Let’s Get Technical — Plight of “On the Shelf”: Inventory in a Large Academic Library Collection

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Introduction

Managing collections and access to the scholarly record is the historical reason for libraries to house, maintain, and provide access to research materials for future scholars. Binghamton University is one of the four centers in the State University of New York (SUNY) system, and a doctoral R1 institution. The Libraries house over 2.1 million items in 4 locations. In over 45 years, a full inventory of the Libraries’ collections has never been completed, even after four system migrations (the most recent from Aleph to Alma, an RLIN to OCLC conversion, and an OCLC reclamation). Justifying an inventory is always the challenge; resource allocation, staffing to fix problems, and the need to balance the return on the investment must all be taken into consideration. In preparing to move an entire floor for renovations (500,000 items approximately), and the need to place sections of that collection in different locations, the numbers identified in the automation system were suspect; an inventory would identify and correct these issues.

Collecting data to determine collection and missing numbers is needed to justify the expense of an inventory project. If the number of items missing is large enough, it would justify doing an inventory. Two methods were used: sampling and a partial full item scan inventory. These methods would help us determine our resource allocation, accurately reflect what is on the shelf, and correct errors within a specific time period. The goals are to provide accurate shelf item counts, determine the number of missing items, and to create a more robust user experience through accurate item shelf status.

Methods

The first sample contained new books purchased in fiscal year 2017, from three collections, and housed in physically different locations: Fine Arts, Glenn G Bartle Stacks (Main), and Science. The first step in this type of inventory is to determine the appropriate sample size for each collection with a confidence level of 95% and an accuracy within 4%. Next, we extract the title and call number from the collections in call number order in Excel, and then using a random number generator, select rows for the sample. If the item is found, a check mark is placed on the sheet. For items without a checkmark, the availability in Alma is checked; e.g., lost, on loan, damaged. Two weeks after conducting the sample review, the shelves are checked again. From this review of the new book sample the following information was found for each collection. Table 1.

<table>
<thead>
<tr>
<th>New Book</th>
<th>Sample</th>
<th>Missing</th>
<th>On Loan</th>
<th>Percent Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Arts</td>
<td>419</td>
<td>33</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>Main</td>
<td>566</td>
<td>7</td>
<td>32</td>
<td>1.2%</td>
</tr>
<tr>
<td>Science</td>
<td>407</td>
<td>14</td>
<td>29</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 1

We decided to expand the research to include all of the materials in the three collections to determine if new materials have a different error rate. Using the same method as outlined above, another sample was generated for each of the three collections. Using the same shelf check, availability verification, and two-week review, the following data about the three collections was identified, as displayed in Table 2.

<table>
<thead>
<tr>
<th>Full collection</th>
<th>Full count</th>
<th>Sample</th>
<th>Missing</th>
<th>Loan</th>
<th>Percent missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Arts</td>
<td>114986</td>
<td>597</td>
<td>24</td>
<td>6</td>
<td>4.0%</td>
</tr>
<tr>
<td>Main</td>
<td>936467</td>
<td>600</td>
<td>20</td>
<td>13</td>
<td>3.3%</td>
</tr>
<tr>
<td>Science</td>
<td>158358</td>
<td>598</td>
<td>10</td>
<td>0</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Table 2

With this data, library administration was consulted about doing a full-scan inventory for those 500,000 items in the Main collection, and they agreed due to the renovation move. Even though the Fine Arts library has a larger need, that will be addressed at a later time. The actual process of a “scan everything” inventory had been explored for two small collections (~10,000 volumes); it provided information on how to successfully inventory a collection, what the staffing needs were, and how to document the process (Schuster, 2020). Working with the cataloging staff, who normally work 8:00am to 5:00pm Monday through Friday, with no public desk responsibilities, we hired 4 federal work study students. Students are assigned two “ladders” of books, defined as the left and right support holding the shelves and containing roughly 450 books. A Google sheet with the starting and ending call numbers as a file name is assigned into which students scan the barcodes of the books as they are on the shelves (Schuster, 2020). If an error occurs in scanning, this limits the correction time needed for staff, as well as pro-
vides for intervention training opportunity. The students scan and set aside books that are in need of repair or do not have a barcode to scan. Based on the number of problems we have encountered, and the need to complete the process in a short amount of time, it is too time consuming to train students to resolve problems. The barcodes from the Google sheet are then used by the cataloging staff to run reports.

Using the Alma Library system, cataloging staff identify the library, collection, and range of the barcodes scanned by the student and upload the barcodes; Alma then identifies problems within the ladders scanned. Problems occur when scanned items are marked as lost, missing, in the wrong library, wrong collection, should not be in this call number range, or barcodes are not in the system. Alma can also identify items that should not be on the shelf because they are on loan or in an appropriate status such as lost, missing, in transit, or checked out. This process does not account for items misshelved within the two ladders, but will identify items that should not be there. Other library systems have shelf order abilities during inventory that validates shelf reading; the current Alma iteration of inventory does not. Since we are doing an inventory with over 2.1 million items, it would be overwhelming to evaluate shelf order at this time.

Once errors on the reports are verified, staff go to the shelves to investigate issues and fix discrepancies, and then correct problems in Alma. For example, Alma looks at classification type in the 852 field of the holdings first and second indicator to determine the shelving scheme — Dewey, Library of Congress, Government Documents, etc. — and if items are incorrectly coded the item will be on the error report as being out of range. This is helpful to resolve as it impacts searching by call number and reporting on the collections. Once item problems are resolved, the items that are “not on shelf,” but should be, are marked as “Missing” via a batch job (Schuster, 2020). Staff regularly run lists of missing items and check the shelves. If an item is found, it is checked in, which removes the missing status in Alma.

To date, over 170,000 barcodes have been marked as inventoried. Because of the COVID-19 pandemic shutting down the University in the Spring of 2020, the inventory process has been delayed due to lack of student labor. Over the summer, library staff from cataloging did scan, in case the collection moving date did not change. Restarting the inventory in the Fall of 2020 with students, we are able to average about 10,000 scans a week with four student workers. With over 500,000 items to be scanned, and 170,000 already scanned, it should take about 56 weeks or roughly nine months to complete the inventory of the third floor Main collection that needs to be moved. In a normal situation this would be doable, but with the COVID-19 restrictions, an extended holiday break, and reduced density on campus, that timeframe won’t hold true.

Findings

With the full inventory process, we have experienced a 1.1% missing rate to date of the Main collection which is lower than expected from the full collection sample. This is comparable to what Greenwood (2013) found during a similar project at the University of Mississippi collection. If we include the errors and damaged items, the percentage of materials “missing” goes up to 2.4%. The goal of this project was to identify what should truly be on the shelf in preparation for the move of that collection and create an estimated missing rate. We have found that shelf reading would help reduce some of the missing rate, as there are times it is obvious that one book has thrown an entire section off, for example changing from one range to another. Due to our renovation move, shelf reading was not feasible to do and technically not part of the Cataloging Department’s responsibility. Spine labels are also supposed to indicate the location in which the item is to be housed. If an item was transferred, but a new spine label is not generated the item migrates back to its original location incorrectly. The flexibility of this inventory process will allow us to hire additional work study students, if needed, to increase the speed of the process. Report generation and shelf-check problems are handled on campus. With the COVID-19 pandemic, other problems can be resolved working from home as needed to reduce campus density. Students can come and go after their initial training, and have been very successful with limited supervision.

Inventory is a daunting and expensive venture, but with a 2.4% correction/missing rate of 2.1 million items, over 50,400 items are incorrectly coded or not on the shelves. This being our first inventory of record for the collection, this was expected to be a high number. The inventorying of the remaining collection and other library collections needs to continue. The data on missing items helps to target future partial inventories, evaluate collection usage, determine the need for replacements and most importantly, verify accessibility of items. Inventory has resolved shelving issues, database maintenance problems, correction of item collections, identified bound-with problems, and identified items needing repair. Most importantly, the inventory process has created more accurate counts of materials on the shelf and therefore a better user experience in locating materials.

References
