BOARD #146: Going Bookless: A Case Study from an Engineering Library

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ABSTRACT

What is a library without books? An engineering library at a major North American university is learning the answer to this question. The institution's college of engineering recently completed construction on a brand-new building housing several departments and labs, with space included for a new engineering subject library. However, the new space is approximately 20 percent of the size of the old library, which created the need to severely downsize both the collection and the services housed within it.

The decision was made to create a "bookless" library, with the new location acting as a service point and circulation desk while the circulating materials would be held offsite. The entire collection underwent a deselection process, which eliminated about two-thirds of the original books. What remained was moved to the main library and a policy emphasizing the purchase of electronic books over physical copies was implemented. The move and the new collection situation were communicated to the faculty, students, and staff of the college of engineering through a variety of different methods during the two years before the move, including at new faculty and student orientation events, department meetings, and as part of in-class instruction. An emphasis was placed on the fact that although the engineering library has no books onsite, patrons are still able to request any item in the catalog and it will be delivered to engineering for them to pick up. This paper will also include recommendations and lessons learned for others who may be interested in or preparing for a similar move.

INTRODUCTION

For more than two millennia, libraries have been known primarily as a place where someone could find (and maybe even borrow) books and other physical materials. Over the years, however, they have become a place for their communities to gather and learn about a wide variety of topics that held their members' interest. Today, libraries are now essential institutions within the communities and organizations that they serve and provide many services that go far beyond just lending books.

But can a library still call itself that title without any books? One academic library branch recently had to learn the answer to that question for itself.

LITERATURE REVIEW

The idea of a "bookless library" has been around for at least fifteen years, with engineering libraries making up the bulk of this trend. Stanford University made what is considered the first attempt with their renovation of their engineering library in 2009. However, since some books were still kept on site, the library is not considered fully bookless.[1]

In 2010, the University of Texas at San Antonio's Applied Engineering and Technology Library became the first to officially eliminate all physical books within its space.[2] Located in the institution's Applied Engineering and Technology Building, the library occupies what was

originally meant to be a laboratory, but a collaborative effort between the Deans of Engineering and the Libraries led to the transition. No books are held on site; instead, the space is used as a student study area, with different sections of the library for individual and group study.[3]

At Cornell University, the Engineering Library completed a move to a fully bookless format in 2011. The transition came after budget cuts necessitated a consolidation of several subject libraries. The entire engineering print collection, including course reserves and reference books, was moved to the main library. All planning was done internally, with the renewed space now focused on electronic collections and providing more study areas for students to use.[4]

In a two-part series of articles published in 2013, Sewell describes the multi-step process needed for a library to go fully bookless. The first article covers the topics of deselection and relocation of the collection, while the second is about managing and conducting access services with no books on-site.[5], [6]

More recently, the University of Southern California had to "reimagine" its Science and Engineering Library after the school of engineering repurposed about a third of their original space. Although the library did not go fully "bookless", a major deselection project was conducted to resize the collection for the reduced space. Their experience also gave them the opportunity to create an internal collection development policy to assist with future projects.[7]

BACKGROUND OF THE MOVE

The Pennsylvania State University is a Carnegie Level 1 research university located in University Park, PA. The College of Engineering, officially founded in 1896, offers bachelors', masters', and doctoral degrees in ten departments. The college's average annual enrollment includes over 11,000 undergraduates and 2,000 graduate students.[8]

The library system at Penn State is one of the largest in North America, with several million volumes of books and materials along with several thousand journal subscriptions.[9] The engineering library works as a partner with the College to provide learning services and support to students, faculty, and researchers. These services consist of information literacy instruction, research guidance, access to the libraries' collections, student and faculty engagement, and library outreach.

Since 1960, the engineering library has resided in the Hammond Building, which also served as the home of the College's administrative team and various departments.[10] By the 2010s, the building had gone past the point where further renovation would be economically feasible and plans for a new section of campus that would contain multiple engineering buildings were drawn up. The engineering library would be included in the move.

The original plans provided the library with the same amount of space it had in the previous building. However, due to the need for more classroom space and the attitude of the dean of the college during the planning phase, the library's space was shrunk from 10,000 square feet to 2,000. At this point, it became clear that there would be no room for the monograph collection. The decision was made to transition to a bookless library.

Although the library was not involved in any part of the planning process, the STEM department head and Dean of the University Libraries were able to successfully request some changes. One was to have a shelf built into the wall next to the reference desk to house course reserve materials, book holds (from Interlibrary Loan), and the small portion of the reference collection that the library was unable to acquire electronically. Another was the creation of three small offices for faculty librarians and the library staff supervisor. A third was having a quiet study room under library control that students could use without a reservation – this is the only study room in the building that undergraduate students can access without needing departmental permission. Unfortunately, in the end, the only way to successfully accomplish the move would be by conducting a massive deselection project.

Figure 1: The Hammond Building. The Engineering Library
was located on the top floor of the near side (at least in this photo).

DESELECTION

After the decision to go bookless was finalized, the engineering library was faced with the enormous task of whittling down a collection of over 30,000 items to zero. Where would the books go? How would they get there? How would the decisions be made? The engineering library decided that the first step in going bookless was to decide which books would be removed, or deselected, from the collection. The workflow for deselecting items varied at times depending on personnel and staffing levels, but mostly followed this order: deselection decision, removal from the shelves, disposition assigning, and execution.

Figure 2: Map of the Move – The old location of the Engineering Library is circled in blue, with the new location circled in green and the new location of the collection circled in red.

Deselection Decisions

The deselectors were primarily faculty librarians whose primary subject specialty was engineering. To help with the workload, they sought help from other STEM Library Department Librarians, who took on the task of deselecting from call number ranges with which they were more familiar. All deselectors looked at the following criteria when making their decisions: online access, holdings, usage, and relevance.

Contractual Obligations
To start this monumental task, the engineering library first took stock of items that we were contractually obligated to keep: our HathiTrust collection. The Penn State University Libraries are participants in the HathiTrust Shared Print Program (HTSPP), a program that "aim[s] to build a comprehensive print and digital archive of published literature from around the world and make it accessible through digital access and interlibrary loan." Contractual obligations and preservation-oriented mentality drove us to ensure that none of our HathiTrust items were lost in the move. These items were identified, pulled from the shelves, and relocated to Paterno Library, the largest of the library buildings and home of most of the monograph collection. With our HathiTrust items now secure, library employees turned to the more difficult decisions.

Online Access
With the decision to create a bookless Engineering Library came a new collection development policy that prioritized the purchasing of online over physical texts whenever possible. This new collection development policy retroactively influenced the decision to deselect physical items that the library had online access to. However, before an item was removed from the collection that had a digital counterpart, the engineering library wanted to ensure that the digital access was

both reliable and complete. For example, if digital access to a physical book was through a vendor whom the library may not continue to partner with, a physical copy of that book would be kept ensuring that our users have continued, reliable access to that material. Additionally, the library needed to ensure that digital access to items was complete. Some digital access to items would only provide access to certain chapters or articles from a larger work, rendering it necessary to keep the physical item in the collection so that patrons had complete access to all the information in the work. Engineering Library student employees were tasked with confirming digital access to items. Deselectors then used the information they gathered to make decisions regarding online access.

Holdings
Deselectors also used holdings, or how many other copies of the book were held by other libraries and institutions, to make their deselection decisions. Holdings were considered on multiple levels including how many holdings the Engineering Library, the Penn State University Libraries, and the OCLC had. Items with multiple holdings, especially within the Engineering Library or the libraries as a whole, typically indicated to deselectors that these items should be removed from our collection. However, if multiple copies of an item were held, but there were relatively low OCLC holdings for an item, deselectors might consider keeping the item or moving it into off site storage to preserve the more general holdings of the item. Deselectors used a general rule of reconsidering deselection if OCLC holdings were less than 100, with holdings of less than 50 receiving special attention.

Usage
Deselectors also used usage statistics to guide their deselection decisions. These usage statistics were the result of both counting how many times the item circulated and was marked as used internally. Items that were purchased further in the past were held to a higher usage threshold for remaining in the collection than books that were purchased more recently. A typical rule followed for deselecting items based on usage was to consider whether the book was used more than twice in a year, with exceptions potentially being made for books purchased fewer than 5 years ago. This usage threshold was in part informed by the library's policy for semester long loan periods and automatic renewals if a borrowing patron is still affiliated with Penn State. Due to generous loan periods, checkout and return dates could also be consulted to ensure that a book with one circulation that had been checked out for several years would not be counted the same as a book that circulated once for one loan period and never again. Books that were placed on Course Reserve were also given special treatment when considering deselection. As engineering instructors typically reuse required and recommended textbooks for several years, if an item was placed on Course Reserve, it was more than likely to be kept in the collection as opposed to deselected.

Relevance
A thorough combing through of the collection brought to light items that no longer were relevant to the larger mission of the Penn State University Libraries. These include items that were outdated, irrelevant, or no longer pertinent to our patron base. Items like these typically would have been removed from the collection during typical maintenance weeding; however, due to staffing turnover at the engineering library through the past few years, this typical weeding was not able to occur.

Criteria Together

Deselectors considered all four of these criteria together when making deselection decisions. A typical deselection decision might reflect the following example. *Hypothetical Engineering Book* has two copies at the Engineering Library, 3 copies at the Physical and Mathematical Sciences Library, one copy at Paterno Library, and 250 copies total according to OCLC holdings. This book was acquired by the Engineering Library in 2003 and has circulated 78 times. In the Spring Semester, this book is typically placed on Course Reserve for three courses, demonstrating its usage and relevance to the collection. Penn State does not have online access to this book. If deselectors look at each criterion individually, the book might receive different deselection decisions. The guidelines for relevance, usage, and online access would lead a deselector to keep the item, while the holdings guidelines would lead a deselector to remove the item from the collection. Because of how heavily deselectors weighed items placed on Course Reserve, this item would most likely be kept in the collection. However, other small factors, such as the circulation of the other holdings at Penn State, the usage of the second Engineering Library copy, and whether a new edition has come out in the last few years, might sway a deselector to keep just one or both copies of *Hypothetical Engineering Book.* Deselectors would keep track of these decisions in excel spreadsheets as they worked through the collection.

Removing Deselected Items from the Shelves

While deselectors were busy making decisions about which items to remove from our collection, staff and student employees were acting on these decisions. After deselectors made decisions, staff would follow behind the deselectors to organize the removal of these items from the shelves. By not waiting for deselectors to finish their decisions for the whole collection, a more assembly line type of workflow was established, ensuring that we did not waste time. From the deselector Excel sheets, staff printed out the identifying information for each deselected item. Student employees and full-time staff both took to the stacks to locate and remove these items.

When the items were located, employees checked off the item on the printed-out spreadsheet and placed the physical item on a shelving cart for full time staff to continue processing. However, not all items were located during the first search. Staff implemented a system wherein employees searched for each item at least three times, preferably each search was performed by a different employee. Each of these searches included searching for the book on different shelves and according to common shelving mistakes. If staff could still not locate the item after a third search, the item was declared "Missing" in our library system. Library employees give an item the status of "Missing" when the item cannot be located in the library and was not circulating when it could not be located, placing the responsibility for the missing item on the library itself.

Disposition Assigning and Execution

Once items to be deselected were located and pulled from the shelves, they were returned to full-time staff for further evaluation. Deselectors, and eventually full-time staff under the direction of the deselectors, would appraise each item that was deselected to see if it should be recycled or donated to Better World Books (BWB). The main determination for whether the items would be recycled or donated was the integrity of the book. Specifically, the presence of water damage,

mold, or pages falling out of the item would disqualify it for donation. Additionally, employees followed the donation criteria set forth by Better World Books itself when determining if a book would be donated or not. Some of the donation criteria included donating books and monographs, textbooks published in the last ten years, and foreign language books while refraining from donating annuals and periodicals, CD's and DVDs, and custom course packets.

Deselectors and other full-time staff would make note of whether they assigned items to the disposition of being donated to BWB or recycled in the deselection Excel spreadsheets and in our library system. If an item could not be donated to BWB, it was stripped of all non-recyclable materials (such as discs, metal binding, other miscellaneous, non-paper materials) and shipped to the University Libraries' Annex via inter-library mail. From there, the items would be delivered to a third-party recycling service. If the item was assigned to be donated, student employees would demark the item by blacking out any library markings from the item with black markers, as per Library policy. 24,660 items, or approximately 66% of the initial 30,000+ items, in the collection were eventually deselected.

One unexpected benefit of implementing such an in-depth and deliberative process was the ability to update cataloging records for all the books in the collection. Many that had been declared "missing" in the system were found, while others were discovered to no longer be in the library's possession. By working closely with the library's cataloging department, records were quickly revised and are considerably more accurate than they were before the project began.

Relocating What Remained
After two thirds of the collection were either donated or recycled, the engineering library was left with 12,850 items remaining on its shelves. At this point, the librarians and staff distributed the list of remaining items to other librarians within Penn State. Libraries were asked to flag items they wanted transferred to their stacks on a first-come, first-served basis. The remaining, unclaimed items were either sent to the Annex or to the Paterno Library. Items scheduled to be moved to the Annex and the items selected by other libraries were small batch moves, with no location needing more than 200 items delivered. Because of the smaller nature of these item transfers, library staff were able to quickly process these transfers and ship the items through the pre-established interlibrary mail service, after communicating our needs with the mail room staff. The engineering library was left with 10,118 items that needed to be relocated to the third floor of Paterno Library.

The Move

When preparing to transfer over 10,000 items to the main library, one member of the leadership team suggested that instead of staff at the Engineering Library moving the items ourselves, we reach out to the larger Penn State community for support in this daunting task. This suggestion led the engineering library to organize a "Move Party," wherein members of the community were invited to join the engineering library for one day during Spring Break to help us process and pack our items for delivery to Paterno Library.

The Move Party: Organization
To prepare for our Move Party, the Engineering Library needed to plan how the books would be moved and how to solicit help. First, staff determined that the best time to hold a move party would be during the university's Spring Break, as the library could close to the public for the day with minimal disruptions to our patrons and other staff from different libraries would hopefully be more available to assist us in our move. Library staff then coordinated with the university's Office of the Physical Plant to arrange a schedule for moving trucks to ship twenty oversized book trucks from the main library to the Engineering Library and then to return these filled book trucks afterwards. Staff determined that the best way to solicit help from our library community was to send an email in the university library listserv. To entice volunteers, the Engineering Library informed potential volunteers that we would be providing lunch for volunteers. The email included a flyer explaining the goal of preparing as many of the over 10,000 items to move as possible and a survey. The survey included a space where volunteers could sign up for a morning and/or afternoon shift and questions about dietary restrictions. Additionally, the survey asked volunteers to inform staff if they had any preferences for what type of work they would perform at the party based on task expertise and the physical hardship of each task. A small team performed a test run through of the move to establish a day-of workflow.

Figure 3: Empty Book Trucks before the beginning of the "Move Party".

Figure 4: Loaded Book Trucks ready to be moved.

The Move Party: Execution
Based on staff availability, the Move Party was planned for the Monday of Penn State's Spring Break. The Move Party occurred over the course of a four-hour morning shift and a four-hour afternoon shift, separated by an hour catered lunch that volunteers from both shifts were invited to attend. Each shift began with a short 15-minute orientation which covered topics such as: safety and the importance of taking breaks; who to turn to with questions; and how the work would be organized for the day. The work took the form of an assembly line wherein books would move through four stations. Three to five volunteers were assigned to each station according to need and their response to the initial volunteer survey, with changes being made according to personal preference throughout the day.

Each of the four stations accomplished a specific part of preparing items for transfer. Volunteers at Station One physically loaded books from the library stacks onto book trucks in call number order. While moving items from the stacks to the book trucks, volunteers scanned the barcodes of these books into an excel sheet to build a manifest of all the items loaded on each truck. This excel sheet was programmed to check each barcode against our catalog to ensure that the books being moved indeed belonged to our library and were not marked as lost or missing in our library system. Station One accomplished an unanticipated outcome of the move in that the engineering library was able to locate items previously thought to be lost. After volunteers filled each book truck, they printed a manifest and affixed it to the side of the book truck.

Station Two accomplished the task of changing the location each item was assigned to in our library system. Volunteers scanned each book's barcode into our library system's location

change wizard so that our catalog understood that this book now belonged to the new location. The book trucks then moved on to Station Three, where volunteers scanned each barcode again to put each item into transit to Paterno Library. Afterwards, volunteers at Station Three counted each item on the book truck and compared this number against the number of items on the truck's manifest. If the count and the manifest did not line up, volunteers took this opportunity to check their truck for mistakes and missed items in the processing workflow. While tedious and at times repetitive, the Move Party organizers built the workflow to include each book being physically interacted with at each step of the item's processing. This process allowed each station's work to be checked by another station at some point, ensuring several opportunities for mistakes to be caught before the books were delivered. After the books were counted, the book trucks moved on to Station Four. Volunteers at Station Four wrapped each book truck in plastic wrap to ensure that items would not fall off the book trucks during transit. Trucks were then marked with their truck number on the outside of the plastic wrap for easy identification.

Engineering Library staff entered the Move Party expecting to accomplish preparing 60-75% of the collection for transfer. Due to the tireless, efficient, and detail-oriented work of our volunteers, 100% of the collection was fully prepared for transfer. During the Tuesday and Wednesday after the move party, staff loaded the packed book trucks onto moving trucks to be shipped to Paterno Library. From here, staff unloaded the books onto their new shelves, prepared after months of shifting and deselection that occurred at the receiving library. When each book was removed from the book truck and placed on its new shelf, its barcode was scanned so that the item was no longer in transit, marking the end of the transfer process.

Accounting for Items in Circulation
Throughout the process, as books that were in circulation were returned, they were disposed of as planned during the deselection process. Since the records had been changed before the move, any book meant for the annex or the main library that was returned afterwards was automatically sent to its new shelving location. Meanwhile, books meant for BWB or the other campuses were set aside and sent once a large enough number returned to justify the shipping costs.

CURRENT SITUATION

The Engineering Library officially opened in its new location at the beginning of the Fall 2024 semester, along with the entire Engineering Collaborative Research and Education Building (ECoRE). The smaller space consists of a main reference desk (which has already been mistaken for the building's information desk on multiple occasions), a workroom behind the desk, three librarian/staff offices along the main hallway, and a "quiet study" multi-purpose room for patron use during the library's operating hours. Instead of existing in a difficult-to-find corner of the building (as in the past), the library is at the front of the second floor, near both the main staircase and elevators, directly in the center of everything. The number of patrons asking reference and directional questions at the desk is much higher than at the old location.

The engineering monograph collection now permanently resides on the third floor of Paterno Library. Patrons can browse and borrow books from that location. They also have the option to place a hold on the books they want via the online library catalog system and have those books delivered to the engineering library for them to pick up. This process has been in place for

several years and gives faculty, staff, and students the option to avoid traveling more than half a mile from the new engineering campus to the main library to pick up requested materials.

To better assist patrons, engineering course reserve and print reference collections are kept on shelves next to the desk. Therefore, the library may not be fully "bookless" yet, but librarians are replacing the physical textbooks with electronic copies whenever possible. The only two issues holding the Engineering Library back from going entirely bookless are the reluctance of certain publishers to sell e-textbooks to libraries and the overall library collections budget.

Figure 5: The New Engineering Collaborative Research and Education Building. The Engineering Library is now located on the second floor.

Figure 6: The front desk of the Engineering Library. The course reserves and reference books are located on the shelves built into the wall next to the desk (right of photo).

Figure 7: Close up of the reserves and reference books. The pocket doors can be locked when the library is not open.

DISCUSSION

Thanks to the amount of time and effort put into planning the move, all aspects were completed ahead of schedule. Out of the more than 30,000 books that were moved, only one was improperly scanned. However, due to ensuring that there were multiple checks in the process, the mistake was found and quickly corrected. Although there may be a faster way to process the books, the focus was on accuracy over speed.

The biggest issue that occurred was the multiple changes in leadership for both the library and the college of engineering that happened throughout the move. As mentioned earlier, none of the leaders who were responsible for making the original decisions about the library space and going bookless were still with Penn State when the move took place. Over this time, the Engineering Library had to deal with different expectations of communicating progress and different systems for implementing the move. Only in the last eighteen months before the actual move did the current leadership team fully assemble.

The move party itself worked well for this task, but it is possible that it would not work in all situations. It did allow the Engineering Library to build a community with other library branches across campus and kept everyone informed about what was going on. In the end, moving the books to either the annex or Paterno Library was an efficient process, but given the number of people involved, this could have easily been very inefficient. Training the team beforehand helped with this efficiency, but the time that training took mitigated any time that was saved by having such a large team move the books in the first place. Also, a decent amount of the budget was spent on food for the team that day.

One alternative path that the Engineering Library could have travelled down instead would have been to allow the librarians from the other branch and campus libraries to review the book lists

first before beginning the deselection process. It is possible that some books were weeded that could have been useful or found a home at another Penn State library.

CONCLUSION

In the end, the entire move went smoothly. A few lessons were learned along the way. One was to ensure that the library has an established leadership going into this process, and a viable plan of succession should someone have to leave. And most importantly, document absolutely everything. This will allow the librarian to double-check their process and quickly determine the resources needed.

For anyone who finds themselves in a similar situation in the future, there are two things to keep in mind. First, you are not in this alone! Use your community, every level of your employees (student staff, full time staff, faculty), and your partners (HathiTrust, BWB, etc.) to get the help you need. And second, while this paper primarily discussed the actions taken by the Engineering Library, staff at Paterno Library also put in an equal amount of work preparing to receive the books. Creating a bookless library is inherently a collaborative endeavor.

ACKNOWLEDGEMENTS

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