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Students, faculty, and staff have all benefited from the integration of our electronic reserves

Embedded Course Reserves

Piecing the Puzzle Together

By Krista E. Clumpner, Michael Burgmeier, and Thomas J. Gillespie

Northern Michigan University (NMU) is a public 4-year undergraduate institution of higher education with an enrollment of approximately 9,500 students. The university's Division of Academic Information Services encompasses both the staff of the library, which includes authors Clumpner and Burgmeier, and the instructional technology areas, where author Gillespie works. We support the instructional activities of faculty both on campus and off campus, in face-to-face courses and with online instruction. In the 2010 fall semester, we worked together to integrate course reserves into the course management system so that students could seamlessly access materials on reserve for a particular course. It took the cooperation of the library systems staff, the web services librarian, and the instructional technologist to piece together the necessary systems and services into a puzzle with a complete picture of embedded course reserves as the end result.

software with the course management system.

The Puzzle Pieces

The library piece. In 2009, we implemented Ares software to manage our electronic course reserves in the library. This system allows us to capture materials in digital format, store them, and offer them up to students who are authenticated into our system. The library receives requests from instructors regarding what they wish to have on reserve and for which course. If it is library material, we locate it in the collection. If it is personal material, we ask the instructor to bring it into the library. Once we have the material, the library ascertains through the Copyright Clearinghouse copyright permission to use the material. Library staff scans the materials to capture the information in digital form, stores the electronic version, and offers it to students using the Ares software. The original portal for accessing course reserves material was our library catalog.

The instructional technology piece. Northern Michigan University began offering online course management in 1999 with WebCT. In 2010, we began the migration of our courses from WebCT to an open source platform, Moodle, with our local application named NMU EduCat. While some courses are totally online, most courses use EduCat to provide some online content to enhance traditional face-to-face offerings. Currently, about 1,000 courses a semester utilize the course management system.

The web piece. Since we are a ThinkPad university (we provide each student with a laptop, networks, software, and technology support), we have had a web presence since the 1990s and have strived to improve the services of the division by offering easily accessible guidance via the web to our students, faculty, and staff. Back in May 2001, our library catalog became web accessible, and the library website provided access to a variety of resources and services offered by the library. Prior to implementing the Ares electronic course reserves software, the website offered information explaining reserves, details on copyright compliance and other copyright issues, and an online form for placing materials on reserve. Materials on reserve were in a separate module of the library system. This allowed patrons and staff to search what was on reserves by their course number and/or course instructor's name. With the exception of the electronic form for submitting requests, all other work for processing reserves was done manually. While this worked, it was structured for physical items only being on reserve. Also, we felt that the existing arrangement of students needing to open another window and log into another system in order to go to the library catalog, search for what might be on reserve, find their course and instructor, and then find the material in order to request it was hardly encouraging the student to look at what the instructor had put on reserve. More and more, professors asked to have materials made available digitally, especially for their distance learners.

More and more, professors asked

The Ares piece. When the library implemented the Ares software, the library website provided links for requesting a course in Ares (called course reserves setup) and instructions for faculty on how to make requests through Ares once the course had been established. Instructors who wanted to use electronic reserves had to complete a setup process each semester, indicating which courses needed reserve materials. Library systems staff would then manually create each course with the Ares client and load student rosters provided by the registrar's office. Faculty would have to wait for these pages to be set up, usually the next business day, before they could begin making requests to place items on reserve. Since there was no integration between the content management system, WebCT, and the Ares reserves system, the instructional technologist had to place a link to Ares in each course using electronic reserves. Additionally, students and faculty would have to be authenticated before gaining access to the reserve system, thus requiring a second login in addition to the course management system login. While this was an improvement, it still was very labor-intensive.

The Moodle piece. At the same time the library was bringing course reserves into the digital age with Ares, instructional technology was starting a review to replace our course management system. Support for NMU's previous course management system was going to expire, so in 2008, a group of faculty and staff members began exploring alternatives.

In order to evaluate other course management systems, a group of faculty helped develop an evaluation matrix, breaking down criteria for the future course management system into three levels: must have (features or capabilities considered critical for NMU's CMS); important to have (high-priority features or capabilities, but not absolutely essential); and would like to have (features that members of the campus community expressed an interest in that didn't have enough demand to be categorized as important to have). Note that we did not factor price into our evaluation matrix. We looked strictly at features, functionality, and compatibility with existing systems.

Examples of must-have features included but were not limited to the ability to import quiz questions, discussion boards, an assignment drop box, group tools, and grades. Most of the items in this category are standard in any course management system. Examples of important-to-have features included but were not limited to pop-up announcements, blogs, journals, and a calendar. With the exception of pop-up announcements, most of the items in this category were present in the systems we evaluated. Examples of would-like-to-have features included but were not limited to integrated email, system customization, collaborative writing tools, and anonymous grading. There was considerably less consistency with the items in this category being present in all of the systems evaluated.

Ultimately, the list of course management systems to evaluate was whittled down to the following: Blackboard

to have materials made available digitally, especially for their distance learners.

Learn 9, Sakai, and Moodle. Test servers were set up to evaluate the three finalists. Ultimately, Moodle was recommended and adopted as NMU's new course management system since it most closely matched the desired features and functionality laid out in the evaluation matrix.

Putting the Pieces Together

Even with Ares for course reserves, there were numerous problems setting up courses and maintaining accurate student rosters. Courses that were co-taught or cross-listed presented various issues that required staff intervention to get everyone the appropriate permissions and access. Multiple sections of the same course created similar problems that required staff to combine rosters into a single class. We also knew that instructors were bypassing the system and offering materials to their students directly within their course, ignoring any copyright compliance issues.

The library was interested in adhering to copyright. The instructional technologist was interested in improving online instruction. The faculty and students just wanted an easier way to get to the information.

We started by investigating the possibilities of improving access with the systems currently in place. We learned that Ares would be able to work with Moodle. One of the advantages of Moodle is its open source nature. Anyone can modify the code or write supplemental modules (blocks) that provide additional functionality to the course management system. There was already such a block written for Ares that our Moodle server administrator installed.

In speaking with our server administrator, the initial installation of the Ares module on the Moodle server was easy; however, it did require some special configuration to work with our systems. Some hard-coded URLs had to be changed to communicate with our system, and some code had to be revised to recognize our course ID format. All of this was tested on a Moodle development server, a copy of our production server in almost every way. The only difference was that the user data on the development server was from the previous 24 hours.

Upon the successful completion of testing, faculty members were informed of the upcoming changes in the way electronic reserves would be handled. Documentation was developed on the library website providing directions on how to add the course reserves block to a course in Moodle (see Figure 1). The documentation also provided directions for placing reserve requests and pointing out other key features of the Ares software, including the ability to upload files directly into Ares (see Figure 2).

The course reserves block in Moodle greatly streamlined the faculty request process. Faculty members who wish to use Ares for electronic reserves no longer have to make a request on a separate website and wait for their courses to be created. By adding the Ares block to the faculty member's Moodle
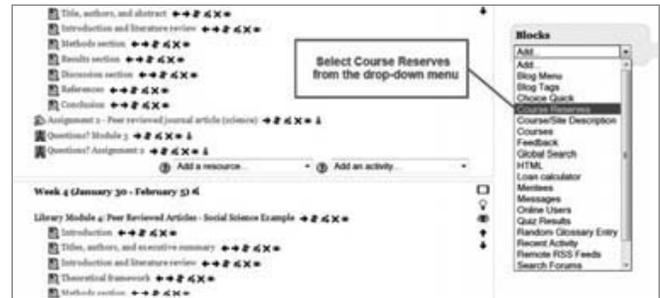

Figure 1

Figure 2

course, the Ares page is created automatically, and the faculty member can immediately place requests for his or her reserve items. Since the course information and student rosters are passed along from Moodle, the additional and redundant work previously performed by library staff has been eliminated.

The integration of the course reserves system into Moodle also improved access for students on a couple of fronts. Previously, students clicked on a link to the course reserves system in WebCT and authenticated themselves in order to get in to Ares. The course reserves block in Moodle eliminates the need to log in to Ares. The login information and role (i.e., instructor or student) are passed from Moodle to Ares via the block. Also, the link in WebCT was simply a single link to the course reserves system. Students did not see a list of items and had to navigate their way to each item for each class once they logged in to Ares. With the course reserves block in Moodle, once the appropriate permissions have been obtained and library staff makes the item active, students see the titles of all class items in Moodle. Clicking on any item will take the student directly to that item for printing or downloading if it is a digital file. Physical copies on reserve at the library (videos, books, realia, etc.) continued to operate as it has in the past. Instructors drop off material at the library and indicate one of a number of loan periods (2-hour in-house use, overnight use, 3-day use, etc.). Students check out this material with their university ID at the circulation desk.

Prior to integrating the two systems, having a separate login allowed faculty members to use electronic course reserves even if they did not use the WebCT course management system. The library simply provided a URL to the instructor, and the instructor passed this URL along to his or her students so they could log in and retrieve the items. Since we are unable to maintain two separate access methods to Ares, we had to require that any instructor who wanted to use electronic reserves had to also use the Moodle course management system. Fortunately, this only affected a couple of faculty members, and they either started using Moodle or went back to placing physical copies on reserve at the circulation desk of the library. While this may have been seen as a minor drawback to the few faculty members who had not previously used a course management system, from the student perspective, the ability to access all course information from syllabus to grades and electronic reserves in a single location is ultimately a positive outcome.

Before integrating the Ares block, each course that was created in Moodle already had a link to the course reserves system. This link was part of a course template from which courses are created. This is similar to the way the link to Ares was handled in WebCT. Once the Ares block was successfully integrated into Moodle, the link to the system was no longer necessary. It was removed from the template so it would no longer be added to newly created courses. Fortunately, the server administrator was able to write a script to automate the process of removing the superfluous link to Ares from all of the existing courses.

Missing Pieces

Since integrating the two systems, we have been listening to our users to see what improvements can be made. Upon initial rollout of the Moodle Ares block, the reserves appeared one after another with no breaks (see Figure 3). For courses with more than two or three items on reserve, the long list made it difficult for students and instructors to find specific items. The items were also not in alphabetical order. We received some feedback from faculty members who were using the block and began looking at some enhancements. The list of reserve items in the Moodle Ares block is now a numbered list (see Figure 4). Not only is this easier to read, but it also allows instructors to direct students to a reserve item with a specific number in the list. Future enhancements will likely include putting the items in alphabetical order, paginating long lists, and
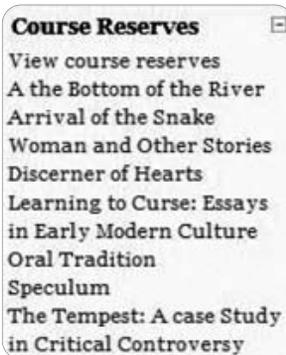

Figure 3: In the initial rollout, the reserve lists were hard to read.

Figure 4: Improvements in the reserve lists

having items automatically added to and removed from the list based on release criteria entered into Ares.

A Picture Emerges

We are in the first semester of full implementation of course reserves embedded into our course management system. We have developed a system that allows students to see all of the reserve materials for their particular courses from within the course management system. By clicking a link to a reserve item within their course, students are taken directly to the item for display on their computer. The integration of the electronic reserves software with the course management system has also streamlined the request process. Once a course has been set up in Moodle, faculty can request materials for reserve immediately, either uploading an electronic copy or dropping off a print copy at the library to be digitized. Library staff then digitizes the items or reviews uploaded files for quality and file size and makes them active, whereby the material displays in the course management software. In addition, library staff automatically manages all copyright issues including requesting copyright permission and payment of copyright fees. Since the electronic reserves software and the course management system communicate directly with each other, the amount of time library system staff devotes to the electronic reserves software has been dramatically reduced, allowing staff time to be directed toward other initiatives. In the end, students, faculty, and staff have all benefited from the integration of our electronic reserves software with the course management system. ✤

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