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Authors

Jackson, Millie
Blackburn, Jonathan D.
McDonald, Robert H.

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Millie Jackson
Associate Dean for Collections
The University of Alabama Libraries
406 Gorgas Library
Box 870266
Tuscaloosa, AL 35487-0266
(205) 348- 5008
Fax (205)-348-8833
mljackson@ua.edu

Jonathan D. Blackburn
Web Development Librarian
Strozier Library
105 Dogwood Way
Florida State University Libraries
Tallahassee, FL 32306
(850) 645-6986
Fax (850)-644-5016
jblackbu@fsu.edu

Robert H. McDonald
Chronopolis Project Manager
San Diego Supercomputer Center (SDSC)
University of California, San Diego
La Jolla, CA 92037-0505
(858)534-8377
mcdonald@sdsc.edu

Summary: Describes bundling MediaWiki into the electronic resource access strategy to enable custom content that supports online training and course-based information literacy objectives. This article will demonstrate how Florida State University has customized MediaWiki to suit the needs of faculty, students, and librarians.

Keywords: wiki, Web 2.0, academic libraries, digital libraries, electronic resources management, subject guides, information literacy

Millie Jackson (MILS, Ph.D.) is the Associate Dean for Collections at The University of Alabama. Prior to this she was Head of Collection Development at Florida State University and Collection Development and Serials Librarian at Grand Valley State University. Address: The University of Alabama Libraries, 406 Gorgas Library, Box 870266, Tuscaloosa, AL 35487-0266. E-mail: mljackson@ua.edu

Jonathan Blackburn (MLIS) is the Web Development Librarian at the Florida State University Libraries where he has worked on both the Drupal content management

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system and the MediaWiki implementation. Address: Florida State University, 105 Dogwood Way, Tallahassee, FL 32306 E-mail: jblackbu@fsu.edu

Robert H. McDonald (MMus, MLIS) is the Project Manager for the Chronopolis Digital Preservation Program at the San Diego Supercomputer Center (SDSC) at the University of California, San Diego. Prior to his involvement with Chronopolis he served as the Associate Director of Libraries for Technology & Research at Florida State University and was the Information Technology and Digital Projects Librarian at Auburn University. Address: Chronopolis Project Manager, San Diego Supercomputer Center, University of California, San Diego, 9500 Gilman Drive MC-0505, La Jolla, CA 92037-0505 E-mail:mcdonald@sdsc.edu

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Introduction

In the summer of 2006 the Florida State University Libraries sought a way to allow librarians to easily create content on the Web for discovery of subject resources and for use in class instruction. The goal was to draw together resources in one place to improve delivery of information services and content to students and faculty as well as for fast reference to this content for colleagues assisting people at the reference desk. The wiki project developed as part of the changing organizational structure in the departments of Electronic Resource Management (ERM) and Collection Development. Librarians from both departments worked together to seek solutions and easier implementation of content. Following an analysis of wiki platforms by the Division of Technology & Research, the libraries selected MediaWiki as a flexible open source option. MediaWiki was bundled with the electronic resources strategy for providing increased access to resources for students and faculty and to allow librarians to control content for their own departmental outreach areas. Throughout the implementation librarians were trained individually and in small groups.

The first phase of the project entailed an *out-of-the-box* implementation of MediaWiki in order to facilitate a rapid training program for basic wiki editing skills and a usable product available for librarians and the public for the fall 2006 semester. As the fall semester progressed and pages began being developed, it was recognized that further training and examples may be needed for librarians not familiar with a wiki editing interface. While MediaWiki has a relatively easy editing interface, librarians still lacked the time to create pages from scratch, figure out how MediaWiki extension plugins worked, and understand the linking capabilities inherent to the wiki and its relationship to

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the paid electronic resources of the library. Training and support for the wiki by the electronic resources management department was key. In fact, personal experience by librarians for editing MediaWiki or Wikipedia pages was widely overestimated. Thus while meeting our technical implementation timeline; training for the new service was actually in the three to six month timeframe between August 2006 and January 2007.

This article will review the organizational structure and the strategies the University Libraries used to implement the wiki platform for creating customized subject guides for domain specific disciplines. The authors will review reasons for selecting MediaWiki, implementation of the project, training, and plans for customization. Strategies and “best practices” for wiki use will also be discussed.

Literature Review

Wikis are a relatively new type of publishing platform and are just now appearing as tools for teaching and learning in the library literature. Many articles address the basics on how to select a wiki and how to create a wiki. David Lee King and Michael Porter, Doug Achterman, and Emily Tomkin are but a few of the authors who have written about selecting wiki platforms and other Web 2.0 adaptable services for creating new ways to deliver information to the library user.

Librarians are using wikis for multiple purposes: instruction, virtual reference, information desk management, and supplementing the libraries’ digital content with Wikipedia entries in online catalogs. Charles Allan and Chad F. Boeninger have both written specifically about using wikis as collaborative tools for instruction and research. Allan highlights the ways librarians at East Tennessee State University have used a wiki

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to draw together resources for instruction. Through use of a wiki, librarians collect specifics about assignments and collaborate on subject guides. In online articles and through a number of presentations, Boeninger has outlined the ways in which he developed his Biz Wiki at Ohio University. He highlights the ways he integrated a number of Web 2.0 tools to streamline his work serving over 1,700 students and faculty in the College of Business. He created a virtual space where he could post information requested by specific business classes as well as actively update the library's business information for specific library and course assignments. Boeninger points out the ease of assigning categories to articles and to interlinking articles on wikis as a distinct advantage of using this software.

Rob Wither outlines the advantages of wikis in libraries in his article, "Something Wiki this Way Comes." These include the ability to edit and to complete "immediate corrections or updates of errors" which eliminate bottlenecks if a limited number of personnel create and edit pages. Further, he discusses the ways in which wikis can be used to disseminate information. Wikis are neither confined to a physical location nor do they "require a "gatekeeper" to approve or post information" (777). Wikis also have the advantage of retaining editing history so it can be easily determined who made the last changes. Finally, wikis provide a Web presence for consolidating information, whether it is for the information desk, as at Wither's institution, or to create a cohesive set of subject guides for electronic resources as FSU has accomplished.

Libraries are integrating wikis and Wikipedia into their digital library strategies. Oregon State University links its automated Reference Desk Manager into a wiki for reference sharing and virtual reference services according to Jeremy Frumkin, Gray

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Family Chair for Innovative Library Services at Oregon State University. The wiki is a “behind the scenes” way to manage information at OSU. The University of Washington began inserting links from Wikipedia into its digital initiatives workflow in May 2006. Ann M. Lally and Carolyn F. Dunford outline the creation of policies and guidelines for selecting Wikipedia entries to add to the UW Digital Collections and ways they have easily enhanced content in their recent D-Lib article.

Organization and Personnel

Electronic Resource Management evolved at Florida State University as the landscape of electronic resources changed and as the organizational structure within the University Libraries changed. During the timeframe 1995-2002, the Electronic Resource Management team resided in the Division of Collection Services; alongside the traditional technical services and collection development departments. In 2002 this team moved to the newly created Division of Technology & Research. ERM worked well in this configuration; however, further integration of Collection Services was desired. In 2005 a model was developed which took advantage of the new administrative infrastructure of the FSU Libraries and created a different management structure for ERM that bridges the Divisions of Technology & Research and Collection Services. This resulted from the desire to bring Electronic Resources Management and Serials and Collection Development together, forming a tighter relationship with the outreach librarians based in the Division of Public Services Division through their liaison work across campus (see Figure 1 and Figure 2).

FSU Libraries Admin Org Chart

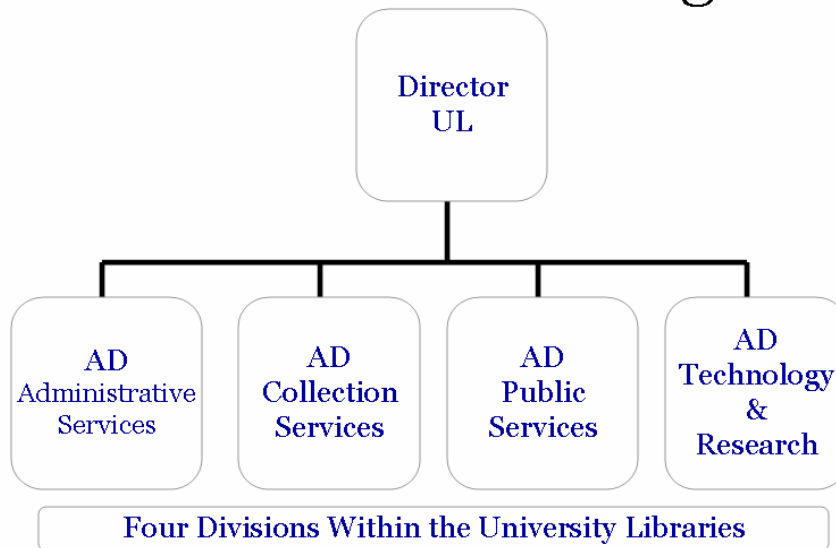


Figure 1 shows the administrative divisions of the FSU Libraries ca. 2005.

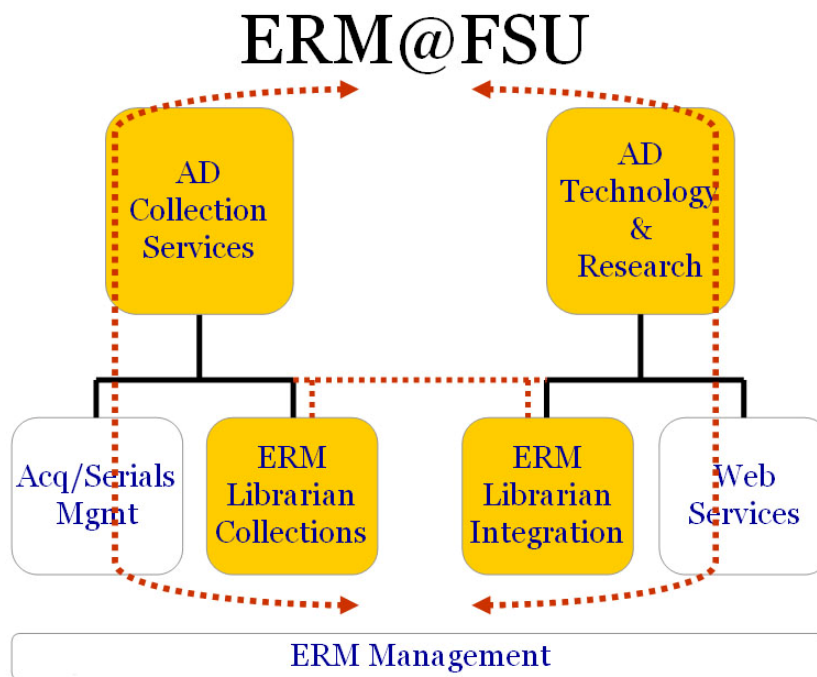


Figure 2 Newly created ERM management structure that existed between the administrative divisions of the library.

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A team approach was developed using an existing Electronic Resources Management librarian in the Division of Collection Services and repurposing two positions from the Division of Technology & Research for ERM Web development and ERM Discovery Integration. The ERM librarian negotiates licenses, works with the Florida Center for Library Automation (FCLA) on joint license agreements within the state of Florida, and acts as the Collection Development liaison for electronic resources. The positions in the Division of Technology & Research integrate electronic resources into the library's Web presence and manage the integration of the ERM management system and various resource discovery tools such as SFX and Metalib.

The vision for this team included cross-training that enables job assignment sharing so any one of the members can manage any piece of the electronic resources infrastructure. This also served to strengthen goals to enable the FSU electronic resource management system to support flatter access to the electronic resources enterprise. The addition of a graduate assistant to the team provided further assistance as well as an opportunity for the libraries to play a role in training the next generation of librarians in the emerging field of electronic resources management. This new model enabled defined organizational bridges between the Divisions of Technology & Research, Collections Services, and Public Services and the associated division heads.

Collection Development became a distinct department within the Division of Collection Services during the summer of 2006. Librarians in this department spend a majority of their time providing collection development services to individual disciplinary schools and departments and all have advanced degrees in the subject areas they serve. Currently the department consists of 3 FTE subject specialists and a .5 FTE

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Graduate Assistant. The collection development librarians also function as consultants to the ERM team, particularly the ERM librarian whose role is similar to that of the subject specialists but focuses on electronic resources collection development. Collection Development and ERM complement one another and collaborate on the needs of departments and on the development of a Web presence for library resource access and discovery.

Outreach librarians come from all divisions within the University Libraries to provide collection development, instruction, and assistance with research for the FSU community. Most of these librarians are based in the Division of Public Services and have between 5-20% allotted to outreach assignments. Since the percentage of time is low, many departments have multiple librarians assigned to them depending on enrollment, faculty size, and the number of requests for instruction and research consultations. With the addition of subject specialists to the University Libraries a new model is being introduced. Outreach librarians and subject specialists collaborate and work on all aspects of library instruction and collection development. These teams are developing as subject specialists are added.

Why MediaWiki?

The decision to use a wiki platform for this outreach initiative came from two larger issues related to the Web presence of the FSU Libraries. The libraries in late 2005 had just implemented the Drupal open-source Web content management system for the management of the main FSU Libraries' Web domain <www.lib.fsu.edu>. This system was very robust and is an excellent open-source choice for large Website management.

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However, a key issue with Drupal that was not properly addressed in our implementation was the design for granularity in editing specific sections of the Website. The Web services team realized that this type of granularity would require both Web content redesign and extensive user training. We estimated that implementation of this type of editing and requisite training for librarians would take at least 10 months and, thus, create a bottleneck for Web updates during the 2006-2007 academic year. Therefore, we began to investigate other options that would fit the immediate needs of the outreach and collection development librarians and which could be implemented for the Fall 2006 semester. The goal was to have the capability for mass editing of some sort of Web content by all outreach and collection development librarians within one month between July and mid-August of 2006.

In designing this project the Division of Technology & Research evaluated a variety of wiki platforms. The key requirements were that the platforms had to be open-source in nature and had to function on existing Web server platforms that were currently supported by the libraries. The libraries currently supported a standard Web application server setup using RedHat Enterprise Linux, Apache Web Server, MySQL, PHP, and PERL. The wiki platforms that were evaluated were TWiki, MoinMoin Wiki, PMWiki, and MediaWiki. All of these systems had adequate current development and adopters to make them viable for our project. This list is by no means exhaustive but the time constraints of this project required a fast iterative development; thus, we evaluated tools that we were familiar with at least in terms of system architecture and installation.

In the end this list was reduced to TWiki and MediaWiki, both of which had large enterprise level installations making evaluation of the product easier prior to installation.

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MediaWiki won out because of the work that was currently being done to secure it against PHP denial of service attacks and its long-term stable use by the Wikipedia online encyclopedia. The entire Web services team felt that having a database backend based on the open-source relational database MySQL was much preferable to a flat-file system like TWiki and that content could be moved or integrated between MediaWiki and Drupal once we had Drupal set up for granular editing since they both shared a MySQL backend. All involved felt that this would allow for a smooth end-of-life transition or integration for MediaWiki content at some future time.

Creating content

Installation of MediaWiki provided librarians who work with academic departments a new way to facilitate instruction, reference, and collection development and to highlight the electronic collections of the library. This addressed the desire and need for librarians to create content without the bottleneck requirement of using a Web editor for every publishing iteration. Subject resources had been evolving at FSU along with the organizational culture. Paper and electronic guides existed for instruction and reference. Electronic subject guides were maintained by the Web Development Librarian with input from outreach librarians and subject specialists. Guides also needed to migrate to electronic formats to meet end user needs since many users discover and access library resources through commercial Web searches rather than using the library physical or Web facilities or printed content.

The strategy for using a wiki developed during a time when the Web Development Librarian's position was in transition. The librarian had recently left the

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position and other members of the ERM team were assisting with changes to the library's Website. This, along with providing a resource for librarians to create their own pages easily and efficiently, resulted in implementing the wiki pages as a coherent set of resources.

The wiki was seen as the easiest way to push content out to end-users and the FSU implementation of MediaWiki used the full set of Web 2.0 tools for this, such as e-resource unified name space linking, RSS feeds, and social bookmarking integration with both del.icio.us and ma.gnolia linking. Assisting students and faculty with discovery of electronic resources is one obvious use for the wiki; however, it also allows librarians to highlight print resources held by the libraries. Bibliographies and new book lists are two ways in which librarians integrate print with electronic resources and draw attention to new information holdings. It was important for many of the subject librarians in fields which still rely on print resources for historical research to have an easy way to incorporate these guides into the wiki subject pages. Many of these traditional guides were still in PDF or paper format. In the wiki, guides, whether for print or electronic resources can easily be kept up to date and can be discoverable among both library systems and commercial Web search engines.

Additionally, as Rob Withers states, a wiki "empowers people to track many rapidly changing types of information" (775) and it allows this from a push, not pull, perspective from the library end-user. More importantly, the wiki provides a way for multiple users to create, add to, and update information without the intermediate step of submitting requests to a Web editor.

Disciplines with an interdisciplinary focus may benefit the most from the wiki format. Librarians with knowledge of their departmental courses and research interests can quickly customize pages to fit the changing needs of these areas. Databases, e-journals, and other resources can be listed as well as cross linked for student and faculty research needs.

Creating the wiki pages motivated all librarians involved to find ways for further input into the libraries' main Web presence. The Web Development Librarian asked for input for a "best bets" section for each electronic subject resource page that would be listed at the top of the pages. Further, the lists of databases with descriptions were collapsed to create a more readable page with the option of reviewing a detailed description before selecting a database.

Within the wiki pages many of the teams created tables of contents as a navigation tool. This tool in the wiki allows the librarians to add sections for new guides or courses with specific research needs without extensive editing. Most of the pages include a "services" section with links to the libraries' instant messaging (IM) reference service, links about research consultations for upper classmen and graduate students, and links to information about instruction and tours. This extends the wiki beyond merely a subject guide and promotes the services of the FSU Libraries in a more holistic way.

One of the ongoing discussions for subject specialists and outreach librarians is what kinds of guides are needed and who will create them. Two approaches have been taken. One is to convert paper and PDF guides to the wiki format. This has been completed by several librarians and the links are then also included in the electronic resource by subject pages and other appropriate sections of the Website. Second,

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librarians have used the wiki to create guides based on sample reference questions or through face to face or IM research consultations. These guides and resources are just beginning to be created and can be easily added and deleted as assignments change during the semester. The content can be stored electronically, however, for future use, editing, or mashups for new content.

Librarians at FSU are promoting the wiki through individual research consultations and course instruction. The links can be sent through e-mail and, with the addition of chat plugins such as WikiChat, librarians will be able to consult online through the wiki to assist students and faculty with research questions.

Implementation of MediaWiki

The initial implementation of MediaWiki took about one week and included editing the configuration file so that only authenticated users could edit content. (see Figure 3) Additionally, the file was changed to allow uploads of image files and PDF documents and a methodology for basic backup of the database tables in MySQL used to run MediaWiki was developed. For an internal use wiki this type of setup may be all that is needed. Since the content and design of MediaWiki are completely separate this enabled us to begin populating the wiki with content even while we were customizing the template theme for the various iterations of the design and layout (the eventual design of the MediaWiki theme took about one month including user and librarian feedback for a single FTE). This enabled us to begin setting up pre-formed pages for all collection development areas and begin user training in mid-July 2006.


```
135 $wgGroupPermissions['*']['createaccount'] = false;  
136 $wgGroupPermissions['*']['edit'] = false;  
137 $wgGroupPermissions['*']['createpage'] = false;  
138  
139 $wgGroupPermissions['user']['edit'] = true;  
140 $wgGroupPermissions['user']['createpage'] = true;  
141
```

Figure 3 LocalSettings.php file in MediaWiki shows the manual code that is needed to disable anonymous accounts, page editing, and page creation in lines 135-137 and 139-140. Groups can be defined to have different permission as shown in the MediaWiki installation manual

<http://meta.wikimedia.org/wiki/Help:User_rights#Managing_group_rights>

The rest of the file is generated during the installation process.

The training schedule was planned to be an iterative process that would enable customization of the MediaWiki theme to suit the needs of the collection development and outreach librarians. Early adopters of the wiki were given hands-on individual training sessions with the goal of basic population of at least one of their collection development area pages. An aggressive schedule with 5-10 sessions per week allowed us to have at least three-fourths of the basic pages populated by mid-August 2006 and most of the collection development and outreach librarians trained on basic text editing and PDF uploading within the MediaWiki platform. The individual training sessions were followed up with small group sessions that continued throughout the fall 2006 semester. This allowed more advanced librarian users to begin incorporating their wiki pages within their instruction and outreach courses for the fall 2006 semester.

Appropriate training continues to be one of the greatest and yet most often neglected requirements for the successful implementation of a new technology within an organization. It serves to meet a host of needs, real and perceived, on the part of users and

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can be the key to empowering users to make the most of new benefits associated with these technologies. Although wikis in general and MediaWiki in particular have become more popular in the past couple of years, it can not be assumed that all library personnel will possess the same level of knowledge and familiarity with wikis.

Training for use of MediaWiki

The ERM specialists developed the training sessions in conjunction with the Web services team and key technology personnel throughout the implementation of MediaWiki. Sessions included instructions on how to login, edit pages, review previous changes, and revert to a previous version of a page. Emphasis was placed on the ability to create quick changes to wiki pages without knowledge of HTML as well as using the possibilities it provided for collaboration with other librarians. The wiki platform provided the ability to easily copy from other content pages, link to related content within the wiki, and combine content from other sections of the wiki.

Prior to scheduling a training session, each librarian was required to have a photo taken and scanned by the Communications Department in the library in order to personalize his or her pages. The photos were part of the overall marketing and implementation strategy for the wiki and for increasing visibility of outreach librarians and subject specialists. The photos along with contact information became one of the defaults on each page. The photos are now being inserted into the main library Website on subject and database lists as links to the wiki pages.

The bulk of the training session, which lasted about an hour, involved illustrating how to create and edit pages. In addition to a brief “Getting Started” guide detailing the

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basics of logging in and editing pages, the trainer provided a “MediaWiki Cheat Sheet” which presented examples of some of the most commonly used formatting and content changes (e.g. create a heading or subheading, a list of items, a link to a page outside or inside the wiki). Paper copies were offered during the training sessions and an online version was initially posted to the wiki as part of a special “help” page for librarians. This has since been moved to an internal staff--only page.

Individual and small group sessions provided ample opportunity for questions, discussion, and even collaboration. The basic training sessions concluded with the assignment of a username and password for the wiki so the librarian could continue editing and creating the pages begun during the training session.

Training needs varied depending on experience with wikis and learning styles. The experience levels and learning styles were most apparent in group sessions which often included both types of users. Experienced librarians preferred learning on their own or using online documentation while novice users placed greater value on paper documentation and hands-on training. Librarians with more experience with wikis often requested online documentation and links to additional resources so they could enhance these sessions with asynchronous learning on their own time and experiment with more advanced features and functionality of the Web.

Less experienced wiki users valued the paper or PDF copies of the training materials. They also often requested follow up sessions for hands-on training with the Web Development Librarian. As the teams began working on pages, it was observed that peer teaching and learning among librarians was also a very effective way of expanding the process; thus, training continued in an informal manner. Librarians consistently

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commented that using the wiki software was the only way to really become an advanced wiki user.

More advanced training is forthcoming to teach librarians how to fully use the many different features of the MediaWiki platform. This training will focus on many of the plugin modules that can be added to the basic wiki installation, including embedding flash content, Google custom search boxes, and use of RSS feeds into the wiki. Providing librarians with the knowledge to effectively use these features will entail training them in how to use other kinds of Web 2.0 functionality.

Customization of MediaWiki

Initial customization was limited to changing the font and primary logo in order to facilitate immediate use by and training of librarians. (See Figure 4) After this initial phase, further customization was planned.

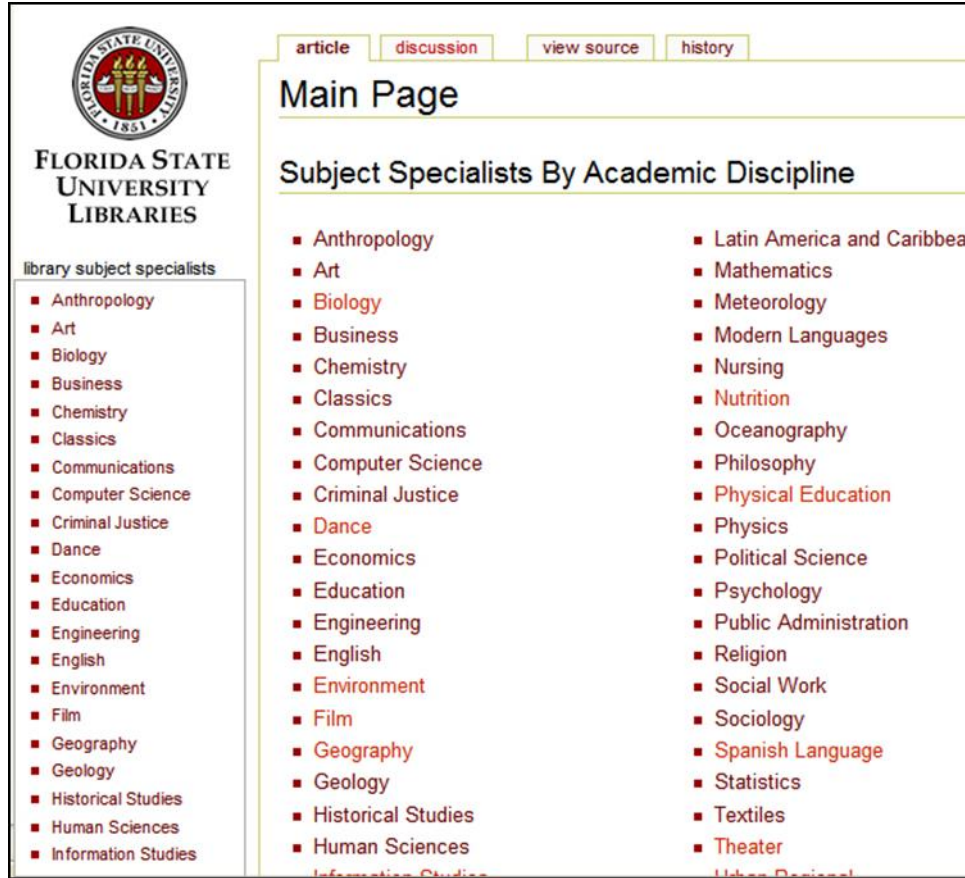


Figure 4 Initial rollout of MediaWiki at FSU. Notice that the only customization was the logo, the fonts, and the creation of individual “starter” subject pages.

Much of the customization centers on removing the most obvious “wiki-like” features and showcasing the domain--specific content. Since editing the wiki is limited to librarians, it was decided that certain features should be hidden or moved. For example, the “edit,” “history,” and “discussion” tabs are being removed. The “log-in/create account” link which appears at the top of every page is being moved to the lower right of the screen to make it less noticeable to end-users who are not able to log in or create accounts.

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There was also a desire to match the “look and feel” of the main library Website and to meet the FSU identity guidelines which are required for all Websites at FSU. This resulted in the creation of a new MediaWiki template or theme, using the same header, font, and color scheme as the main library Website (See Figure 5). While creation of new templates in MediaWiki is not difficult, it does require basic--to--intermediate knowledge of HTML and Web design, and in some cases, an elementary understanding of PHP coding. Many templates are available online which can be easily edited. The FSU Libraries modified the default Monobook theme installed with MediaWiki as the base of our new template.



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related subjects

- Anthropology
- Art
- Biology
- Business
- Chemistry
- Classics
- Communications
- Computer Science
- Criminal Justice
- Dance
- Economics
- Education
- Engineering
- English
- Environment
- Film
- Geography
- Geology
- Historical Studies
- Human Sciences

Art



Millie Jackson
Head of Collection Development
644-5579
mljackson@mailers.fsu.edu

Figure 5 Customized monobook theme a modified to fit the look of the FSU Libraries Drupal--based Website.

Integration with the Library's Website

Perhaps the most challenging aspect of any service--oriented architecture or Web 2.0 implementation, besides its adoption by targeted users, is promoting and marketing it to the public. It was vital to integrate the wiki into the libraries' Web presence, including the main library Website, and a variety of discovery tools, as well as within the FSU SFX implementation.

Incorporating wiki content into the libraries' main Website focused on integration into the database A-Z list section and the E-resources by subject section. Recently, these sections of the library Web have undergone changes including being updated with wiki content as it becomes available; however, incorporating the subject guides into this portion of the Website was relatively easy because both are managed by a MySQL database. Incorporating content from the wikis into these two areas seemed a natural progression since they are both focused on assisting users with finding online resources.

Links between the wiki and the main library Website have been incorporated in three ways. First, links to the related subject area within the wiki were placed at the top of each E-resource by Subject page, along with the photo of the subject and outreach librarians for the area. Second, links to individual research guides within the wiki were also incorporated into the E-Resource by Subject pages using a block of text in the right-hand menu. Finally, links to tutorials and help tools within the wiki which focused on a particular resource were placed next to the related resources in the database A-Z list and the E-Resource by Subject sections.

Super pages

As implementation of the wiki proceeded, training staff realized that a set of “best practices” or guidelines were needed. The project began with few rules in order to allow librarians freedom to experiment and that would meet the unique requirements of various academic disciplines. Since experience with creating wikis was varied and the time to do so was limited, librarians began cutting and pasting from the initial wikis which had been created. While this was not a bad way to begin, it did not take full advantage of the flexibility wikis allow for creating fast content.

During the late fall, the Web Development Librarian and the Head of Collection Development devised a concept they termed “super pages” which would serve as a development *sandbox* where librarians could experiment with new wiki strategies. These pages serve as a demonstration point for all kinds of Web 2.0 media and plugins, and facilitated the development of models that librarians can use to create and update their wiki content. The “super pages” are an attempt to make the tools easily available for librarians to copy and paste into their own sections of the wiki and to encourage more creative use. Librarians quickly became adept at adding content from the “name space” managed list of databases and Websites on the libraries’ main Web, adding their photographs, adding URLs to other Websites, and creating tables of contents for their sections of the wiki. The ERM team and Collection Development Librarian wanted to add to these tools.

Another “best practice” desired was for a prototype for guides. A wiki provides librarians with a tool to quickly publish and modify content for the user community

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regarding library resources, information literacy, and how to conduct research in their chosen field. Traditionally these guides were created in static paper formats and later in PDFs but due to the printed format were often in need of updates that should prove easier in an online format. Further changes are imminent throughout 2007-2008 due to the Florida statewide implementation of Endecca's search platform as the union catalog for the State University Library System. Because of these changes, as well as the constantly evolving area of electronic resources, librarians desired an easier way to create guides for rapidly evolving teaching and learning sessions. An area is being created on the wiki which includes information about changes to electronic resources and other information librarians include in guides. Another tool which is being created is a list of reference sources available in electronic form. These links can be added to the wiki and on other library Web pages.

Consistency in layout and navigation are goals for further developing the wiki within the libraries. Furthermore, the librarians at FSU desire to explore ways in which users can contribute to the wiki or make suggestions regarding content. This may involve enabling the "talk" feature in MediaWiki to allow end-users the ability to contribute content to individual pages.

Conclusion

The most striking benefit of implementing MediaWiki for the creation of subject wiki pages is that it has empowered and facilitated librarians in their work. They are now able to create content, easily collaborate with colleagues, and not only determine what

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they need to post, but also quickly publish that content online and without waiting for anyone else to publish it for them.

MediaWiki and other open source wiki platforms allow libraries to push content out to users, rather than to demand users to continue to come to a physical space for service and resources. This is one more tool we can use to develop new discovery tools for users who seek information online. By branding the wiki the libraries identify themselves as a reliable resource for information that is up to date to meet users various needs.

Implementation can be completed in a short time. Training and planning for further innovations takes more time. Project managers must take into account the various levels of expertise in their organizations and provide the necessary support and training for all levels of users if they want to incorporate a wiki or any new Web 2.0 software into their strategies for delivering resources to users.

Challenges include promotion and marketing of the wiki, integration, customization, and adoption of the platform by all parties and training for the editors of the content. While using a wiki for electronic outreach is within every library's grasp, this article touches on just a few minor ways in which a wiki can benefit the users of a library. Installing and enabling use of the wiki is the easy part; innovation with new online publishing tools is the next step. In short, MediaWiki has become a very valuable tool for all divisions of the FSU Libraries as well as to the FSU academic community in a very short time.

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