succinct lists of resources. Research guides are intended to be more instructive; the interface allows the guide author more space for extensive annotation and narrative. We also added a search interface (Figure T8) so the patron can search the SQL database using either their own terms, or selecting from a pre-set list of subjects. These searches can be limited by format, such as electronic journals, electronic books, indexes, etc. In the future, we hope to add a Course Guides category as well.

The Consortium Web Guides system was built by outsourcing development to a local company, TechSense Solutions (http://www.techsense.com). We determined on this course because we did not have an in-house dedicated web development person - web work had been distributed among many staff members as part of their jobs. We also knew that the development would be very complex, involving downloading and overlaying data, designing a database structure, developing staff interfaces for building the guides, and designing the patron views. We believed that, if we attempted this development ourselves without strong in-house expertise, we would make many mistakes as we learned the software, and probably end up with a less than optional database and software structure.

The project became a learning experience for us in outsourcing development. We discovered that we should have taken much more time at the beginning of the project thinking out each detail of the design, and walking through how the staff would want to use the software much more thoroughly. Our initial design discussions with the developers seemed to be very complete at the time, but when the first iteration was examined we quickly realized that we had not thought through the process step by step. The vendor also had underestimated the complexity of library data (no surprise, even though we chose a vendor who had worked with MARC records before).

The project was initially intended to take 6 months; it finally took a year from kick-off to completion. As part of our original contract, the vendor also trained us in ColdFusion software and in the structure of our particular application. Our continuing relationship with the vendor will allow us to call on them for help with future development if we need it, and for maintenance issues with our off-site hosting. The project and its success have contributed to our decision to hire a Consortium web specialist to carry on developing this project, as well as other shared work for the libraries.
The Consortium system was built using SQL, ColdFusion and a standard webserver. The system is hosted off-site with an internet service company. The public interface is available at: http://www.tricolege.org. We have just begun constructing pages.

The conception, planning and oversight of the development effort was the work of a staff committee, whose members are (in alphabetical order): Linda Bills, Tri-College Special Projects Coordinator, Cecelia Buchannan, former Tri-College Instructional Technology Coordinator, Berry Chamness, Bryn Mawr Head of Cataloging, Mark Colvson, Bryn Mawr Head of Reference and Digital Services, Mary Lynn Morris, Haverford Digital Services Librarian, Tammy Rabideau, Swarthmore Digital Services Librarian
Conclusions

Both approaches described in this paper achieve the benefits the libraries sought. Library staff can create structured web guides without web authoring software. Information about the resources posted to the pages can be updated or deleted in a single place, and all the guides will be corrected.

In both cases, the common guide template requires the loss of individual styles of presentation for the resources. Wesleyan counters this to some extent by encouraging individual annotations for each guide and allowing librarians to use as many or as few categories of information as they see fit. The Tri-College system allows the author to order the categories, add category text, and create/order subcategories. Except in its research guide option, it does not allow for individual resource annotations. At Tri-Colleges we have moved from differing guide formats in all three libraries, and in their branches to a single format for all the libraries. Although use of the Webguides is optional, our aim is to make is so easy that it is widely adopted in preference to local, idiosyncratic guides.

In both cases, the standardization of guide formats is seen as positive for the patron. The differences between the approaches highlight other issues to consider.

Open Source vs. Commercial software: The Wesleyan model is programmed in open source software, with the intention of giving away the code to be shared freely with other libraries. The Tri-College model is created in commercial software which is in wide use and could, therefore, be created by an outside company. If necessary in the future, both continued development and maintenance could be contracted. Meanwhile, our local support staff have learning and use tools available for a heavily-used commercial program.

Outsourced or in-house Development: Since Wesleyan already built up its in-house ability to create and manage web pages using MySQL and PHP, it was a logical approach for us to continue to create the new subject resource database in house. By building up our local expertise in open source software, we are positioning ourselves to adopt other open sources applications whenever necessary or desirable.

The Consortium found that the most expeditious way to get our system up and operating was to outsource its development to a company with both database and ColdFusion expertise. We believed that in this way we would optimizing the design for both functionality and speed in the least amount of time. The application was complex, involving reformatting of MARC records, overlaying records, dealing with deleted resources, and creating an interface that was both easy to use and gave the page creator the maximum flexibility. The vendor provided both excellent program documentation and training, and is available to help in the future if needed. The process was also valuable in teaching us how to manage projects with outside vendors.
Database creation: The choice of a completely separate database of resources, or one tied closely to the library OPAC was made based on the existing circumstances. Wesleyan does not keep free Internet resources in their catalog but instead in a separate database which was the obvious point of departure for their Guides. This design means that their staff can add new resources to the database as part of creating the guide, not as a separate operation.

The Consortium had long established that the shared OPAC would be the preferred location of all resource information and record upkeep. From that decision it was obvious that an efficient WebGuide system needed to work from that catalog. In this case the delays created by the need for batch uploads is off-set by the advantages of a single master catalog.

Statistics: Wesleyan's design included statistics gathering from the beginning. This feature allowed the library to document that the guides are used, and that the links suggested are also followed. We made a point not to promote the new subject guide as way to collect benchmark statistics for later comparison. However, one of the subject guides was promoted to the community in conjunction with a pilot Major Focus Instruction program. From the statistics, we could clearly see that the promoted subject guide was used three times as much as the other guides.

The Tri-College application did not have statistics collection built in; that will have to wait until for a later enhancement.

The PowerPoint presentation for this talk is available at http://www.brynmawr.edu/consortium/2approaches
APPENDIX A
Wesleyan Illustrations

Figure W1: Patron view of Wesleyan Guide

From the Library (Paper and online purchases and subscriptions)
Reference Sources: Encyclopedias - Dictionaries - Guides/Summaries - Bibliographies - Statistics - Data/Tables - Maps/Atlases - Images - Other
Books: Catalogs - Full Text Online
Articles: Indexes and Databases - E-Journals

On the Internet (See note about Internet sources)
Web Indexes: Meta Sites/Guides - Search Engines
Selected Sites: Reference Sources - Full Text Online - Newspapers - Statistics - Data/Tables - Maps/Atlases - Images - Audio - Scores - Organizations - Other - Study Break

Figure W2: Guide categories

Philosophy Resources
Wesleyan University Library

This is a brief list of useful subject specific research sources available in Wesleyan’s libraries and on the Internet. It is intended to provide a starting point for research in Philosophy, sufficient for basic research needs. For more extensive research needs, you can ask for a personal research session with a librarian.

From the Library (Print and online resources - access restricted to Wesleyan users)
Reference: Call Numbers Encyclopedia Dictionaries Guides/Summaries
Books: Catalogs Full Text Online
Articles: Indexes & Databases

On the Internet (See note about free Internet sources)
Web Indexes: Meta Sites/Guides Search Engines
Selected Sites: Reference Sources Full Text Online Organizations Study Break

Figure W3: Staff form to choose a resource from the database
Figure W4: Staff form to enter a new resource; entering a print resource

Figure W5: Staff form to enter a new resource; entering an online resource.
APPENDIX B
Tri-College Examples

Figure T1: Patron View of a Guide

Figure T2: Staff search of resource database
**Geology (Demo)**

**Search Results: 12 found**

<table>
<thead>
<tr>
<th>Title</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development, geography, and economic theory</td>
<td>T</td>
</tr>
<tr>
<td>Geography, environment, and American law</td>
<td>T</td>
</tr>
<tr>
<td>Place matters gendered geography in Victorian women’s travel books about Southeast Asia</td>
<td>T</td>
</tr>
<tr>
<td>Applied Geography (ScienceDirect)</td>
<td>T</td>
</tr>
<tr>
<td>Economic Geography (Expanded academic)</td>
<td>T</td>
</tr>
<tr>
<td>Global ecology and biogeography letters</td>
<td>T</td>
</tr>
<tr>
<td>Journal of biogeography (JSTOR (Organization))</td>
<td>T</td>
</tr>
</tbody>
</table>

Figure T3: Selecting resources from those retrieved

**Please assign each resource to a category**

(see the current guide below)

<table>
<thead>
<tr>
<th>Electronic Journals</th>
<th></th>
<th>Global ecology and biogeography letters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic Journals</td>
<td></td>
<td>Journal of biogeography (JSTOR (Organization))</td>
</tr>
</tbody>
</table>

You will now exit this process.

If you would like to continue by adding subcategories, uncheck the box. ✓

Figure T4: Assigning categories to resources
Geology (Demo)

Add
Resources
Subcategories

Order
Resources
Subcategories

Edit
Resources
Subcategories

Delete
Resources
Categories

Abstracts and Tables of Contents

Minerals & Metals Review (Lexis-Nexis)

Bibliographies

Chemical Geology (ScienceDirect)

Databases

The western San Juan Mountains their geology, ecology, and human history /
GeoRef (SilverPlatter International)

Figure T5: Brief display of guide, with editing choices

For Geology (Demo)

Add A New SubCategory:

Handbooks

Category: Electronic Books

Geology (Demo)

Figure T6: Assigning Subcategories
Electronic Books

1. Restoring and protecting marine habitat the role of engineering and technology /
2. Rock fractures and fluid flow contemporary understanding and applications /
4. River odyssey a story of the Colorado Plateau /
5. Physics and chemistry of minerals

Figure T7: Re-ordering resources

Search

Search By Title: 
Search By Author: 
Search By Keyword: 
Search By Subject: [NDS (Disease) ]
Search By Material Type [Electronic Journals ]

Figure T8: Patron search option; searches the resource database.