# The Embedded Librarian: Integrating Library Resources into Course Management Systems

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## The Embedded Librarian: Background and History

It is no secret that undergraduates expect to access nearly all library resources outside the library walls – namely, on their laptops. While Duke University's students enjoy using the physical library for studying and working on group projects, they want library resources at their fingertips: easily accessible and fully available online. This paper aims to describe the steps that subject and instruction librarians in Duke's Perkins Library System took toward meeting the expressed needs of this significant user population.

According to Duke's 2007 LIBQUAL survey, 80.12% of the 161 undergraduate respondents use non-library gateways on a daily basis for their information needs, while only 27.95% use resources on library premises on a daily basis. A meager 19.25% claim to access resources through the library interface on a daily basis (Association of Research Libraries, 2007, p.49). These statistics confirm the assumption of librarians and faculty alike: Students do not take advantage of the Libraries' vast resources; in fact, many students seem not even to be aware that these resources exist for their use, citing times when they have paid for resources that they found on the so-called free web.

It has, of course, long been expected that Perkins librarians provide students with time-saving search strategies and instructional resources that they may use to conduct course-specific research. It had become clear, however, that it

was not enough for librarians to list their contact information, post research guides on the Libraries website and wait at the reference desk for students to request their services.

Rather, it had become increasingly necessary for librarians to be where the students are, which given the number of places Duke's students are, is no small feat. One place that is nearly universal to the academic experience at Duke, however, is the university's learning management system, Blackboard. Over 70% of Duke courses offered to undergraduates use a Blackboard course site in some capacity, and before Fall 2007, the Libraries had little presence in it: Students' readings, "e-reserves," were available through Blackboard beginning in 2003, and a content item entitled "Ask a Librarian," which linked to a page with methods for contacting the Libraries, was placed in all course sites in Spring 2007. Blackboard usage statistics revealed that the "Ask a Librarian" content item got very little traffic, and anecdotal evidence indicated that students simply did not notice that the Ask a Librarian feature had been added.

It was obvious to librarians that students enrolled in courses with a research or writing component could benefit from increased collaboration with librarians and that the Libraries' presence within Blackboard was insufficient and underutilized. A method for enhancing the Libraries' involvement in Blackboard had even been suggested: Why not include librarians' contact information and links to instructional resources in course sites where students may more easily find and interact with the information (and, ideally, interact more frequently with librarians who specialize in areas related to their courses)?

In an effort to turn this fledgling scenario into a more global reality, Duke's Associate University Librarian for Public

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Services charged a group of librarians and Duke's Center for Instructional Technology staff with "developing scalable methods of librarian integration in Blackboard course sites for the purpose of better supporting student research needs."

Specifically, the group, which named itself "Librarians in Blackboard," aimed to do the following:

1. Pilot the inclusion of rich library content in Black board sites to gauge faculty, student and librarian interest and needs

2. Explore strategies for automating the creation of course- and subject-specific content

3. Explore strategies for automating the dissemination of this content within Blackboard

4. Recommend an approach for automated creation and dissemination of this content in Duke's Blackboard system, including timeline, functional requirements and librarian and technical resource requirements

## First Steps to Becoming Embedded

In Fall 2007, four librarians asked a dozen faculty to give them "coursebuilder access" to their individual Blackboard course sites. This status enabled librarians to edit individual course site interfaces, allowing librarians to add a content item entitled "Library Links" and then populate this Blackboard "page" using a template designed by the working group (see Figure 1). The template included a place for librarians' contact information and a note about their involvement in the course site; a section with links to general Libraries resources (stacks guides, lists of subject librarians, etc.); feeds from social bookmarking sites such as Connotea; and space for links to subject-specific databases, library resources students might find useful for particular assignments, subject guides hosted on the Libraries website, help pages for citing sources or using EndNote or RefWorks, and short animated tutorials.

The working group assessed the effectiveness of the pilot through faculty interviews and six-question surveys of students who had Library Links manually added to their course sites, as well as students who did not have access to Library Links in their course sites. All surveyed students were made aware of library resources through face-to-face library instruction, brief class visits or in the "Staff Information" sections of their Blackboard sites.

All participating faculty provided favorable feedback and requested that Library Links be added to their course sites in the future. Several faculty members confessed that they wished they had done more to make their students aware of the resources and hoped to be able to do so the following semester. Their primary concern was not with the resources but that students were simply not accessing them.

Two hundred and ten students in sixteen courses responded to the short survey that librarians posted in their course sites. Nearly 65% of students who had Library Links in their course sites indicated that they were "more likely to contact a librarian," while only 43% of students who did not have Library Links in their course sites indicated that they would be "more likely to contact a librarian." Approximately 60% of surveyed students indicated that they found Library Links to be "somewhat useful"; 34% found Library Links "very useful." Approximately 28% of surveyed students reported using Library Links 4-6 times over the course of the semester; 50% claimed to have used it 1-3 times.

The promising feedback from faculty and students led the working group to continue the project in Spring 2008. The group shared its work and findings with several groups in the library and recruited other librarians to become course builders of Blackboard sites for faculty in their disciplines. By the end of the spring semester, 16 librarians had become coursebuilders of 56 Blackboard course sites. While the group did not conduct student surveys, librarians interviewed faculty and found, once again, that they supported the project and hoped that it would continue to expand to include more courses. Librarians benefitted from the initiative, as well: They found it easier to plan library instruction sessions with access to syllabi and class readings and enjoyed being on course email lists.

## From Manual to Automated

At the end of the spring semester, another group, calling itself the Subject Portals Task Force, was formed and charged with creating a more user-friendly and attractive template for the Libraries' subject guides. They recommended that the Libraries subscribe to LibGuides, a web-based "content management and knowledge sharing system for Libraries" (Springshare, 2009, para. 2).

By the start of Fall 2008, it seemed natural to merge Librarians in Blackboard and the Subject Portals Task Force and to transition from using the Blackboard interface for Library Links to using the newly acquired LibGuides application to design pages that would serve the same purpose, but with enhanced aesthetic appeal. Librarians continued to request coursebuilder access to Blackboard course sites and continued to add a content item manually, renaming the button "Library Guides." Library Guides provided users with a link to a course-specific LibGuide as opposed to a Blackboard "page" with lists of links and resources (see Figure 2).

By the end of this semester, 16 librarians had developed guides for 58 course sites. And librarians were doing more than merely creating content – students were using the guides, as evidenced by the 12,737 hits that the 58 guides received between August and December (it is worth noting that librarians' hits are included in this number and that some of these hits may have come from outside Blackboard – some guides were linked from other places, including the Libraries homepage).

Once again, faculty reported liking the new Library Guides interface, and some even claimed to see a difference in their students' work that they believed might be attributed to Library Guides, noting that coupled with face-to-face instruction,

the Library Guides "packed a powerful punch." Librarians were also interviewed: They overwhelmingly agreed that the LibGuides interface was easy to use and that the initiative helped them collaborate with faculty in more meaningful ways.

While the group was pleased with its efforts thus far, it had become clear after two semesters that the current process was not scalable: It was simply not realistic to expect that librarians would ever be able to integrate instructional tools into all (or even a majority) of Duke's 2,800 course sites – in each of the previous semesters, librarians had been enrolled in approximately two percent of all course sites. The group, with the help of one of the university's Blackboard support staff, began to discuss ways to automate the inclusion of Library Guides, wishing to link all students either to subject-specific LibGuides or a LibGuide with general information about accessing library resources.

The process behind this automation was developed, surprisingly, with relatively little effort from just two library staff – a member of the university's Blackboard support team and one of the Libraries' web application developers. Essentially, students click on "Library Guides" in the Blackboard interface, and the following transpires: Javascript redirects users to an on-the-fly URL with a Blackboard-defined variable (for this purpose, the variable is the subject code for the course; e.g., ARTHIST, PUBPOL). The URL points to a middleware tool; programmers chose to use Django, which is an open source "web framework that encourages rapid development," to create this tool (Django, 2009, para. 1). The Django database reads the on-the-fly URL, matching the Blackboard-defined variable to the corresponding LibGuide (or other web page) that a subject librarian created for that particular subject code. It then places the corresponding URL in the Library Guides menu item. Because librarians have complete control over the Django database, virtually any URL – ranging from the Duke Libraries homepage to a specialized LibGuide created with the needs and assignments of a particular group of students in mind – may be pulled automatically into Blackboard. Because the system is dynamic, the page that users see when they click on Library Guides may be instantly changed at any point in the semester by simply entering a new URL in the Django database.

Of course, this functionality is worthless without content to populate the Library Guides button. Therefore, once the process was established and tested, the task force needed to determine which LibGuide (or other webpage) would be mapped to each of the 400 subject codes that correspond to the nearly 2,800 course sites that are created each semester. The group looked to the expertise of the Libraries' 35 subject librarians, as well as librarians in each of Duke's four professional libraries. They asked that subject specialists provide one URL for each subject code falling within their areas of expertise by the start of the Spring 2009 semester. Subject librarians were encouraged to develop subject-specific LibGuides (for instance, the librarian for Canadian studies created a LibGuide for all courses identified by the subject code "CANADIAN"; see Figure 3) but could link to non-LibGuides (e.g., more traditional subject guides using the Libraries' content management system) or even their library's homepage (librarians in Duke's professional libraries opted to do this for many of the subject codes that apply to their work).

There are, of course, subject codes that simply do not correspond logically to a subject area overseen by a Duke librarian. The Blackboard sites for courses with these subject codes are linked to a general LibGuide, created to serve as an introduction to library resources (see Figure 4), which includes many of the instructional resources originally prescribed by the Librarians in Blackboard working group.

There are also a number of interdisciplinary subject codes that correspond to the interests – and, therefore, LibGuides – of multiple subject specialists. Similarly, there are a number of courses at Duke that are cross-listed under two, three or even four subject codes. Each of these courses is arbitrarily assigned one subject code for the purposes of Blackboard management, and it is this subject code that determines which URL is automatically linked. Faculty members have been informed of this project and are encouraged to contact subject librarians if they feel that the LibGuide that has been mapped to their course is inappropriate (a note in Blackboard reminds faculty of this and provides contact information for subject librarians). As this project continues to evolve, librarians hope that more professors will take advantage of their willingness to modify the automatically linked guides to correspond more closely with students' research needs.

This automation may appear complex, but the staff members who worked on it repeatedly commented that it was actually fairly simple to put into place. Likewise, the work for subject librarians was fairly minimal: They needed simply to provide URLs for their discipline-specific guides, many of which were already created. The pay-off validated their efforts, for many noted that the project led to enhanced communication and increased instructional opportunities with faculty and students in their departments.

## MAINTAINING, SUSTAINING, ASSESSING

While this automated process ensures that every Blackboard course site will include a general introduction to library resources, a subject-specific LibGuide or a professional library's webpage or list of research tools, the task force continues to encourage librarians to foster and maintain relationships with faculty and students in their disciplines, developing course-specific LibGuides in much the same manner that they did in the Fall 2008 semester. In manually linking specialized guides to the Library Guides menu item, they over-write the automatically generated URL and, as before, become privy to course communication, syllabi and assignments.

As has been done at the end of each semester since this project's inception, the task force plans to complete extensive assessment at the end of Spring 2009: Students who access the Library Guides menu item will be surveyed to gauge the usefulness of the guides and their likelihood to utilize other library resources or services; hits on guides accessed within Blackboard will be analyzed; and numbers of course-specific

and subject-specific guides will be scrutinized, all in an effort to ensure that the process the combined working groups have put into motion over the last four semesters continues to meet the instructional and research needs of Duke's students, faculty and librarians alike (see Appendix).

While the task force plans to disband in June 2009, a representative will continue to encourage librarians to update their subject-specific guides and to create course-specific guides, providing support for these embedded librarians – librarians who have managed to show up where students are and when students need them.

## REFERENCES

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## Figure One: Library Links (Blackboard page designed using template)



## Figure Two: Library Guides (course-specific LibGuide)

# Figure Three: Library Guides (subject-specific LibGuide)



# Figure Four: Library Guides ("default" LibGuide)

**Purpose of Evaluation**

1. To determine whether or not to renew LibGuides license

2. To determine whether or not patrons are using Library Guides menu item to meet their research needs

3. To determine whether or not librarians are using Library Guides menu item to supplement their classroom instruction and work as subject specialists

4. To determine to what extent LibGuides application has been incorporated seamlessly into Duke Libraries' web environment

**Key Goals of Library Guides**

• *Undergraduates will use LibGuides to meet their research needs to a greater extent than they currently use subject guides in the Libraries' CMS (content management system)*

Aspects of evaluation

- Do patrons find LibGuides' interface to be user-friendly?

- Is content what they need for their courses and general research needs?

- How frequently are LibGuides being accessed?

- What segments of Duke's population are using LibGuides?

• *Librarians will use LibGuides as instructional guides in course-integrated library instruction sessions and for general research support*

Aspects of evaluation

- How does the introduction of Library Guides affect librarians' work load?

- How many librarians are creating LibGuides?

- How many LibGuides are librarians creating?

• *LibGuides fits technically into current library systems*

- How well does the application work technically?  Was the server reliable?

- How well does the Blackboard automation process work?

- How easy was it to train librarians to use LibGuides?

- What technical issues did Information Systems Support encounter?

## Details of Evaluation Activities and Reporting

| Evaluation Activity (Purpose) | Timeline/Frequency | Reporting |
|---|---|---|
| Web-based surveys in courses that included LibGuides in their Blackboard sites (1, 2) | April-May 2009 | June 2009 |
| Web-based surveys on LibGuides/subject guides index page that ask users to self-identify their affiliation and rate guide's degree of usefulness (1, 2) | April-May 2009 | June 2009 |
| Analysis of clicks on LibGuides within Blackboard and on Libraries website; analysis of clicks within LibGuides (1, 2) | December 2008; May 2009 | January 2009; June 2009 |
| Analysis of number of LibGuides (identified by "Library Guides" content item") in Blackboard course sites | December 2008; May 2009 | January 2009; June 2009 |
| Informal interviews with faculty whose coursesites include "Library Guides" | November-December 2008 | January 2009 |
| Focus group of librarians who have created LibGuides (1, 3, 4) | December 2008 | January 2009 |
| Analysis of the number of librarians who have created LibGuides and the number of guides created (1, 3) | December 2008; May 2009 | January 2009; June 2009 |
| Analysis of technical issues encountered over course of semester (server reliability, number of contacts with LibGuides technical support) (1, 4) | Monthly during Fall 2008 and Spring 2009 | June 2009 |
| Analysis of ISS and DPD support via Remedy tickets, troubleshooting requests and reactions from ISS/DPD staff (1, 4) | Monthly during Fall 2008 and Spring 2009 | June 2009 |

*Note: Plan includes evaluating LibGuides that were accessed from the Libraries homepage, as well as those accessed from within Blackboard (Library Guides menu item).*