Chapter 5

Strategies for Success: Building LibApps in Moodle That Students Will Use

Lydia Willoughby, MLIS, MA, State University of New York at New Paltz

Meghan L. Dowell, MLIS, Beloit College

[Editor's Note: This chapter focuses on Moodle integration. However, many of the ideas presented are easily adaptable to other learning management systems.]

State University of New York (SUNY) Plattsburgh launched a library resources block, in the campus Moodle learning management system (LMS), during summer 2015. At this time, Plattsburgh was also migrating to LibGuides version 2 (LGv2). Moodle is an open source LMS similar to Blackboard. It is built on pedagogical principles of constructivism to facilitate student interaction and collaboration in online courses, blended learning, and flipped classrooms. A block in Moodle is a small application within the larger LMS which can be thought of as a widget. Our library resources block serves as a course and subject specific application that connects students, in Moodle-supported online courses, to effective research guides using a widget for LibGuides relevant to their course site. It was created by a team that included librarians, programmers, instructional designers, and information technologists. Similarly, Beloit College migrated stand-alone web page research guides to LGv2 in fall of 2014. A team of three librarians led the task to evaluate and prepare the best templates for the students. The librarians realized embedding the guides into their Moodle instance would be beneficial for students and faculty in online courses.

This chapter contains a side-by-side comparison of two institutions—one Baccalaureate and one Master’s Large based on Carnegie basic classifications—in which both completed successful integration between LibGuides and Moodle. We’ll detail how each library has enhanced student success within Moodle-based courses and how we augment face-to-face classes by providing readings, presentations, quizzes, and asynchronous discussions. Strong planning and collaboration among librarians and other departments was integral, at both institutions, to the design and implementation of successful tools based on LibGuides/LibApps. This helped make library resources both usable and relevant to faculty and students at their point-of-need.

LibGuides/LibApps & Moodle

Initial Steps

At Plattsburgh and Beloit, before planning could begin, a “librarian role” needed to be created in Moodle to allow clear communication of instruction goals for online instructors and students. This role allowed “just in time” library instruction linked to in person sessions, course assignments, and online discussion. When added to Moodle courses by the instructor, librarians in this role can add custom research guides, post research examples, and guide discussion in online forums. The main distinction between this and the “instructor role” is that the librarian role cannot view student grades or assignment submissions.

Another consideration for Plattsburgh was that the SUNY system announced the launch of Open SUNY in early 2013 (State University of New York 2015). Open SUNY is a portal to

view and register for online courses available at all SUNY campuses offering online programs.

For programs to be included in Open SUNY, library support for online courses needed to be secure and fully integrated and available to online and distance students.

Proof of concept at Plattsburgh began with consulting library peers at institutions that successfully integrate library resources in learning management systems with customized widgets (Brewer, DeFrain, and Kline 2013). We found that highly customizable design is preferred, and should be based on minimalist user experience principles so that students can find what is relevant at their point-of-need. “Students who use library guides delivered through a LMS find the guides useful . . . However, direct librarian involvement with the course is not required to reach students and have a positive outcome on their learning” (Murphy and Black 2013, 528-534). Instructors should be able to modify what research guide(s) are displayed, request new research guide(s), or opt-out of the service entirely. Additionally, blocks should be content aware, so its default setup aligns with the course discipline. Custom links to citation help and style guides should also be available.

Plattsburgh consulted with The University of Arizona Libraries, as they have a library super widget that embeds course specific resources in online classes and is designed to reach as many students as possible. The design principle of reaching students with information became an important part of our process. York University Libraries have a library box that allows instructors to replicate LibGuides content with a tag that can be linked in Moodle. Though for automated library content to be displayed, instructors are tasked with copying and pasting the HTML code generated by the tag (York University Information Literacy Steering Committee 2014).

Oakland University successfully merged the discovery search application Summon with SubjectsPlus research guides to automatically generate library content for Moodle (Hristova 2013). Though, as with York University, Oakland instructors have to copy and paste HTML code into Moodle to make this work. Plattsburgh felt that this was a barrier—multiple steps would lessen the possibility of online instructors adopting the integration of library resources in Moodle.

Concordia University has a default library block that is content-aware and is pre-loaded with course reserves, recommended databases, ask-a-librarian service, individual ILL, and account access (Concordia University Libraries 2015). It is an extension of the library liaison program and this idea was central in Plattsburgh's design planning. Even more crucial, the Concordia block is integrated in all Moodle courses by default. This principle of inclusion and opt-out deletion meant that there were fewer steps and barriers to instructor adoption. For the block to be included in all Moodle course sites by default, dynamic content appropriate to discipline and subject was necessary. Additionally, instructors needed to be able to customize the block in some ways.

Strong campus outreach was important to completing this Moodle block project at Plattsburgh. The stakeholders included librarians, programmers, instructional designers, and information technologists. Additionally, faculty members invested in online learning were included for collaboration and feedback on the initial draft. Specific design approval was presented to the campus Faculty Teaching, Learning and Technology Advisory Group.

Proof of Concept

Figure 5.1 shows our proof of concept based on the design examples considered earlier in this chapter. The initial draft included a discovery search box of discipline-specific catalog and database resources, a research guide for the corresponding discipline, a citation and working with sources link, and a link to a guide on plagiarism and an academic integrity tutorial. Also included in the initial draft design was an option for course instructors to request a custom course guide. If “custom course guide” was selected, the form would display a follow up question asking if the instructor would like to learn about additional library services in Moodle.

Figure 5.1 The original proof of concept draft design of the library resources block in Moodle at SUNY Plattsburgh.

Next Steps

At Plattsburgh, the key to integrating dynamic content into Moodle was working with a programmer from computing systems. Collaboration on design iteration resulted in a user-friendly final product that allows the instructor to easily configure the library resources block, assign a liaison librarian to the Moodle course site, and delete the block entirely if desired. In order to customize the block, the instructor can configure the block to edit or add links to LibGuides and citation help URLs. Additionally, an instructor can assign a librarian to make changes or updates to only the library resources block in the Moodle course site.

Plattsburgh and Beloit both utilize the widget function in LibApps to display research and course guides in Moodle. Relevant courses are displayed as clickable options to the user, as in Figure 5.2, instead of clunky HTML code that a user needs to copy and paste.

Figure 5.2 Configuration settings in the library resources block at SUNY Plattsburgh. Instructors and administrators can name the block, assign a visible link to one or more LibGuides, assign a visible link to one or more citation method guides, and determine where on the Moodle course page the block appears.

Dynamically generated content finds the most relevant resources for each unique course, at the point-of-need for students, and displays it. Our design choices were influenced by the goal of having LibGuides used as often as possible. In migrating to LGv2, we saw that use was highest for “research guides” (i.e., the guides that focused on the department level). Murphy and Black have written about how lowest use LibGuides are at the course level (2013). Based on these design considerations we focused time on editing department level guides.

New guides requested by faculty fit into a liaison program that helps to keep course guides up to date on a semester by semester basis. As with Beloit, implementation of the widget from LibApps, means that guide URLs have to be restricted to describe only guides currently in use at Plattsburgh. A clean up of LibGuides URLs was conducted as part of the migration to LGv2, with attention to parsing distinctions (e.g., libguides.plattsburgh.edu/art, libguides.plattsburgh.edu/ART, libguides.plattsburgh.edu/Art101). Because a librarian role had already been established prior to library resources block design, they could administer the block and the URLs linked via the LibApps widget. For the library resources block to function in Plattsburgh’s Moodle instance, a “LibAdmin” account was set up to manage the updates for new guides—such as new URLs—so that they could be listed among the options visible to users. LibAdmin had to be set as a librarian role in the Moodle course site.

Instructors can customize the content and look of their library resources block in Plattsburgh’s Moodle instance, allowing integration of library resources, as well as access to information across disciplines. This is especially useful in an interdisciplinary seminar. Customization of content and guide display helps students to focus on the information most relevant to their assignments and studies. The library resources block connects students to useful

research guides, and allows the course instructor to modify what research guide(s) are displayed, request new research guide(s), or opt-out of the service entirely; the librarian can edit the library resources block but the instructor has final edit and approval of all content. Figure 5.3 is a hypothetical illustration of the history of bluegrass music—focused on West African influences—with a customized link to the citation builder at North Carolina State University.

Figure 5.3 An example of a customized interdisciplinary course's use of the library resources block, showing a link to multiple LibGuides and a link to an external citation builder.

Figure 5.4 is what the library resources block might look like in an information literacy class on critical research skills.

Figure 5.4 An example of the library resources block for an interdisciplinary course, set only to the list of research guides by topic on the library's homepage.

Compare Figure 5.4 to Figure 5.5 to see how a traditional English 101 general education course's library resources block might appear:

Figure 5.5 An example of the SUNY Plattsburgh library resources block set up for an English 101 course.

Marketing

At Beloit College, Instructional Technology (IT) is located in the Library and shares office space with Librarians. This intentional arrangement was created to encourage collaboration between the two groups. IT worked with our librarians on two fronts in Moodle. The first was to create a Marketing Block with an embedded widget of the Subject guide drop-down list. This is meant to promote LibGuides. The drop-down subject guide list is created in the LibGuides widget creator by choosing the Subjects tab, then selecting the criteria to complete the drop-down. Figure 5.6 displays the widget customizations made at Beloit College.

Figure 5.6. Suggested selections to make in the LibGuides widget creator.

The Marketing Block displays on every page of Moodle, outside of course pages, as shown in Figure 5.7. The librarians stressed the importance of creating a highly visible library block before the students reached their course pages.

Figure 5.7 The subject widget in use on Beloit College's Moodle.

Secondly, IT created a role for librarians which gave them editing powers to embed course or subject guides into Moodle courses. There are two other locations in Moodle where the Library has space prior to the student or faculty member entering their course. These are in the top header, a custom library block with contact information, and as the drop-down Subject guide selector visible in Figure 5.8.

Figure 5.8 The standard library block with subject widget within Moodle after login.

Disseminating LibGuides/LibApps Knowledge Internally

Beloit College had many guides to create; dividing roughly 30 programs between three librarians in a small liaison program. We ensured consistency in navigation, created subject and course templates, and conducted usability testing before making final edits to these templates. Internal training was provided to teach the LibGuides interface and stress the importance of best practices.

Course and subject templates were created to establish continuity between the librarians and our interdisciplinary students. Templates were created in phases. First, sample templates were created by using best practices compiled by librarians on the Information Literacy Instruction listserv (Wood n.d., 1-9). These were discussed by the liaison librarians to determine the best combinations for our campus. Once those were decided upon, the librarians began to

complete the subject and course guides as requested. Usability testing commenced after the LibGuides interface had been live for a few months. Recommended changes were slated to be made over the following summer.

Beloit College took suggestions from the Metropolitan State University case study on user-centered design in LibGuides (Sonsteby and DeJonghe 2013, 83-94). The usability testing began by one librarian reading a scripted question, asking students to locate where a journal article might be linked within a subject guide. This allowed the monitoring librarian to take notes on what was happening on the screen and being said aloud. The takeaways helped to develop a sense of how students understand the heading and labels. Next, the students were asked to recommend changes and even offer suggestions on how to rearrange the subject guide to better suit their needs. The key finding from this exercise: add better navigation to the Home page.

Asset maintenance within LibGuides can be an overwhelming task. However, proper maintenance allows for mass changes to be a simple process. For instance, to update search boxes from OCLC WorldCat Local to OCLC Discovery, the library utilized the search and replace function within LibGuides. Alternatively, if one asset is mapped to multiple pages the librarian can edit the asset and push the changes to all of the mapped guides. An integral part of asset maintenance is reusing content that has been previously created. Utilizing content created at the home institution, or even requesting permission of completed guides at other institutions, can save time and reduce duplication. Plattsburgh also employed this strategy of mapping LibGuides changes to keep content in Moodle relevant and up to date. Final design considerations, and realities of the discovery search at Plattsburgh, resulted in us dropping discovery search for discipline-specific library resources from the library resources block.

Embedding Research Guides at Point-of-Need

Approximately 50% of the faculty at Beloit College use Moodle to accompany their face-to-face courses. Through liaison collaboration, librarians meet with a variety of classes to instruct on research and other information literacy skills. At Beloit College, general practice is that after the librarian has an instruction session with a class using Moodle, we embed the subject or course guide into the class Moodle instantiation. The faculty have the ability to move the widget or link to meet their needs. This allows the students to reference handouts and topics discussed in the instruction session without leaving their course interface. Beloit College found a 275% increase in embedded guide usage versus a guide which has not been embedded. The students have grown to expect their needs be met quickly—providing an access point in an environment where they work has proven successful (Daly 2010, 208). Additionally, though it took time for the requests to begin, both institutions have several faculty that take advantage of this service and customized course guides have grown in use every semester.

Library anxiety has been well documented (Mellon 2015, 276-282). Liaison programs, however, help lessen the complexity of connecting with a subject librarian. LibGuides provides the space to create an interface where students can simply access library resources, organized by discipline, and begin to answer some of their first level questions. Beloit College librarians have utilized the Profile box to provide general contact information and also a link to their You Can Book Me (<http://youcanbook.me>) schedule. The library liaison program is also beneficial to new faculty on campus. The LibGuides URL is provided for onboarding and orientation. This helps connect users to the library at their point-of-need.

Library resources block assessment at Plattsburgh found that of the 737 active Moodle courses in Fall 2015, 712 (97%) had a library block in their course site. This high rate of implementation indicates that the block design was successful in connecting students, and instructors in online classes, with direct access to the library resources and research guides they needed. 1% of faculty comprised the 3% of Moodle courses that opted out of the library resources block entirely.

SUNY Plattsburgh's Findings

The only course-specific guide among the top used, within Moodle course sites, is our Social Work 304 guide. Social Work majors often take SWK304 in the fall semester of their senior year; it is required for graduation and is research intensive. “This course is both writing intensive and one in which writing is an integral/intrinsic part of the learning process. This course meets the advanced writing requirements for the Social Work Department” (SUNY Plattsburgh 2010). As an “advanced writing” course that is “writing intensive”, the presence of a course-specific library guide integrated with the learning management system is an obvious way to connect students to critically useful library resources at point-of-need. Usage rates are displayed in Figure 5.9.

Figure 5.9 This graph shows the usage rates of LibGuides before and after implementation of the library resources block at SUNY Plattsburgh.

The requirement and the timing make sense that this guide would have a high rate of usage, and it is telling that there is no use of the guide prior to the implementation of the library resources block in Moodle. This indicates that its adoption in Moodle course sites is connecting senior year Social Work majors to the critical library resources they need to complete research

intensive coursework. As shown in Figure 5.10, most of our guides increased in usage after implementation.

Figure 5.10 This graph further analyzes the change in usage after implementation of the library resources block in fall 2015 at SUNY Plattsburgh.

Our Psychology program encompasses an undergraduate major, minor, and a graduate program in School Psychology. In the spring semester, many of the Psychology courses feature labs, upper division requirements, and advanced graduate courses that requires more research. Thus, library instruction is higher in spring for Psychology courses. The actual rate of use in fall

2014 is comparable to rate of use in fall 2015, especially considering that the fall 2015 semester is still underway (at the time of writing).

In the fall of 2014 and spring of 2015, The Digital Reference Resources page had a very prominent display on the homepage of the library website, and was the primary mode of access for all of the library reference databases at Plattsburgh. Responding to usage and user demand, in fall 2015, a new search layer was added to library collections search option on the library homepage. This change added the ability to search reference resources directly from the search box. These user design changes are reflected in the higher usage of the Digital Reference Resources page in fall 2014 and spring 2015, as well as the seeming dip in usage in fall 2015. In reality, more people are using these resources now, though they are no longer accessing them through the Digital Reference Resources page.

The Zotero guide is primarily used in workshop and classroom instruction, and has been well supported through instructional programming for students and training for faculty. This page remains a frequently used resource on campus due to continued librarian outreach, promotion, and support for Zotero training and installation. Though the Zotero guide is not affiliated with any one specific course, faculty have the option to customize their library resources block in Moodle and Zotero is among the options available. There was a 23% increase in Zotero page usage after the block's implementation. This demonstrates the success of word of mouth campus outreach and promotion, as well as online point-of-need service for students and instructors in Moodle.

Tracking LibGuides usage by semester is much more useful if finals and the associated end-of-semester research assignments are included in timely analysis. Nevertheless, this snapshot

of usage in late November 2015 shows important increase in the LibGuides associated with core academic disciplines at Plattsburgh. The Nursing program, in particular, is part of the new Open SUNY program, and its online courses all feature access to library resources through the library resources block in Moodle. Further, we saw a 36% increase in History usage of LibGuides. The majority of these courses are blended or face-to-face.

The power of point-of-need speaks to the presence of Biology and a Social Work course site pages among the top used guides in fall 2015. Previously, Biology courses at Plattsburgh did not receive any library instruction that included library resources connected to their Moodle course sites. The specific cultural and demographic research resources necessary in comparative social work requires connecting these students to resources that they can use—when they need them.

Future assessment of this, and other projects integrating library resources in learning management systems, could address:

- Qualitative surveys of faculty views on use of library resources in student research.
- The impact of outreach and promotion on use of library resources by students.
- The impact of outreach and promotion on the use of library resources by faculty.
- Correlation of embedded library resources in the learning management system to the integration of information literacy and complex usage of library resources in course assignments and syllabi.

Conclusion

Although Beloit and Plattsburgh used the same tools to integrate library resources in online education—LibGuides and Moodle—these examples demonstrate that using the same tools does not mean that the end result will be the same. We've shared successes in increased collaboration between libraries and faculty. And, as shown earlier in this chapter, Plattsburgh has shown marked increase in resource usage after integrating LibGuides and Moodle. At Beloit College, connecting the Moodle class space to the Library's LibGuides has allowed conversations to take place that increase collaboration between faculty and librarians. Specifically, faculty have taken an active role in helping to select materials featured in the course guides. We have also experienced an increase in usage by integrating the guides into Moodle instantiations. Though it is too early for evaluation, Beloit College is witnessing higher subject-specific database usage due to LibGuides and Moodle. Students' perception of library relevance may have also improved due to the availability at their point-of-need: this is an opportunity for our own future research. Generally, though, more research needs to be done regarding aligning student perception and availability of resources at point-of-need. Anecdotally, students are commenting on the ease of finding specific journals and databases and that it is leading them to creating better final research papers. Due to these results, we will continue our partnership between Instructional Technology and librarians to keep improving services.

It is critical that library instruction encompasses how students can use the resources in LibGuides to make the library relevant to their needs. The design of putting LibGuides directly in Moodle course sites has always been about connecting users at their point-of-need—this reduces barriers to access and increases the timeliness of LibGuides as a research tool. Outreach

and training on how users can incorporate library resources into campus scholarship remains vital to the success of any online integration project, and is important for classroom instruction, blended, and online learning.

References

- Brewer, Michael, Erica DeFrain, and Elizabeth Kline. 2013. *Stanford Prize for Innovation in Research Libraries Nomination January 2013*. Tucson, AZ: University of Arizona Libraries.
- Concordia University Libraries. 2015. "Introduction." *Library Resources Moodle Block*.
<https://library.concordia.ca/services/users/faculty/moodle/>.
- Daly, Emily. 2010. "Embedding Library Resources into Learning Management Systems: A Way to Reach Duke Undergrads at their Points of Need." *College & Research Libraries News* 71 (4): 208. <http://search.proquest.com/docview/203793245>.
- Hristova, Mariela. 2013. "Library Widget for Moodle." *Code4Lib Journal* (19).
<https://doaj.org/article/d41764b5cbc34af4ae00970bdfd7dc57>.
- Mellon, C. A. 2015. "Library Anxiety: A Grounded Theory and its Development." *College & Research Libraries* 76 (3): 276-282. doi:10.5860/crl.76.3.276.
- Murphy, Sarah Anne and Elizabeth L. Black. 2013. "Embedding Guides Where Students Learn: Do Design Choices and Librarian Behavior make a Difference?" *Journal of Academic Librarianship* 39 (6): 528-534. doi:10.1016/j.acalib.2013.06.007.
- State University of New York. 2013. "History of Innovation." *Open SUNY*.
<http://open.suny.edu/about/history-of-innovation/>.

Sonsteby, Alec and Jennifer DeJonghe. 2013. "Usability Testing, User-Centered Design, and LibGuides Subject Guides: A Case Study." *Journal of Web Librarianship* 7 (1): 83-94.
doi:10.1080/19322909.2013.747366.

SUNY Plattsburgh. 2010. "SWK304 - Social Welfare in Comparative Perspective (3 Cr.)."
Search the College Course Catalog.
<http://www.plattsburgh.edu/php-bin/catalog/crs.php?q=swk304>.

Wood, Sarah. (n.d.) "LibGuides Best Practices." *Pierce College*. 1-9.
<https://docs.google.com/document/d/1PhX6dwCKnCJdjQgjE2kHJeyY56RXAZ4b8QiiTkq49Go/edit?hl=en&authkey=CKyOoosD>.

York University Information Literacy Steering Committee. 2014. "E-Learning—Moodle."
Resources for Instruction Librarians.
http://researchguides.library.yorku.ca/resources_instruction_librarians.