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Connecting Students to Free Course Materials

An eTextbook Portal Using Digital Commons and WordPress

When you think of textbook affordability, your mind likely goes to open educational resources (OER).[1] Numerous academic libraries are involved in OER efforts, and institutions with successful OER programs see entire departments or large classes adopt OER instead of traditional, costly textbooks. However, even with the most successful programs, not every class will use OER. This is where library-sourced ebooks can help fill some gaps to promote textbook affordability. It is meaningful when the library can provide an ebook that matches an expensive textbook used for a course. This means that one library resource can make a big impact in a student's life. For example, a student might have needed to choose whether to use their money on a textbook or groceries, and then experienced negative learning outcomes from not having access to the course material. The meaningful impact of providing such a library ebook is tempered, unfortunately, with what can be a daunting task for the library to sift through thousands or even tens of thousands of course textbook lists each semester. After that is another daunting task to alert the faculty and students in time for classes to begin. To enhance the way libraries promote ebooks matching course materials, some libraries have created what the authors call an eTextbook portal. This article will discuss what an eTextbook portal is, examples of some, how the authors developed one, and what the reader could consider if aiming to create one at their institution.

eTextbook Portal

An eTextbook portal is a website that helps students and faculty locate library-sourced ebooks that match required textbooks for classes. The title "eTextbook portal" is chosen for the following reasons. The words "ebook" or "eTextbook" are both viable options, but "eTextbook" quickly communicates to students that the content is digital and relates specifically to required course materials. The next term, "portal," is defined as "a website serving as a guide or point of entry to the World Wide Web and usually including a search engine or a collection of links to other sites arranged especially by topic."[2] This broad sense could include a database, list, repository, or other way to connect students to library eTextbooks, while at the same time differentiating from the library catalog. Technically, many of the eTextbooks listed in portals may be more accurately referred to as ebooks, since the books may not have been published in a textbook format, so both terms will be used in this paper.

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The layout, search interface, and information presented in a library-created eTextbook portal varies according to institution. Our eTextbook Portal[3] was inspired by the ones developed by Louisiana State University (LSU) and Florida State University (FSU). Individuals from both institutions met with us and provided valuable insights as we developed our own platform, and they have presented and published about their respective websites.[4,5] FSU's version is titled eTextbook Search[6] and was based on the LSU platform titled E-Textbooks for Students.[7] LSU provides a second interface titled E-Textbooks for Faculty, and in this faculty can look for ebooks to select for their courses, which can trigger a request for LSU to purchase an ebook if not already available.

Some other eTextbook portals include East Carolina University's E-Textbooks database,[8] Ebooks for the Classroom+ from the University of South Florida's Textbook Affordability Project,[9] Eastern Michigan University's LibGuide called Library Ebooks Used in Classes,[10] Affordable Learning @ Franklin University's LibGuide,[11] and Concordia University Chicago's lists in their Library eTextbook Initiative.[12]

Our own portal includes approximately 500 library ebooks used as course materials. It currently offers four search options: (1) course number, (2) course department drop-down list, (3) book title, and (4) course instructor. Visitors can choose one or multiple methods to narrow down their search. Otherwise, they can scroll the entire list.

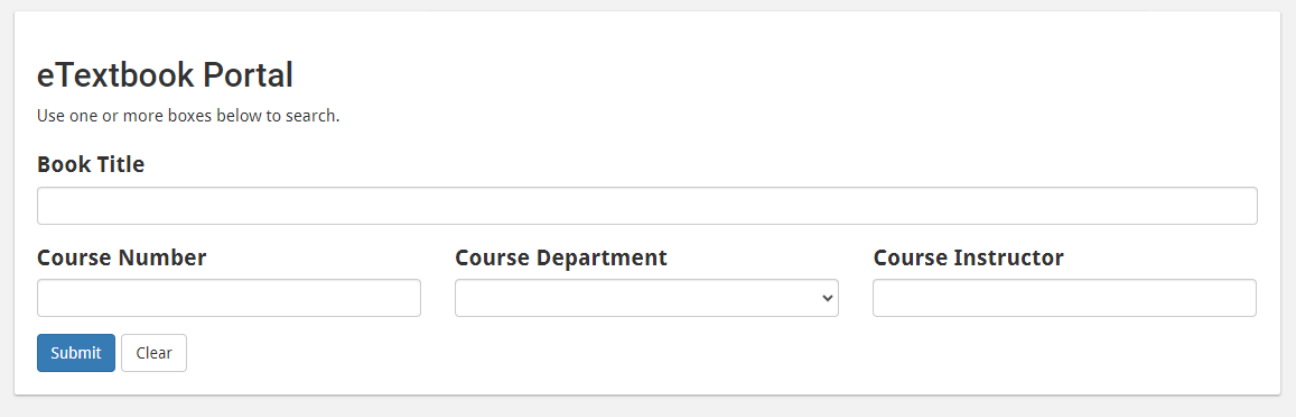

Figure 1. eTextbook Portal Search Interface

The ebooks display with a cover picture, title, edition, author(s), course number, course title, course instructors, license, and links as buttons either to read the full text or view instructions. The license section includes specifics on the ebook access model. With few exceptions, the ebooks are unlimited user access rather than being limited by the number of users at a time. Any ebooks with limited access, such as only permitting one or three users at a time, are not added to the portal since these limited-access ebooks cause frustrations to students in courses. The "Read Full Text" link takes visitors directly to the ebook platform, bypassing extra links through the library catalog, and prompts visitors to log in with their institutional account to access the content. Some OER or open access ebooks are included in the portal and labeled as such, so these materials do not require a login. The "View Instructions" link takes visitors to videos explaining how to use specific ebook platforms.

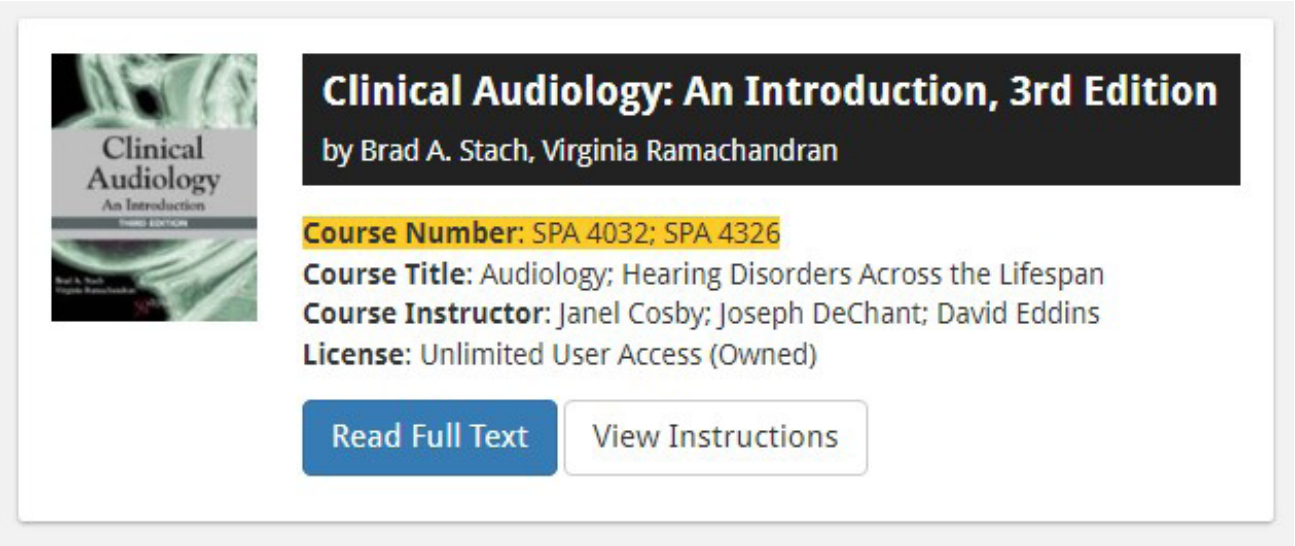

Figure 2. Example Format for ebook listed in the eTextbook Portal

WordPress, Digital Commons, and the API

Behind the scenes, the eTextbook Portal's architecture is critical for its success. It employs a WordPress webpage as its primary access and display interface, complemented by a Digital Commons-hosted institutional repository[13] that serves as the backend for organizing and storing eTextbook records. Within the repository, a visually engaging book gallery format is utilized to store and present textbook information. This innovative solution addresses critical aspects of eTextbook record management, including customizable metadata fields, streamlined uploading and updating processes, and the incorporation of cover image thumbnails.

Within the eTextbook repository, each entry is curated to provide metadata for display on the portal's webpage. Beyond the standard fields—such as title, author, and publication date—the repository accommodates custom fields, allowing additional metadata that aligns with the eTextbook context. Certain fields can be reserved for administrative purposes to track internal processes, such as acquisition dates, licensing agreements, or copyright status. Reserved fields ensure efficient management behind the scenes. The integration of metadata from the repository records to the portal webpage enables students and faculty to easily browse through the collection, making informed choices based on cover images and relevant fields.

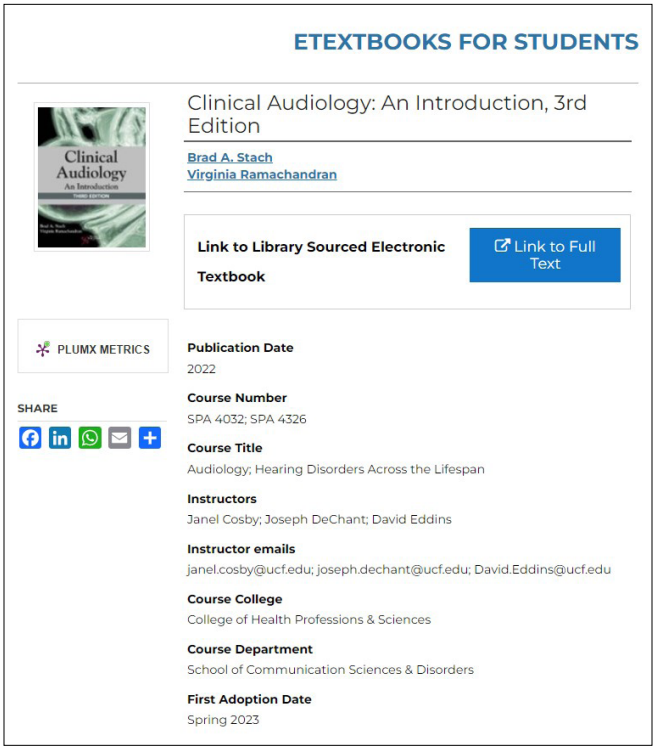

Figure 3. Example of metadata stored in the repository

The repository platform plays a pivotal role in maintaining an up-to-date eTextbook collection. Librarians have the ability to add new titles and refine existing entries, ensuring that the content remains current and relevant. Two options are available to add or edit records: manual submission or batch processes for uploading or revising metadata.

Manual submissions allow individual records to be uploaded by completing a web form. Each record can be edited individually as well. When logged in, those with administrative permissions for the eTextbook collection will have access to an "Edit Book" option at the top of the screen for each book record. From there they can update the information such as editing any of the fields or replacing the book cover. For efficiency, batch uploads and revisions often come into play. Librarians compile the necessary information in a spreadsheet, aligning metadata with the corresponding fields. Once prepared, the librarian uploads the spreadsheet through the system, automating the process for multiple records simultaneously. Repository administrators provided hands-on examples and training to the textbook affordability librarian spearheading the portal project. This librarian is growing the program and has since trained two others to manage eTextbook records in the repository.

Since the eTextbook records take a unique form as metadata-only entries, there is no file associated with the record for the purpose of generating a book cover image for display. If a book record is individually uploaded, the book cover can be added to the web form at the time of submission. However, if book records are uploaded via the batch process a link to the book cover image must be provided in the spreadsheet. This issue was resolved by having the librarians upload cover images directly from their local computers to the Batch Upload File Manager. This temporary storage acts as a bridge, providing a unique URL for each image. These URLs are then added to the batch upload spreadsheet, ensuring that every book cover finds its rightful place alongside its corresponding record.

This metadata-centric approach emphasizes efficiency and accuracy. Newly added records and changes reflected in the repository are automatically pushed to the portal webpage with no additional intervention via the Digital Commons Application Programming Interface (DC API).[14] The API enables integration with other systems. Metadata from the portal on the repository can be exposed via the API, allowing external applications (such as WordPress) to retrieve relevant information. However, integrating the DC API with WordPress posed a couple of initial challenges.

The API, designed by bepress (bepress.com) to provide secure access to repository data, needed to integrate with the WordPress ecosystem. One issue we encountered involved the WordPress functions used to make the API call to bepress. For university security purposes, our WordPress customizations must use the built in wp_remote_get functions to make API calls. Initial tests to the bepress API were performed in Postman and raised no issues. When the API call was made in WordPress, we discovered an issue where the authorization header was being sent twice. This double sending of the header caused the API call to fail and not return data. The web developer worked with IT to create a new function that would send the authorization header, collect the response, and then resend the request without the header to get the successful results from the API.

While powerful, the API had a limitation that needed to be addressed for the portal implementation. Notably, book cover images displayed within the repository were not exposed through the API. This posed a concern because visual appeal was crucial. A hidden metadata field, discreetly tucked away in the repository's backend, became the solution. When book cover thumbnail images are available in the repository, the URL for each book cover is added into this field. While adding an additional step, the book cover images are now accessible via the API, enriching the experience for users. With this final challenge overcome, the last step was to create the eTextbook Portal.

Conclusion

Creating the eTextbook Portal involved designing the aesthetics and search capabilities of the webpage itself, setting up hundreds of metadata records in the bepress institutional repository, and fine-tuning the API to bring it all together. All this work inspires an important question: why was the portal designed this way? An alternative may have been to use the library's current Course Reserves section of the Primo discovery system. The possibility to use the established discovery system was explored, but it lacked important features such as customized displays, batch uploads and edits, and flexibility for access and changes. The added work on the front end to build the portal made the final product and its features worthwhile.

As with any project, it is important to circle back to the purpose of it. The eTextbook Portal is a key part of the institution's Affordable Instructional Materials Initiative,[15] as it helps to inform students about free course materials required for classes. Potential student savings from courses using library-sourced ebooks reached over $3.68 million for approximately 46,800 students in 2023 alone.[16] Providing access to digital textbooks—and an intuitive eTextbook portal to find the materials—is an investment in student success.

Notes

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