An Open Road to Library Resources for Distance Education Students

by Matthew Lancaster & Caroline Baker

This paper surveys the current state of software that enables the enhancement of distance education through leveraging library resources that might not normally be available to distance education students. In order to remain sensitive to the current economic situation, the survey is restricted to free, open source software projects with a high degree of maturity and current utilization. Specifically, the authors highlight three of the many exciting software initiatives developed to enhance online access to library resources, along with learning management systems and distance education tools. Current and future integration points between these two important categories of educational resources are noted, as well as how these resources are and can be used in Indiana.

With the tremendous growth in distance education over the past few years, the need for tools that make the resources of physical libraries available to distance students has never been greater. While Internet-only research tools (such as Google™ Scholar) have become increasingly useful, they lack the depth, meticulous selection and volume of library resources. For distance education students, the vast amount of knowledge stored in libraries that are in many cases hundreds of miles away might as well be on the moon. The question of how the distance education student accesses this wealth of information painlessly and efficiently is being answered in extremely innovative ways by libraries both across the State of Indiana and the entire country, through the use of information technology and the Web. Whether it is integrated library systems that can automate many interlibrary loan (ILL) functions to localize needed research material or a digital repository that makes scanned copies of the work available at the click of a mouse, information technology has become a vital part of our library infrastructure.

At the same time, we find ourselves in the middle of the most significant economic downturn in recent memory. Libraries, as much as or more so than many institutions, are feeling the pressure to contain costs while trying to serve this growing community of distance learners. Software packages that provide library management systems, digital catalogues, and other repositories of useful information have traditionally been somewhat expensive. Institutions outside large universities cannot often afford software with all the functionality they need to provide rich, digital content and services. However, viable free, high quality, open source alternatives do exist and can help equip Indiana's libraries to both contain cost and serve the ever growing market of distance education students. Several initiatives based around these solutions have already begun in Indiana, but it is fair to say that quite a bit of work remains.

In order to encapsulate and give proper context to the information contained in the preceding paragraphs, a survey of current open source library software projects that meet some basic filtering criteria will be done, followed by a much closer look at some specific products that can help integrate library resources and distance education in very exciting ways. We chose to narrow the focus and select software to highlight for further research, and to rank products according to market penetration, price, software licensing, and richness of feature set with regards to distance education. The following projects meet these criteria:

Evergreen
www.open-ils.org/

Kete
www.kete.net.nz/

Greenstone Digital Library Software
www.greenstone.org/

Koha
www.koha.org/

Dspace
http://dspace.org/

OPALS
www.opals-na.org/

Biblioteq
http://biblioteq.sourceforge.net/

PMB
http://sigb.net/index.php?page=secteurs&idrubrique=1&lang=en

NewGenLib
www.verussolutions.biz/web/

While all the projects surveyed are exciting in their own right, three bear special mention due to their utilization and potential in Indiana specifically. Evergreen is the first project that meets the specified criteria. "Evergreen is an open-source, consortial-quality library software to help library users find library materials and to help them manage, catalog, and circulate those materials" (Georgia Public Library Service, 2009, para. 1). Evergreen, originally called Open-ILS, was originally intended for 200+ large library consortium use, but individual libraries have begun to effectively implement the software.

Evergreen is highly customizable for both large and small users, due to its modular nature. It provides high-quality services for circulation, cataloging and discovery, which libraries can implement as they see fit. Therefore, whether it is a single library or large consortium implementing the software, the modules allow for easy, organized use. It is also customizable for individual library needs, including a variety of templates for everything from receipt printing to label printing. Evergreen makes payments easy for both librarians and patrons because patrons can log on and see exactly how much they owe in real time as opposed to waiting until they return the item. Patrons' various checkouts accrue onto one bill and they can choose to pay the amount in increments or in full, depending on their circumstances.

This software can be integrated with Web browsers, news aggregators, and search engines through a variety of formats, including RSS feeds and OpenSearch semantics. The information contained within the library software can be readily available in a number of locations for distance education students. Consequently, a student has multiple ways of accessing information needed for his or her class. This ease of accessing information and resources is guaranteed through Evergreen's offline client feature that ensures that library functions do not cease during unplanned network outages.

Interestingly, there are a number of integrated library-system software packages, and the second project that we have chosen to put under the microscope is Koha. According to the Koha project, "Koha is the first open-source Integrated Library System (ILS). In use worldwide, its development is steered by a growing community of libraries collaborating to achieve their technology goals. Koha's impressive feature set continues to evolve and expand to meet the needs of its user base" (LibLime, 2009, para. 1). Koha is largely modularized. It is able to create a platform-independent architecture by using Web technologies for the patron-facing components. It leverages common technologies in order to provide a stable and free platform on which to build various systems to support library operations and patron service. This means that combined with its open nature, it can be used in conjunction with other systems.

Utilizing the Web as a platform for many of the patron-facing library functions serves twin purposes for distance education students. Students logging in from any browser or operating system will be able to interact and get the resources they need. As will be seen, the ability to seamlessly integrate library technologies into learning management systems makes for an even more compelling reason to utilize something like Koha.

The third software solution looked at in depth is DSpace, a digital repository software with which a library can digitize its collection, as many have already done (DSpace, n.d.). Scholarly articles, books, and images can be uploaded and categorized through a robust and simple interface, and then viewed on demand by library patrons. The interface can be customized and placed into containers on an existing Web site, thus allowing it to be integrated with a more comprehensive online presence. Recent research suggests a number of uses for digital repository software, ranging from germane to surprisingly innovative (Cervone, 2008, p. 149-50).

One of the more intriguing uses for the software is to make scans of rare manuscripts available online, thus eliminating the need for untrained hands to handle valuable pieces in a collection (Jantz and Giarlo, 2005, p. 135-137). Ergo, the manuscripts will be more accessible and usable for everyone, including remote users and distance education students, with the added bonus of keeping the works themselves safe.

While there are still some hurdles to overcome in integrating digital repository software with learning management systems, many projects have been a great success (Breslin et al., 2007). The goal in integrating the two is a balanced, seamless user experience and ease of access to both course content and library research, thus creating a mutually supporting environment. For example, without leaving the learning management

environment, a student can retrieve the research necessary to meaningfully contribute to an asynchronous discussion, or post a link to relevant research to back up an argument. Therefore, the access to and use of library resources becomes a valuable and integrated part of the learning experience.

One of the various ways to implement easy access to library resources into distance education classes is through the learning management system that forms the underlying foundation for most of these classes. A learning management system that serves as an example case is Moodle (http://moodle.org/), an open source online course management system, which allows for easy organization of both distance and in-person classes. Features include assignment submission, online posting of assignments and course readings, and an online grade book, in addition to a host of others. The various library software systems can also be implemented into Moodle for an easy transition from the online class to the online library for course materials or research, and then seamlessly back again for the final leg of a holistic learning experience. The most logical way to do this is through a Moodle API or plug-in that makes the learning management system and library systems able to mimic the feel of a single integrated environment. This shortens the amount of time the student spends *searching* for information, and significantly impacts the amount of time spent digesting and applying that information.

Each of the three software systems featured here have direct connections to Indiana institutions. Since the nature of open source systems generally precludes any mandatory registration or data collection, it is difficult to know with complete certainty which institutions are using each system. However, the communities behind each product attempt to keep an accurate list of their respective users. Evergreen is currently implemented in Indiana by the Indiana Open Source ILS Initiative, which consists of 32 libraries, including both county and town libraries in addition to school system libraries. DSpace is being used across the world, and Indiana has its own user base. Specifically, it is used by Indiana University and Indiana University Purdue University Indianapolis (IUPUI). Koha is being used by thousands of users worldwide, including four institutions in Indiana: the Fort Wayne Museum of Art, Baugo Community Schools, Indiana Cooperative Library Services Authority (INCOLSA) and Delta Public Library. While the installed base is modest for each product, it represents a good anchor point for future growth and integration with the software that forms the foundation of distance learning: the learning management system.

There has been some integration between the software packages mentioned above, specifically between Moodle and DSpace, for which there is a published and widely used module that ties them together seamlessly. DSpace itself can be placed into a container within a larger Web framework, though deeper integration will still require custom code. Additionally, there has been integration between Moodle and Koha. The development began in the United Kingdom, but libraries in the United States have begun to use Koha with Moodle to create ease for distance education students. They have developed ways to use information from Koha to populate Moodle pages so students can easily access necessary information (Tedd, 2007).

It is clear that there exists a wide array of inexpensive and robust software for making library resources available across darkness and distance to online learners and other non-residential students. We believe that integrating online library resources with learning management systems and other distance education tools can help with access to resources and create a holistic and enriching educational experience. Further, once integration between these two vital parts of distance education matures, it will go much further toward creating an environment that transcends the current state of affairs in which the learning management system is the beginning and the end of distance education (Dalsgaard, 2006, para. 25). While significant challenges remain to the widespread adoption of information technology that can help Indiana libraries become premier distance education resources, we are confident that they can and will be overcome.

Organizations that provide technology services to libraries and other educationally-oriented institutions can help with implementation and infrastructure. There are a number of such organizations active in Indiana and across the country, and an increasing amount of grant funding has been made available in order to pursue such goals. Our libraries are vital institutions that support learning at every step, and taking advantage of any of these open source software solutions is a fantastic and affordable way to reach and serve more library patrons and distance education students in the state of Indiana.

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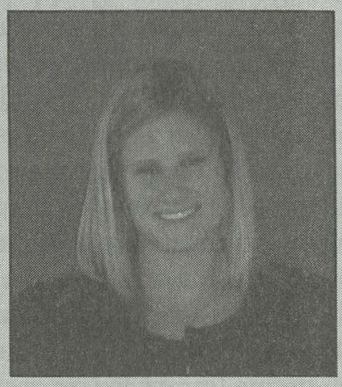

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