

# Library Resources & Technical Services

ISSN 2159-9610  
April 2018  
Volume 62, No. 2

Using Logistic Regression to Examine Multiple  
Factors Related to E-book Use

*Karen Kohn*

Assessing Staff Alignment in Technical Services

*Martin Kurth and Jim LeBlanc*

## NOTES ON OPERATIONS

Promoting Interlibrary Loan in the Traditional  
Catalog and Discovery Layer: Two Pilot Projects

*Rachel E. Scott and Gail Barton*

Don't Just Roll the Dice: Simple Solutions for  
Circulating Tabletop Game Collections Effectively  
in Your Library

*Diane Robson, Jessica Phillips,  
and Steven Guerrero*



## OJS Is the New Host of *LRTS*

<http://journals.ala.org/lrts>

*Library Resources & Technical Services (LRTS)*, which went completely online in January 2015, is now available at <http://journals.ala.org/lrts> on the Open Journal Systems (OJS) platform hosted by the American Library Association (ALA) and is updated and maintained internally by in-house production staff. Content is no longer available on the Metapress site.

### ACCESSING YOUR CONTENT

Every *LRTS* user (members and subscribers are both considered *LRTS* users) can login to [journals.ala.org/lrts](http://journals.ala.org/lrts) using the same credentials used for other ALA websites, including [www.ala.org](http://www.ala.org), ALA conference registration, and ALA Connect. Users will be notified in advance by ALCTS staff before the OJS login requirements take effect.

Be sure to visit <http://journals.ala.org> to enjoy other ALA digital journals and newsletters, including *Library Technology Reports*, *Reference & User Services Quarterly*, *Children & Libraries*, and the *Smart Libraries Newsletter*.

### For Technical Questions and Support

Please contact [journals@ala.org](mailto:journals@ala.org).

### Membership or Subscription Questions

To receive free access to *LRTS*, join ALA and ALCTS by visiting [www.ala.org/membership/joinala](http://www.ala.org/membership/joinala) or call ALA's Member and Customer Service (MACS) department at 1-800-545-2433 and press 5. Contact MACS with membership questions, too.

To subscribe to *LRTS* or to ask questions about your existing subscription, email [subscriptions@ala.org](mailto:subscriptions@ala.org) or call ALA's MACS department at 1-800-545-2433 and press 5.

If you have any general questions about *LRTS*, please contact Brooke Morris ([bmorris@ala.org](mailto:bmorris@ala.org)) in the ALCTS Office.

# Library Resources & Technical Services

ISSN 2159-9610

April 2018

Volume 62, No. 2

## Editorial: The Bedrock of Library Services

*Mary Beth Weber*

52

## FEATURES

### Using Logistic Regression to Examine Multiple Factors Related to E-book Use

*Karen Kohn*

54

### Assessing Staff Alignment in Technical Services

*Martin Kurth and Jim LeBlanc*

66

## NOTES ON OPERATIONS

### Promoting Interlibrary Loan in the Traditional Catalog and Discovery Layer

Two Pilot Projects

*Rachel E. Scott and Gail Barton*

74

### Don't Just Roll the Dice

Simple Solutions for Circulating Tabletop Game Collections Effectively in Your Library

*Diane Robson, Jessica Phillips, and Steven Guerrero*

81

## Book Reviews

*Elyssa M. Gould*

92

Cover image: "Coastal Clouds," John Brennan, 2016.

*Library Resources & Technical Services*, <https://journals.ala.org/lrts> (ISSN 2159-9610) is published quarterly by the American Library Association, 50 E. Huron St., Chicago, IL 60611. It is the official publication of the Association for Library Collections & Technical Services, a division of the American Library Association, and provided as a benefit to members. Subscription price to nonmembers \$100. Individual articles can be purchased for \$15. Business Manager: Keri Cascio, Executive Director, Association for Library Collections & Technical Services, a division of the American Library Association. Submit manuscripts using the online system: <http://www.editorialmanager.com/lrts>. Mary Beth Weber, Editor, *Library Resources & Technical Services*; [mbfecko@rulmail.rutgers.edu](mailto:mbfecko@rulmail.rutgers.edu). Advertising: ALCTS, 50 E. Huron St., Chicago, IL 60611; 312-280-5038; fax: 312-280-5033; [alcts@ala.org](mailto:alcts@ala.org). ALA Production Services: Chris Keech, Tim Clifford, Lauren Ehle, and Veronica Perez. Members may update contact information online by logging in to the ALA website (<http://www.ala.org>) or by contacting the ALA Member and Customer Services Department—*Library Resources & Technical Services*, 50 E. Huron St., Chicago, IL 60611; 1-800-545-2433. Nonmember subscribers: Subscriptions, orders, changes of address, and inquiries should be sent to *Library Resources & Technical Services*, Subscription Department, American Library Association, 50 E. Huron St., Chicago, IL 60611; 1-800-545-2433; fax: 312-944-2641; [subscriptions@ala.org](mailto:subscriptions@ala.org).

*Library Resources & Technical Services* is indexed in Library Literature, Library & Information Science Abstracts, Current Index to Journals in Education, Science Citation Index, and Information Science Abstracts. Contents are listed in CALL (Current American—Library Literature). Its reviews are included in Book Review Digest, Book Review Index, and Review of Reviews.

Instructions for authors appear on the *Library Resources & Technical Services* webpage at <http://www.ala.org/alcts/resources/lrts>. Copies of books for review should be addressed to Elyssa M. Gould, University of Tennessee Libraries, 1015 Volunteer Boulevard, Knoxville, TN 37996-1000; [lrtsbookreviews@lists.ala.org](mailto:lrtsbookreviews@lists.ala.org).

©2018 American Library Association

All materials in this journal subject to copyright by the American Library Association and may be photocopied for the noncommercial purpose of scientific or educational advancement granted by Sections 107 and 108 of the Copyright Revision Act of 1976. For other reprinting, photocopying, or translating, address requests to the ALA Office of Rights and Permissions, 50 E. Huron St., Chicago, IL 60611.

Publication in *Library Resources & Technical Services* does not imply official endorsement by the Association for Library Collections & Technical Services nor by ALA, and the assumption of editorial responsibility is not to be construed as endorsement of the opinions expressed by the editor or individual contributors.

LRTS was available in print (ISSN 0024-2527) from 1957 through 2014. Single print issues from volume 38 through volume 58 can be purchased for \$30 each. Contact [alcts@ala.org](mailto:alcts@ala.org) with purchase requests.

Visit LRTS online at <https://journals.ala.org/lrts>.

For current news and reports on ALCTS activities, see the *ALCTS News* at <http://www.ala.org/alctsnews>.

# Editorial: The Bedrock of Library Services

## EDITORIAL BOARD

Editor and Chair

Mary Beth Weber, *Rutgers University*

### Members

Jennifer Bazeley, *Miami University*

Jeehyun Davis, *Villanova University*

Sylvia Hall-Ellis, *Colorado Community College System*

Kathlene Hanson, *California State University Monterey Bay*

Violeta Ilik, *Stony Brook University*

Forrest Link, *The College of New Jersey*

Robert Klingenberg, *Yale University*

Margaret Mering, *University of Nebraska-Lincoln*

Heylicken Moreno, OCLC

Jeremy J. Myntti, *University of Utah*

Carol Ou, *University of Nevada, Las Vegas*

Brian A. Quinn, *Texas Tech University*

Lori Robare, *University of Oregon*

George Stachokas, *Auburn University*

Mary Van Ullen, *State University of New York-Albany*

Marielle Veve, *University of North Florida*

### Ex-Officio Members

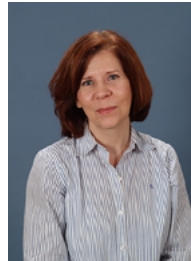
Elyssa M. Gould, *University of Tennessee, Knoxville*

Book Review Editor, *LRTS*

Chelcie Rowell, *Boston College*  
Editor, *ALCTS News*

Keri Cascio, Executive Director,  
*ALCTS*

Brooke Morris, Program Officer,  
Communications, *ALCTS*



Mary Beth Weber

My library will implement a new library service platform, or LSP, this year. We have had an integrated library system with another vendor for twenty years. I was a rank and file cataloger (special formats) when an RFP was issued for the current system. I did not have input into the selection process and also was not part of the massive data migration effort. While I attended numerous training sessions, I did not prepare documentation or train others. Both my position within my library and our needs for a more sophisticated system and services have changed a great deal in those twenty years.

Our current ILS is more than a catalog of bibliographic records. It also provides access to LibGuides, enables patrons to create citations for their sources as they conduct research, offers a variety of interlibrary loan options, and provides users with the ability to provide feedback and report problems. Those reports are received in Central Technical Services, the department that I head.

As my library moves toward implementing our new LSP and discovery product, I am part of a small team composed of individuals from functional areas within the library (technical services, collection management, finance, circulation, systems, user experience) that is making decisions and driving the process. The importance of technical services in this process, and on the outcome of the discovery process, has been acknowledged. There are so many aspects to migrating library data, and our current system contains a multiplicity of records (brief, merged formats, vendor supplied, ILL, patron) created for various purposes, some according to the prevailing standard of the time, including AACR, AACR2 and, most recently, RDA. The new LSP will have the ability to provide seamless access to both our MARC records and our non-MARC metadata (MODS) from our institutional repository. The LSP will provide a single search box with the option to limit searches to specific resource types.

One of the biggest challenges we are facing is migrating our three million-plus records. Vendor and patron records will need to be verified for accuracy and revised (or deleted) as appropriate. Outstanding orders will need to be verified. Database issues, such as duplicate, incomplete, or inaccurate records, are being handled now to ensure clean and accurate bibliographic records are migrated to the new system. There are so many considerations and exceptions that make such a massive undertaking a full-time job.

Prior to our go-live date, there will be a two-to-three-week technical services freeze, which will coincide with peak ordering and receiving time. This will affect our ability to respond to patron and faculty requests to rush order and rush catalog materials in our local system. The freeze will not bring my department's operations to a halt, and the time will be used to undertake training and special projects. The freeze will have an impact on other library operations, such as circulation, instruction, reference, and collection management. Technical services may be regarded as a behind-the-scenes operation, which it is in some aspects, but it is also the underpinnings of effective library services. Without

it, our patrons would be unable to conduct research or discover resources in our collections and repository. My colleagues would be unable to conduct their collection development or instructional activities.

In closing, I wish to highlight the contents of this issue of *Library Resources and Technical Services*:

- In “Using Logistic Regression to Examine Multiple Factors Related to E-book Use,” Karen Kohn introduces logistic regression, which can incorporate multiple variables to determine what factors are the most useful in predicting e-book usage.
- Martin Kurth and Jim Le Blanc introduce a methodology and draft model with which technical services managers can better assess both their unit’s productivity and efficiency and the extent to which its activities align with a library’s strategic values and the behavior of its users in “Assessing Staff Alignment in Technical Services.”
- “Promoting Interlibrary Loan in the Traditional Catalog and Discovery Layer: Two Pilot Projects,” by Rachel E. Scott and Gail Barton, describes two projects that promote interlibrary loan in both traditional Online Public Access Catalogs and discovery settings to address user frustrations with gaps in the collection.
- In “Don’t Just Roll the Dice: Simple Solutions for Circulating Tabletop Game Collections Effectively in Your Library,” Diane Robson, Jessica Phillips, and Steven Guerrero detail the University of North Texas Media Library’s study to determine best practices and standards for preserving and processing tabletop games for circulation.
- Book reviews courtesy of my colleague Elyssa Gould, *LRTS* book review editor.

# Using Logistic Regression to Examine Multiple Factors Related to E-book Use

Karen Kohn

*Many studies have tried to identify factors that make electronic books (e-books) in academic libraries more likely to be used. For instance, are demand-driven acquisitions used more than titles in packages? Are e-books in the sciences used more than e-books on art? Most of these studies are limited to one or two variables. This study introduces logistic regression, which can incorporate multiple variables to determine which factors are the most useful in predicting e-book usage. The variables considered in this study are LC class, university press or other publisher, and platform. In the collection studied, the classes with the highest odds of being used were A (General Works), followed by F (History of the Americas), H (Social Sciences), and Q (Math and Science).*

Academic libraries are struggling to understand the role of electronic books (e-books) in their collections. Not all potential book purchases are available electronically, and patrons frequently claim they prefer print. Yet, for reasons including appealing purchasing models, the desire to reach remote patrons, and evidence that e-books are used, libraries are increasingly buying e-books. The addition of this format to academic library collections raises the question of how to evaluate their usage. This is much more complicated than the parallel task of evaluating print book usage. Not only do subject matter, publication date, and publication type (e.g., reference book, conference proceedings, monograph, edited volume, etc.) affect usage (as for print), but e-books have a variety of user interfaces and are selected through a wider variety of methods. Like print, e-books can be selected through an approval plan or by firm order (i.e., a librarian selecting a specific book). They are often available to purchase as demand-driven acquisitions (DDA), evidence-based acquisitions, subscription packages, or as publisher collections. Open access e-books are also becoming available on several platforms, and libraries are adding these to their catalogs. Due to the range of selection methods, interfaces, and other characteristics, the variety of factors that affect whether an e-book gets used is much broader than those affecting print book use.

As libraries generally want to purchase items they expect will be used, many studies have attempted to identify factors that make e-books more likely to be used. Studies of e-book usage most often consider just one or two variables. For instance, are DDA more likely to be used than titles in packages? Do e-books in the sciences get used more than those for art? These questions are helpful, but the findings of such studies are only a beginning. A publisher package might

**Karen Kohn** (karen.kohn@temple.edu) is the Collections Analysis Librarian at Temple University in Philadelphia.

Manuscript submitted July 20, 2017; returned to author for minor revision August 23, 2017; revised manuscript submitted September 5, 2017; accepted for publication December 26, 2017.

The author wishes to thank Dr. Lin Zhu of the Center for Asian Health at Temple University for reviewing the statistics in this paper and their interpretation.

receive more usage than an aggregator package, making it seem as if the quality of the publisher drives usage, when in fact the publisher package might simply have more current books or more relevant material than the aggregator package. E-book packages differ in so many ways that it can be difficult to know which feature drives use. In a study comparing usage of netLibrary and Ebrary collections, Tucker notes that differences could be related to the age of books in each collection or to user preferences for a particular interface.<sup>1</sup> Slater similarly notes that, in his comparison of Safari and netLibrary, “It is not possible to definitively determine . . . if it is the contents of the collection or the presentation of the collection that motivated users to choose one . . . over the other.”<sup>2</sup> Since each book has a variety of features that could influence usage, there is a need for research that can simultaneously consider multiple factors.

A useful way to see which variables are most strongly correlated with usage is to combine multiple variables in a regression equation. By putting several variables into an equation that predicts an outcome, regression allows the researcher to separate the effects of each variable. To contribute to the methodology of measuring e-book use, this paper presents a logistic regression model that correlates several variables with the predicted usage of e-books in a large academic library. The research question is this: is it possible to identify characteristics of an e-book that will predict whether it will be used? The variables considered here are Library of Congress (LC) Classification (as a stand-in for subject), platform, publisher type, and usage of comparable print books. Though some variables of interest could not be included in the study, most significantly selection method, the methodology used can provide a model for others to expand upon and contribute to existing literature that has reported on how usage varies according to subject and publisher type.

## Literature Review

### Factors Considered in Previous Studies

Probably the most common question asked in the literature on e-books is which disciplines receive the heaviest usage.<sup>3</sup> The questions asked range very broadly, however, leading Wilkin and Underwood to claim, “There is no well-defined and stable problem statement regarding the study of e-book usage.”<sup>4</sup> The only nearly universal feature of research on e-books is that it almost always tries to correlate a particular feature of e-books with rates of usage. A variation of the question of which subjects receive greater e-book use is one that also considers print usage, asking which subjects show a greater preference for e-books over print or the reverse.<sup>5</sup>

Another issue is selection method. There is a wider variety of selection methods typically used for e-books than for print. For instance, e-books can often be purchased as packages from aggregators or publishers, librarians can select individual titles for one-time purchase, titles can be added to a library collection based on an approval plan or made available for patrons to select using DDA. E-books are also sometimes freely available as open access. Consortia may purchase e-book packages, and the individual library does not get to choose which titles are included. Carrico et al. studied whether the selection method of e-books predicts the level of use (i.e., do firm orders, DDA, or purchased packages get used the most often?)<sup>6</sup> Levine-Clark hypothesized that selection method was the source of the differences he noted between usage of books in EBL and Ebrary. In worldwide data, a higher percentage of EBL books were used than Ebrary books, which Levine-Clark attributed to the fact that libraries select their EBL holdings title-by-title, whereas Ebrary tends to sell its books as part of a subscription package.<sup>7</sup>

Some researchers have speculated that it is not the subject or selection method that explains which e-books receive the most use but rather the kind of publication. A common finding is that reference materials are more popular in e-book form than monographs.<sup>8</sup> Bucknell further subdivided the books in his study into the following types: monograph, proceedings, contributed volume, professional book, textbook, and reference, while Sullivan and Leach compared monographs to edited volumes.<sup>9</sup> Several authors compared whether university press books are used more than other types or have asked which publishers’ books are more likely to be used.<sup>10</sup>

As mentioned earlier, some studies have noted difficulties in understanding which variable accounts for differences in usage. When comparing Ebrary and netLibrary, Tucker explained that the collections differ in both selection method and currency. The former is a subscription package whose contents can change periodically, while the latter is an older collection of firm orders, with select newer titles added.<sup>11</sup> A few studies have tried to tease out how different variables interact with each other.<sup>12</sup> Thus far, the field has concerned itself with more fundamental methodology questions such as how to classify e-books by subject and how to compare e-book and print use.

### Methods Used in Previous Studies

Wilkin and Underwood lament the lack of a “research paradigm” for e-books. They state that “there is no consensus on how to reliably measure ebook usage,” a complaint with which Fry concurs.<sup>13</sup> The field lacks standardized ways to compare print and e-book usage or standard ways to interpret electronic usage. Although COUNTER provides an

international standard of what elements should be included in a usage report, the standards still allow for widely differing ways of measuring the extent of use. Proprietary vendor reports can provide additional information of interest, such as the amount of time a user spends on a book, but this information is not available for all platforms.<sup>14</sup> Wilkin and Underwood also note that several studies exist that rely only on surveys, which reveal user preference rather than user behavior. Additionally, they point out that surveys related to e-books are particularly problematic given that users may not correctly understand some of the terminology used in the survey.<sup>15</sup>

Several authors note problems with using COUNTER reports to compare e-book usage between vendors. The COUNTER Code of Practice, Release 4, offers a report called Book Report 2 (BR2) that lists how many “sections” of a book were viewed within the reporting period. The instructions describe a section as “chapter, encyclopedia entry, etc.,” and specify that the report should indicate what counts as a section.<sup>16</sup> In Release 5, similar data will be found in Book Report 1 (BR1), which will contain a field titled “Total Item Requests.” The documentation for Release 5 explains that this number “will vary significantly based on how the content is delivered, indicating that item requests in Release 5 will be as difficult to compare across platforms as section requests are in Release 4.”<sup>17</sup> What each vendor counts as a section varies widely. Bystrom offers a chart of thirteen e-book packages and how a section view is defined for each. The most common definition is a chapter, but several count each page viewed as a section view, and one counts every five pages.<sup>18</sup> Cox notes an e-book provider that counts each three pages as a section view.<sup>19</sup> For a reference work, a “section” could be simply a dictionary definition.<sup>20</sup> Even when section views are consistent between platforms, limits on simultaneous users can also lead to significant differences in usage, as a platform that limits simultaneous users will have fewer total section views than one that allows unlimited simultaneous users.<sup>21</sup> Moreover, the interface will affect whether certain actions are counted in the usage statistics. As Levine-Clark, Paulson, and Moeller point out, if a book’s landing page includes a table of contents and a blurb, users might view that page and decide against viewing the book. If there is no landing page, users will access the book to see the table of contents, and usage reports will indicate that this book was used even if the patron decided not to read any further.<sup>22</sup> In addition, some interfaces provide easier downloading than others. A patron who downloads a book can return to the downloaded copy repeatedly without it counting as an additional use, whereas an interface on which downloading was difficult could encourage patrons to return to the online option and their usage will subsequently be logged each time.<sup>23</sup>

Due to inconsistencies between COUNTER reports, several people simply count whether a book has been used rather than the number of uses. Littman and Connaway were the first to classify books simply as used or not used, and this strategy has since been used by others.<sup>24</sup> Knowlton makes the case for this method by pointing out that so few books in his library’s collections were used that the difference between used and not used books is significant, whereas differences in the amount of use each book receives is marginal.<sup>25</sup>

Counting whether a book has been used rather than how often it has been used not only alleviates the problem of inconsistency in COUNTER reports, but also facilitates comparisons between e-books and print. Knowlton observed that comparing the two formats is “nearly impossible” to do accurately.<sup>26</sup> Kimball, Ives, and Jackson assert that the “traditional comparison” is between print checkouts and e-book accesses, although they acknowledge that both of these measures are inaccurate.<sup>27</sup> It is well known that print circulation, the standard measure of usage, is not only a limited measure in itself but also measures something very different from what e-book usage represents.<sup>28</sup> Checkouts do not tell us how extensively users have read a book. They could have read it cover-to-cover or simply looked at a few pages. Loan periods also affect circulation counts, as a book that is borrowed by a faculty member who is allowed to check out books for a year will show less use than a similar book that was borrowed by an undergraduate for a month.<sup>29</sup> Additionally, circulation does not contain information on books that were used in-house or that someone glanced at and decided not to use. The latter use case is counted in e-book usage statistics. Not all of these problems are corrected by counting whether a title was used rather than the number of uses, but this is beginning to be recognized as the preferred method for comparing e-book use to print use.

When comparing e-book and print usage, one not only needs a comparable measure of use but similar sets of books. Several studies have used paired lists where each title is held by the library both in print and as an e-book.<sup>30</sup> Goodwin uses Duke University Press books as the basis of her comparison. Since the Press offers an option whereby a library that purchases the e-book collection can pay a small fee to also receive the print, some libraries own recently published books by Duke in both formats.<sup>31</sup> When there is not a known collection that is duplicated in both formats, another option is searching the library’s e-book holdings against the catalog to find matching print book records.<sup>32</sup> This can be laborious, however, and result in a very small set of books, as often libraries will have a policy that says they do not routinely purchase the same titles in different formats.

Recent studies have developed strategies for finding similar *groups* of books to compare even when the titles are



not the same. Fry examined all the books acquired within the same time period, regardless of publication date.<sup>33</sup> Knowlton considered all print books acquired during a certain time period and compared these to e-books from the library's largest e-book collections. He also excluded print books that do not circulate.<sup>34</sup>

When sets of e-books and print books are selected for comparison, and information is collected on whether they have been used, there are still several ways to make the comparison. It is important not to simply look at the number of uses in a particular format without taking into account the size of the collection. Fry points out that if print use is declining, it may be because the library is buying fewer new books, whether due to decreased circulation or more economical purchasing options for e-books.<sup>35</sup> A fairly common measure that considers the collection size is Percent of Expected Use, or PEU. Mills coined this term in 1982, and it has subsequently been used in several studies.<sup>36</sup> PEU represents the percentage of all usage from a particular subset of the collection divided by the percentage of the full collection making up that subset. For example, if history books are 20 percent of a library's holdings, but only 15 percent of that library's total circulation is from history books, the PEU for history would be 15 percent ÷ 20 percent, or .75. PEU can be measured for either print books or e-books, and since the units are the same regardless of format, comparisons can be made between the PEU for the same subject in both the print collection and the electronic collection. Knowlton calculated the difference between each subject's PEU for print and for electronic, as an indicator of the degree of preference for one format over another.<sup>37</sup> Slater asked whether the two PEUs are correlated. He found a positive correlation between print PEU and electronic PEU by subject, meaning that subjects with heavy usage in print also receive heavy usage in e-books.<sup>38</sup>

Dividing e-books into subject categories raises another methodological question, which is how to obtain subject classification information for e-books. COUNTER reports do not include call numbers, and MARC records provided by an electronic resource management system (ERM) do not always include call numbers for e-books. Some studies used vendor-provided subject categories, which do not correspond with LC classes or subject headings.<sup>39</sup> This makes it difficult to compare usage from one collection to other collections. Tucker compared books from netLibrary and Ebrary, which at the time of his study offered LC call numbers in their reports.<sup>40</sup> Carrico et al. mention using proprietary vendor reports for the benefit of call numbers provided therein.<sup>41</sup> Studies that use paired lists of titles, where each book is owned both electronically and in print, can use the print record's call number.<sup>42</sup> If the catalog records include call numbers, it is possible to match the ISBNs from a vendor's usage report to catalog data to pull in the call

numbers.<sup>43</sup> In studies that match call numbers with books, the call numbers are commonly mapped to the institution's programs, and the program becomes the unit of analysis.<sup>44</sup> Another option is to use the LEFT function in Microsoft Excel to create a column that lists only the first letter of each LC classification number, which can then be treated as a category that roughly corresponds with a discipline.<sup>45</sup>

## Findings of Previous Studies

As stated earlier, the most common question about e-books is which subjects are most used. This is sometimes a simple question of comparing subjects to each other within one set of usage data and other times is framed as which subjects have the strongest preference for e-books over print. Answering the former question, Slater found that the most-used subjects in his library's netLibrary package were math and science.<sup>46</sup> Knowlton's study found that e-books in the general social sciences, psychology, and education had the highest PEU.<sup>47</sup> In Sprague and Hunter's collection, titles related to agriculture, botany, geology, and biology were the most likely to be used, with a surprisingly high rate for art. Anthropology and chemistry also had high rates of usage.<sup>48</sup>

With studies that compare e-book and print use, sometimes subjects with high e-book use have been heavily used in both formats, while other subjects are strongly preferred in one format over the other. Knowlton found social sciences to be a popular subject in e-books, though even more popular in print.<sup>49</sup> Slater, in contrast, found that math and science were the most popular subjects in netLibrary. Usage analysis revealed that these subjects also showed a preference for online over print. Users seeking books on technology, engineering, media, and communications also preferred e-books, while the subjects with the strongest preference for print were world history and language and linguistics.<sup>50</sup> Littman and Connaway also found that users preferred education, psychology, computer science, and medicine e-books over print.<sup>51</sup> Christianson and Aucoin found the strongest preference for print was with history books.<sup>52</sup> As these findings vary between institutions, additional research might clarify whether there are common trends regarding which subjects are used more in e-book form or if each institution needs to measure locally.

In addition to comparing e-book and print use, some studies have asked how the two relate to each other. Slater tested a correlation between print book use and e-book use by subject and found a moderate correlation between the two, with subjects that were heavily used in one format also being heavily used in the other.<sup>53</sup> Christianson and Aucoin found a positive but very low correlation at the individual book level, i.e., a print book that was used was slightly more likely to be used in the electronic form.<sup>54</sup> Littman and Connaway reached a similar conclusion: books used in print

frequently were used electronically.<sup>55</sup> Sullivan and Leach asked whether e-books might serve a discovery function, letting users skim a book that they would later decide to borrow in print for more in-depth reading.<sup>56</sup> They concluded that this was not the case, though Hobbs and Klare's small-scale qualitative research project found that students use e-books to determine what they want to read and then obtain the print for lengthier reading.<sup>57</sup> Littman and Connaway similarly suggest that e-books do not promote usage of their print counterparts, and in fact, in their study, print books were less likely to circulate once an e-book edition became available.<sup>58</sup> Others try to pinpoint whether the different formats serve different needs. For instance, are electronic materials more popular at a particular time in the semester, such as during finals when a student might be working close to a deadline and not have time to go to the library?<sup>59</sup>

Other studies have considered whether university press books receive more use than other books and if specific features of interfaces correlate with usage. Christianson and Aucoin found university press books to be more popular in print than as e-books, but these were still less likely to be used in either format than other books.<sup>60</sup> They speculate that this may be due to the specialized nature of university press publications and to the fact that they are usually meant to be read in a linear fashion that is more suited to print. Levine-Clark and Paulson found the opposite—that university press e-books were used more than other e-books.<sup>61</sup> They attribute this to the fact that university press books are of higher quality than trade publications. Surveys have reported various stated preferences for certain characteristics of e-books such as the ability to print, download for offline reading, or copy and paste text.<sup>62</sup> To this author's knowledge, no studies examined whether users' behaviors correspond with these stated preferences.

## Method

This research was conducted at Temple University, a large institution with a Carnegie Classification of Highest Research Activity. The university libraries provide access to more than a million e-books, including an aggregator collection, several publisher packages, open access collections, and subject-specific packages. The main library has had a DDA program since July 2014.

The present study considered factors similar to those that have been studied previously, and introduces a methodology that enables several variables to be simultaneously considered. Like the studies described earlier, this study considers the subjects of books to see which receive the most use and why. It also takes into account whether a book is published by a university press and platform differences, and seeks a relationship between print usage and e-book

usage for each subject. Some other variables that would have been desirable to consider are type of book (reference, monograph, edited volume, textbook, or other), selection method (DDA, firm order, or package), and various interface features, such as whether there is a table of contents landing page and if books are indexed in Google. It was not possible to include these variables because the largest collections of e-books in the author's library are not reference, nor do they have significantly different selection methods. Indexing in Google was hard to measure in a standardized way. It is hoped that the methodology used here can be expanded in future studies to include additional variables.

The e-book collections used in this study are Ebrary (Academic Complete collection), MyiLibrary (a mix of DDA and firm order titles), netBASE (engineering collection), Springer (publisher complete collection), and Wiley (publisher evidence-based acquisitions collection). After the research was completed, the library's holdings in both Ebrary and MyiLibrary were migrated onto the EBook Central Platform. The analysis and discussion here refer to the platform that hosted the e-books during the time period for which usage was being measured. The sample consisted of all titles published in 2015 from each of the above-mentioned collections. There were two reasons for using samples rather than the full holdings. One is that the smaller subset was a more manageable number for looking up call numbers. Using only books from 2015 simplified the analysis by avoiding the question of whether to consider the age of the book and the acquisition date when looking at usage. The platforms studied were the five largest platforms for which the library had access to books published in 2015.

For each of these collections, the title list was downloaded and ISBNs were pasted into OASIS, ProQuest's online ordering and tracking tool, to obtain call numbers. OASIS allows users to paste long lists of ISBNs into a search box, and in this case, five hundred to a thousand were pasted at once. The resulting list was exported to Excel, and the call numbers from the export were copied and pasted into the title list. A small number of titles lacked call numbers in OASIS and were removed from the sample. In the Excel document containing the title lists, a new column was created containing only the first letter of each call number, so that each book was assigned a single-letter LC class.

The variable for publisher type (university press or other) was assigned by filtering the title list for rows with the word "university" in the publisher field. It would have been desirable to create more categories of publishers, such as scholarly, trade, or popular, but as there is no official list assigning publishers to these categories, this was not feasible.

The third independent variable, platform, encompasses several differences between platforms. Platforms differ in how many pages from each book can be printed, software

requirements for downloading, the quality of the bibliographic records they provide, and how books are exposed in Google, for example. Some of these features can also differ within a platform. An initial attempt was made to compare indexing in Google as it seemed likely that the level of indexing in Google would affect whether a book was used. Students and faculty are more likely to discover e-books through general internet searches than through the library catalog.<sup>63</sup> SpringerLink has noted that half of all traffic to their site is from search engines and only 20 percent from library tools.<sup>64</sup> Discoverability proved to be difficult to measure, since information on indexing could only be found through personal contacts with vendors who did not provide information in a standardized way. In the end, platform was used as a variable with the understanding that platforms differ, and an observed difference in usage between platforms should not be attributed to any particular features of that platform.

To make comparisons with the print collection, an additional sample was taken of print books. Like the e-books, this sample was limited to books published in 2015. The list was compiled using a report from the library catalog, limited to books held by the main library and published in 2015. After exporting the list to Excel, a column was added that extracted the first letter of each book's call number so that print books could be categorized by single-letter LC class, as was done for the e-books.

To determine the extent of usage for a certain subset of books, PEU was calculated for print and e-books. Calculations were based solely on the sample, not the full collection, and were done separately for each format. PEU was calculated as the percentage of all books used from this category and was divided by the percentage of all available books that were in the category. For instance, 1.65 percent of books in the print book sample were in LC class F, while 2.08 percent of the print books that were used in 2016 were in LC class F. The percent of used titles divided by the percent of available titles ( $2.08 \div 1.65$ ) yields a PEU of 1.26.

The dependent variable in the study was usage in 2016. As mentioned above, BR2 tracks the number of sections that have been viewed in each book, but the definition of a section varies by platform. Several of the vendors in this study counted each page viewed as one section, while others counted each chapter. The measure that could be compared across platforms, first suggested by Littman and Connaway and later supported by Knowlton, was a simple yes/no count of whether a title was used.<sup>65</sup> The same measure was used for print books.

Once all the variables were calculated, several comparisons were done using logistic regression, a statistical method that produces an equation that calculates the log of the odds of a specific outcome. In this case, the outcome is expected use of a book. A higher log odds means that

the book is more likely to be used. A regression equation can contain several independent variables, or predictor variables, which are correlated with higher or lower odds of the desired outcome occurring. The goal was to see which variables had the strongest correlation with the desired outcome, i.e., e-books being used. This paper focuses on whether a particular feature of an e-book increases or decreases the odds of it being used rather than calculating the actual odds.

## Data

Before putting any of the variables into a regression equation, crosstabs were used to explore each variable separately to identify which variables appeared to be related to differences in e-book use. Table 1 shows that there are differences between the five platforms in what percentage of the books available on that platform were used in 2016. The p-value underneath the table ( $p < .001$ ) indicates that it is statistically highly unlikely that there would be no significant difference between the full e-book collections given what was observed in the sample.

The next variable considered was LC class. For this, e-books from all five platforms were grouped together and comparisons were made across LC main class. Table 2 shows that, across all platforms, there are differences between subjects regarding how many e-books are used. The classes with the highest percentage of books used are A (General Works) and Z (Bibliographies and Library Science), followed by R (Medicine). The V section (Naval Science) has the smallest percentage of books used, at only 5.26 percent, but since the sample contains only nineteen books in this section, this is not an area of focus for this library. As before, the p-value listed below the table indicates that it is highly unlikely that there would be no differences in usage between the classes in the full collections from which the sample is drawn.

The third variable considered was publisher type, which was coded as university press or other. In table 3, it is clear that books from non-university press publishers are used much more than university press books. Again, there is a high level of statistical significance, i.e., a low p-value.

Once each of the variables was individually examined, and analysis had shown that there are differences in usage depending on a book's platform, LC class, and publisher type, the variables were placed in a logistic regression model. At this stage, certain LC classes were removed. Call numbers beginning with K were removed, as print books in this area are held in a separate law library, so there would not be print data to compare with these e-books. Class V was removed as only one of these e-books was used. A forward-selection modeling technique was used, meaning the initial regression equation used only one independent

**Table 1.** Differences in Usage by Platform

Provider	% Used	<i>n</i>
ebrary	18.20	10,368
MyiLibrary	15.18	4,314
netBASE	8.53	434
Springer	23.03	6,856
Wiley	13.84	2,450

Chi-sq = 189.9862, df = 4,  $p < .001$

**Table 2.** Differences in Usage by LC Class

LC Class	% Used	<i>n</i>
A-General Works	34.62	26
B-Philosophy, Psychology, Religion	13.72	1,713
C-History	23.30	103
D-World History	13.40	933
E-History of the Americas	10.35	425
F-History of the Americas	12.65	332
G-Geography, Anthropology, Recreation	20.93	688
H-Social Sciences	17.17	5,184
J-Political Science	13.62	727
K-Law	21.07	598
L-Education	24.25	1,068
M-Music	24.66	219
N-Fine Arts	26.91	405
P-Language and Literature	13.47	2,338
Q-Science	19.39	4,022
R-Medicine	30.88	2,273
S-Agriculture	16.94	301
T-Technology	15.22	2,812
U-Military Science	14.29	91
V-Naval Sciences	5.26	19
Z-Bibliography, Library Science	32.41	145

Chi-square = 461.7503, df = 20,  $p < .001$

variable and then another variable was added to create model 2 and then another in model 3. The goal is to obtain a model where all the variables show some degree of statistically significant correlation with the outcome.

The numbers shown in table 4 are coefficients that would be used to create a regression equation. Each coefficient is listed, along with its accompanying standard error. The coefficients indicate how much the log odds of an e-book being used will be affected by the variable in question. When the variables in a regression equation are categories rather than numbers (e.g., LC class rather than

**Table 3.** Differences in Usage by Publisher Type

	% Used	<i>n</i>
University press	8.22	4,583
Other	20.77	19,839

$Z = 19.7425$ ,  $p < 0.001$

year of publication, for example), one of the categories is always treated as a reference category. In table 4, the reference category for LC class is class A, which means that there is no coefficient listed for class A in table 4. Rather, all the other LC classes are considered in terms of whether or not they are more likely to be used than class A. A negative coefficient means books in this class have a lower likelihood of being used than books in class A. For instance, if the variable class L has a coefficient of  $-0.5$ , then for e-books in class L the log of the odds of their being used will be  $.5$  lower than the log odds of the reference group (class A) if all other variables are held constant. To find the actual odds, take the anti-log of the log odds.

Model 1, shown in table 4, examines only the usefulness of the LC class in predicting the likelihood of an e-book being used. Statistically significant relationships are marked with asterisks indicating the p-value. A value with no asterisk represents a finding that is not statistically significant, that is, the p-value is above  $.05$ . Lack of statistical significance means it is possible that the difference in usage between these books and others in the sample would not hold true in the full collections of e-books. For the classes with statistical significance, the number in the table indicates how much the log odds of the book being used will be affected by the book being in that class.

Model 2 introduces the university press variable and model 3 introduces platform. Platforms were introduced last in the model as they serve as a catch-all, representing several other unmeasurable differences between the books, such as interface design and discoverability via Google.

The last row in the table, McFadden's Pseudo- $R^2$ , is a goodness-of-fit measure that tells how much of the variation in usage rates can be explained by the predictors included in the regression equation. Model 3 has a pseudo- $R^2$  of 0.0396, indicating that 3.96 percent of the variation can be explained by the variables in the model. Since model 3 includes the largest number of variables with significant correlations, and has the largest pseudo- $R^2$ , it has the most explanatory power. Because the table shows three different models, each time a variable is added to the model, it increases the model's explanatory power. When university press was added in model 2, the pseudo- $R^2$  increased from 0.0192 to 0.0338, while adding platform in model 3 increased it only slightly to 0.0396. It seems that in this dataset, university press status adds the most explanatory power.

**Table 4.** Logistic Regression Models

Variables	Coefficients					
	Model 1		Model 2		Model 3	
	coefficient	s.e.	coefficient	s.e.	coefficient	s.e.
(Intercept)	-0.64	0.41	-0.4	0.42	-0.35	0.42
LC class ( <i>reference A</i> )						
B	-1.20**	0.42	-1.23**	0.43	-1.21**	0.43
C	0.56	0.47	-0.52	0.48	-0.53	0.48
D	-1.23**	0.42	-1.11*	0.43	-1.09*	0.43
E	-1.52***	0.44	-1.12*	0.45	-1.09*	0.45
F	-1.30**	0.44	-0.89*	0.45	-0.90*	0.45
G	-0.69	0.42	-0.73	0.43	-0.71	0.45
H	-0.94*	0.41	-1.07*	0.42	-0.95*	0.43
J	-1.21**	0.42	-1.18**	0.43	-1.15**	0.43
L	-0.50	0.42	-0.67	0.46	-0.66	0.43
M	-0.48	0.44	-0.29	0.42	-0.26	0.45
N	-0.36	0.43	-0.41	0.45	-0.39	0.44
P	-1.22**	0.42	-1.12**	0.44	-1.11**	0.43
Q	-0.79	0.42	-0.97*	0.42	-1.00*	0.42
R	-0.17	0.41	-0.36	0.42	-0.37	0.42
T	-1.08**	0.42	-1.29**	0.42	-1.22**	0.42
Z	-0.10	0.45	-0.19	0.46	-0.18	0.46
University Press	-		-1.02***	0.06	-1.04***	0.06
Provider ( <i>reference ebrary</i> )						
MyiLibrary	-		-		-0.22***	0.05
netBASE	-		-		-1.05***	0.19
Springer	-		-		0.05	0.05
Wiley	-		-		-0.52***	0.07
McFadden's Pseudo-R <sup>2</sup>	.0192		.0338		.0396	

\* p < .05  
 \*\*p < .01  
 \*\*\*p < .001

All the platforms, except for Springer, have statistically significant correlations. Although the sample shows that Springer e-books have a higher rate of usage than Ebrary books, it is somewhat likely that these differences are a chance outcome due to content in this particular sample. The remaining three platforms show statistically significant correlations, and they are all significantly less likely to be used than the Ebrary e-books, with other variables held constant.

After using logistic regression to identify which specific subjects are more likely to be used, a secondary question arose of whether it is possible to generalize about which subjects get more use. Specifically, do subjects with heavy print use receive less e-book use? To answer this question, the print PEU for each class was compared to the e-book PEU.

Although the study's overall intent was to combine multiple variables into the same regression model, this second question required a separate analysis. Since PEU is calculated for each LC class rather than each book, the PEU for a given LC class is always the same. A book with LC class G will always have a Print PEU of 1.31, and every book with LC class H will have a Print PEU of .99. A regression equation cannot contain two independent variables whose values correspond perfectly. Therefore, the relationship between print and e-book use was examined in a separate analysis.

The first step was to create a scatterplot, shown in figure 1, to see if there appeared to be a relationship between the PEU of a certain class of books in print and the same class of books in e-book form. In figure 1, each dot

represents an LC class. If books with a higher print PEU consistently had a lower e-book PEU, the dots would arrange themselves in a line sloping from the top left of the plot (high e-book PEU, low print PEU) to the bottom right (low e-book PEU, high print PEU). In fact, there does not appear to be a relationship, and this was confirmed by statistical analysis. A linear regression equation that attempted to find a correlation between print PEU and e-book PEU returned a p-value of 0.9822, indicating that there is not a statistically significant relationship between these two variables. This is in contrast to Slater's finding of a positive correlation.<sup>66</sup>

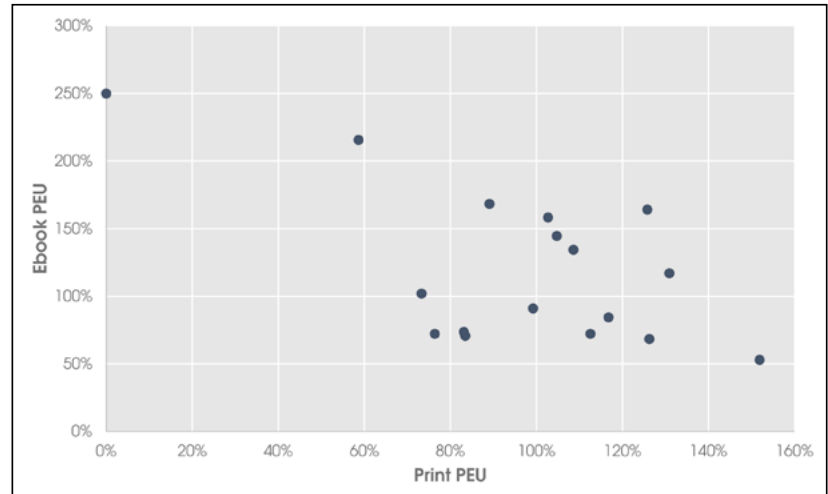


Figure 1. Print Usage Plotted Against E-book Usage

## Discussion

By using logistic regression, this study identified what factors are most useful in predicting which e-books will be used. Those most likely to be used are e-books in the LC class A, published by non-university presses, and hosted on Ebrary. However, a substantial amount of the variation in use between different e-books is not explained by the regression equation provided here and is due to an unknown factor.

The finding that Ebrary books receive the most use is surprising since they are part of a subscription collection. Recall Levine-Clark's observation that Ebrary books were used less than EBL, and his hypothesis that selection method (title-by-title versus subscription package) accounted for the low use in Ebrary.<sup>67</sup> Though EBL is not included in this study, the data here includes MyiLibrary, which contains a combination of DDA and firm order titles. One might expect these to be used more often than the Ebrary package, but that is not the case. Librarians at this institution indicated a strong preference for Ebrary's interface over MyiLibrary, lending support to the interpretation that usability affects the likelihood of an e-book being used. Since both platforms have migrated to ProQuest's Ebook Central since the time of this analysis, it is possible that usage of the books formerly hosted on MyiLibrary will increase. Another factor that could possibly explain the differing usage is the amount of detail included in catalog records, a variable that was not examined in this study. This would differ by title, but verification of randomly selected records from the Ebrary and MyiLibrary datasets found that content notes appear to be more common in records for Ebrary books than for MyiLibrary.

The finding that university press books were used less than other books, when platform and subject are held constant, was less of a surprise. In Levine-Clark, Paulson, and

Moeller's study they distinguish university press books from others because they see this as a proxy for a book being of especially high quality and they find these to have higher use.<sup>68</sup> However, Christianson and Aucoin had the opposite finding, and this study corroborates theirs in that way.<sup>69</sup> The presumed explanation in this study is similar to that of Christianson and Aucoin. Since university press books are often on narrow topics, it is expected that they would appeal to fewer users despite their high quality. University press books would be more likely to be used by faculty or graduate students who together make up only half as much of Temple University's population as undergraduates.

The LC class with the highest rate of usage is A, General Works. This is unexpected as general works are inherently not an area of focus. A look at the titles used shows that some are related to digital humanities, which is an area of focus for the main library. It is not surprising that math and science books (class Q) had one of the highest odds of being used, with other variables held constant, as this was noted in several other studies.<sup>70</sup> This could be because science books are less likely to be intended for linear reading. Among the higher rates of usage is history of the Americas (class F). History is traditionally a discipline that has expressed a preference for print, likely due to the nature of history materials, which typically involve narrative. The PEU calculations corroborate this preference, demonstrating that even when there is a strong preference for print, e-books can still receive some use. Technology books (class T) had the lowest odds of e-book use despite the more common finding of this being a popular topic for e-books.<sup>71</sup> Technology actually showed a strong preference for print, with a print PEU of 1.17 and an e-book PEU of only .84. Although this contradicts the usual assumption of technology being a popular topic for e-books, the LC class includes photography

books, which are preferred in print due to image quality. The low usage rates may also be because the library has several technology-focused databases, and users may prefer these to an aggregator package such as Ebrary.

While the findings for specific subjects are relevant to selectors, the more substantial finding is that other e-book features have a stronger correlation with usage than does the subject matter. Furthermore, the regression equation underscores the fact that most of the factors influencing usage have not yet been identified. The variables included in this study only predict 3.96 percent of the variation in e-book use. Future studies might be able to use the methodology presented here as a model for exploring the effects of additional variables on e-book use. Such studies should also attempt to consider specific platform characteristics rather than measuring platform as a single variable. It is likely that some of the differences in use rates between platforms are due to platform characteristics that were not examined in this study, such as ease of finding books using Google, the quality of the bibliographic records in the catalog, the reputation of the publishers represented in the collection, or the selection method for books on a given platform. The finding that Ebrary books have the highest use rate does not necessarily mean libraries should acquire books only from this provider (now Ebook Central). If the difference in usage between platforms can be shown to correspond with particular interface features, the library could pursue purchases on new platforms with interfaces that are equally good. If the difference is due to discoverability in Google, then the library could make that a priority in selecting platforms. Ideally, further research would incorporate additional features of e-books and would be able to separate the effect of these features from unidentified other differences in platforms.

## Conclusion

The model offered here can contribute to the body of literature that is gradually accumulating showing how e-book use differs by subject and provider. More importantly, it provides an example of one way to tease out the variety of

factors that influence e-book usage. In response to Wilkin and Underwood's statement that "researchers are interpreting the issue of what constitutes the 'e-book problem' differently," this research suggests a way to unify the various research questions of previous studies into one overarching question: what factors predict e-book use?<sup>72</sup> Though this study considers just three variables, it offers a methodology that can incorporate further variables.

In addition to providing a unified research question, this paper contributes toward building a standard for measuring e-book use by relying on emerging conventions. The literature shows that some standard methods are beginning to emerge. Comparing books based on whether they receive use rather than the amount of usage is a method that will hopefully become standard. The PEU as a unit of comparison is a well-established measure that can be used for both print and e-books. The means of finding an appropriate print collection to compare to the e-books under consideration will vary depending on the library's holdings. Knowlton and Fry offer methods that could work for any institution.<sup>73</sup> The tactic for finding a call number does not need to be consistent across studies, though when multiple studies use LC call numbers rather than vendor-provided subject categories, it is easier to compare them to each other.

By using the yes/no measure of use, PEU, and LC classes, this paper presents findings in a way that they can be compared against other studies to build a broad sense of e-book use in academic libraries. It would be very helpful to see future research that also takes into account whether a title was selected by a librarian, as part of a package, through an approval plan, or as a patron-driven acquisition. A more granular analysis of publisher types would also be helpful. Despite these gaps, a large enough body of work is emerging that results can be aggregated to provide some answer to the general question of which e-books get used. Though e-book usage may still present what Wilkin and Underwood call a "wicked problem," librarians are gradually working their way toward standards of measurement that will allow not only for more analysis at the institutional level but for comparisons between different studies that will produce better informed decisions

## References

1. James Cory Tucker, "Ebook Collection Analysis: Subject and Publisher Trends," *Collection Building* 31, no. 2 (2012): 40–47.
2. Robert Slater, "E-Books or Print Books, 'Big Deals' Or Local Selections—What Gets More Use?," *Library Collections, Acquisitions & Technical Services* 33, no. 1 (2009): 40.
3. Timothy P. Bailey, "Electronic Book Usage at a Master's Level I University: A Longitudinal Study," *Journal of Academic Librarianship* 32, no. 1 (2006): 52–59; Steven B. Carrico et al., "What Cost and Usage Data Reveals about E-Book Acquisitions: Ramifications for Collection Development," *Library Resources & Technical Services* 59, no. 3 (2015): 102–11; Marilyn Christianson and Marsha Aucoin, "Electronic Or Print Books: Which are Used?," *Library Collections, Acquisitions & Technical Services* 29, no. 1 (2005): 71–81; Amy Fry, "Factors Affecting the Use of Print and

- Electronic Books: A Use Study and Discussion,” *College & Research Libraries* 79, no. 1 (2018): 68–85; Steven A. Knowlton, “A Two-Step Model for Assessing Relative Interest in E-Books Compared to Print,” *College & Research Libraries* 77, no. 1 (2016): 20–33; Nancy Sprague and Ben Hunter, “Assessing E-books: Taking a Closer Look at E-book Statistics,” *Library Collections, Acquisitions & Technical Services* 32, no. 3 (2008): 150–57; Tucker, “Ebook Collection Analysis.”
4. Shelley Wilkin and Peter G. Underwood, “Research on E-book Usage in Academic Libraries: ‘Tame’ Solution or a ‘Wicked Problem?’,” *South African Journal of Libraries & Information Science* 81, no. 2 (2015): 11–18.
  5. Knowlton, “A Two-Step Model”; Fry, “Factors Affecting the Use of Print and Electronic Books.”
  6. Carrico et al., “What Cost and Usage Data Reveals,” 102–11.
  7. Michael Levine-Clark, “Global Trends in Ebook Usage: Patterns from 10,000 Libraries,” ProQuest, 2015, [http://contentz.mkt5049.com/lp/43888/413459/2015\\_Ebooks-Usage-Data-White-Paper\\_MLC.pdf](http://contentz.mkt5049.com/lp/43888/413459/2015_Ebooks-Usage-Data-White-Paper_MLC.pdf).
  8. Terry Bucknell, “The Big Deal Approach to Acquiring eBooks: A Usage-Based Study,” *Serials* 23, no. 2 (2010): 126–34; Alain R. Lamothe, “Factors Influencing the Usage of an Electronic Book Collection: Size of the E-book Collection, the Student Population, and the Faculty Population,” *College & Research Libraries* 74, no. 1 (2013): 39–50.
  9. Bucknell, “The Big Deal Approach,” 126, 134; Matthew Connor Sullivan and Katherine Leach, “Hard Data for Tough Choices: eBooks and eBooks in Academic Libraries” (presentation, E&RL Conference, Austin, Texas, April 5, 2016), [http://schr.ws/hosted\\_files/erl2016/51/ER%26L%202016\\_Hard%20data%20for%20tough%20choices.pptx](http://schr.ws/hosted_files/erl2016/51/ER%26L%202016_Hard%20data%20for%20tough%20choices.pptx).
  10. Michael Levine-Clark, Kari Paulson, and Paul Moeller, “10,000 Libraries, 4 Years: A Large-Scale Study of E-book Usage and How You Can Use the Data to Move Forward,” *Serials Librarian* 68, no. 1–4 (2015): 262–68; Christianson and Aucoin, “Electronic or Print Books”; Tucker, “Ebook Collection Analysis.”
  11. Tucker, “Ebook Collection Analysis.”
  12. Slater, “E-Books or Print Books”; Carrico et al., “What Cost and Usage Data Reveals.”
  13. Fry, “Factors Affecting the Use of Print and Electronic Books”; Wilkin and Underwood, “Research on E-Book Usage,” 15.
  14. Levine-Clark et al., “10,000 Libraries, 4 Years.”
  15. Wilkin and Underwood, “Research on E-Book Usage.”
  16. Project COUNTER, “The COUNTER Code of Practice for E-resources: Release 4,” April 2012, [www.projectcounter.org/wp-content/uploads/2016/01/COPR4.pdf](http://www.projectcounter.org/wp-content/uploads/2016/01/COPR4.pdf).
  17. Project COUNTER, “The COUNTER Code of Practice,” (2017), accessed August 30, 2017, [www.projectcounter.org/code-of-practice-sections/general-information/](http://www.projectcounter.org/code-of-practice-sections/general-information/).
  18. Karin Bystrom, “Everything that’s Wrong with E-book Statistics: A Comparison of E-book Packages” (presentation, 32nd Annual Charleston Conference Issues in Book and Serial Acquisition, Charleston, South Carolina, November 9, 2012).
  19. John Cox, “Making Sense of E-book Usage Data,” *Acquisitions Librarian* 19, no. 3–4 (2008): 193–212.
  20. Bucknell, “The Big Deal Approach,” 126–34.
  21. Lamothe, “Factors Influencing the Usage”; Tucker, “Ebook Collection Analysis.”
  22. Levine-Clark et al., “10,000 Libraries, 4 Years.”
  23. Michael Levine-Clark, “E-book Usage on a Global Scale: Patterns, Trends and Opportunities,” *Insights: The UKSG Journal* 28, no. 2 (2015): 39–48.
  24. Justin Littman and Lynn Silipigni Connaway, “A Circulation Analysis of Print Books and E-Books in an Academic Research Library,” *Library Resources & Technical Services* 48, no. 4 (2004): 256–62; Lisa Rose-Wiles, “Are Print Books Dead? An Investigation of Book Circulation at a Mid-Sized Academic Library,” *Technical Services Quarterly* 30, no. 2 (2013): 129–52; Slater, “E-books or Print Books”; Sullivan and Leach, “Hard Data for Tough Choices”; Tucker, “Ebook Collection Analysis.”
  25. Knowlton, “A Two-Step Model.”
  26. *Ibid.*, 21.
  27. Rusty Kimball, Gary Ives, and Kathy Jackson, “Comparative Usage of Science E-book and Print Collections at Texas A&M University Libraries,” *Collection Management* 35, no. 1 (2009): 15–28.
  28. *Ibid.*
  29. Knowlton, “A Two-Step Model.”
  30. Christianson and Aucoin, “Electronic or Print Books”; Cathy Goodwin, “The E-Duke Scholarly Collection: E-book v. Print Use,” *Collection Building* 33, no. 4 (2014): 101–5; Littman and Connaway, “A Circulation Analysis of Print Books and E-books”; Slater, “E-books or Print Books”; Sullivan and Leach, “Hard Data for Tough Choices.”
  31. Goodwin, “The E-Duke Scholarly Collection.”
  32. Kimball et al., “Comparative Usage of Science E-book and Print Collections”; Littman and Connaway, “A Circulation Analysis of Print Books and E-books”; Slater, “E-books or Print Books.”
  33. Fry, “Factors Affecting the Use of Print and Electronic Books.”
  34. Knowlton, “A Two-Step Model.”
  35. Fry, “Factors Affecting the Use of Print and Electronic Books.”
  36. Knowlton, “A Two-Step Model.”
  37. *Ibid.*
  38. Slater, “E-books or Print Books.”
  39. Bailey, “Electronic Book Usage at a Master’s Level I University”; Christianson and Aucoin, “Electronic or Print Books.”
  40. Tucker, “Ebook Collection Analysis.”
  41. Carrico et al., “What Cost and Usage Data Reveals.”



42. Littman and Connaway, "A Circulation Analysis of Print Books and E-books."
43. Knowlton, "A Two-Step Model"; Fry, "Factors Affecting the Use of Print and Electronic Books"; Sprague and Hunter "Assessing E-books."
44. Knowlton, "A Two-Step Model"; Fry, "Factors Affecting the Use of Print and Electronic Books"; Sprague and Hunter, "Assessing E-Books"; Tucker, "Ebook Collection Analysis."
45. Goodwin, "The E-Duke Scholarly Collection."
46. Slater, "E-books or Print Books."
47. Knowlton, "A Two-Step Model."
48. Sprague and Hunter, "Assessing E-books."
49. Knowlton, "A Two-Step Model."
50. Slater, "E-books or Print Books."
51. Littman and Connaway, "A Circulation Analysis of Print Books and E-books."
52. Christianson and Aucoin, "Electronic or Print Books."
53. Slater, "E-books or Print Books."
54. Christianson and Aucoin, "Electronic or Print Books."
55. Littman and Connaway, "A Circulation Analysis of Print Books and E-books."
56. Sullivan and Leach, "Hard Data for Tough Choices."
57. Kendall Hobbs and Diane Klare, "Are We There Yet? A Longitudinal Look at E-books through Students' Eyes," *Journal of Electronic Resources Librarianship* 28, no. 1 (2016): 9–24.
58. Littman and Connaway, "A Circulation Analysis of Print Books and E-books."
59. Christianson and Aucoin, "Electronic or Print Books"; Sullivan and Leach, "Hard Data for Tough Choices."
60. Christianson and Aucoin, "Electronic or Print Books."
61. Levine-Clark et al., "10,000 Libraries, 4 Years."
62. Hobbs and Klare, "Are We There Yet?"; Slater, "Why Aren't E-books Gaining More Ground in Academic Libraries?"
63. Anna Faherty, "Academic Book Discovery, Evaluation and Access: Insights and Opportunities for Enhancing the Scholarly Experience," June 2016, [https://academicbookfuture.files.wordpress.com/2016/06/faherty\\_academic-book-discovery-full-report.pdf](https://academicbookfuture.files.wordpress.com/2016/06/faherty_academic-book-discovery-full-report.pdf); Hobbs and Klare, "Are We There Yet?"
64. Timon Oefelein, "Global Discovery Trends and the Library's Changing Role," *Research Information*, May 5, 2016, [www.researchinformation.info/news/analysis-opinion/global-discovery-trends-and-librarys-changing-role](http://www.researchinformation.info/news/analysis-opinion/global-discovery-trends-and-librarys-changing-role).
65. Knowlton, "A Two-Step Model"; Littman and Connaway, "A Circulation Analysis of Print Books and E-books."
66. Slater, "E-books or Print Books."
67. Levine-Clark, "Global Trends in Ebook Usage."
68. Levine-Clark et al., "10,000 Libraries, 4 Years."
69. Christianson and Aucoin, "Electronic or Print Books."
70. Slater, "E-books or Print Books"; Sprague and Hunter "Assessing E-books."
71. Slater, "E-books or Print Books."
72. Wilkin and Underwood, "Research on E-book Usage," 14.
73. Fry, "Factors Affecting the Use of Print and Electronic Books"; Knowlton, "A Two-Step Model."

# Assessing Staff Alignment in Technical Services

Jim LeBlanc and Martin Kurth

*Technical services units have routinely kept detailed monthly and annual statistics to assess productivity and efficiency, especially regarding functions that are easily measured. However, with the evolution of library user behavior, libraries' strategic directions, and technical services' practices, these numbers have become less and less useful in revealing the value of this work. In this paper, the authors introduce a methodology and draft model with which technical services managers can better assess not only their unit's productivity and efficiency, but the extent to which its activities align with a library's strategic values and the behavior of its users.*

In a summary of a discussion that took place at the 2013 American Library Association Annual Conference, Winjum reported on concerns shared by many technical services managers regarding the challenge of demonstrating the impact of technical services' work on library operations in general.<sup>1</sup> Indeed, the common decades-old practice of collecting detailed monthly and annual production statistics for those technical services tasks that are easily measurable has not changed much with time, even as user needs and interests and libraries' strategic goals have evolved. While the occasional practice of incorporating staff cost data into the equation certainly enhances the analytic value of raw production numbers, these more elaborate time- and activity-based cost studies aim almost exclusively at measuring productivity and efficiency.<sup>2</sup> They do not address more user-oriented aspects of overall technical services' output, such as effectiveness, or the "quality processing completed in a timely manner," for which some libraries have undertaken separately focused analytical methods to account for such factors as the presence or absence of backlogs, or high or low throughput time.<sup>3</sup> These figures do not reveal much about the relationship between the activities measured and user behavior, or the extent to which technical services' effort and priorities are aligned with a library's strategic vision (an increasing emphasis on the acquisition and licensing of electronic resources, for example).<sup>4</sup> To remain relevant, these studies must be repeated as the circumstances of production change or evolve, such as the migration to a new integrated library system or increased automation and outsourcing.<sup>5</sup> Additionally, while the data derived from existing assessment practices and carefully constructed cost studies is often reliably useful in reflecting a unit's productivity and efficiency, conducting reiterative cost studies can be costly—not to mention the intangible tax they impose on staff goodwill from having to repeatedly perform the task of recording and reporting their worktime based on function. Kaplan and Anderson acknowledged the role of these factors in their revised approach to activity-based costing in industry.<sup>6</sup> While the elements of their costing formula do not vary

**Jim LeBlanc** (JDL8@cornell.edu) is Director, Library Technical Services, Cornell University. **Martin Kurth** (martin.kurth@yale.edu) is the Associate University Librarian for Technical Services at Yale University Library.

Manuscript submitted June 16, 2017; returned to authors for revision August 18, 2017; revised manuscript submitted September 17, 2017; accepted for publication December 18, 2017.

The authors wish to thank their colleagues for input to draft versions of this assessment model, particularly Bob Wolven (formerly of Columbia University Libraries) and Scott Wicks (Harvard Library), who helped to launch this study.

significantly from those used in time-driven, activity-based technical services cost studies, they recommend abandoning the employee-survey model for “informed managerial estimates” based on unit-level figures.<sup>7</sup> They also caution against the tendency to be “overly sensitive to small errors” in these estimates: “precision is not critical; rough accuracy is sufficient.”<sup>8</sup> Although these caveats may be construed as integral to a streamlining of the cost-study apparatus (i.e., a cost-cutting measure applied to the analytic process of assessing costs), they reveal a simple, practical path around the common obstacles to conducting repeated, rigorous cost studies of technical services activities. They also suggest important considerations for the design and implementation of richer approaches to evaluating the impact of library technical services’ work.<sup>9</sup>

The aim of the current study is to propose a new way of thinking about staff allocation in technical services, not only in terms of productivity and efficiency, but in relation to a library’s stated goals and its users’ demonstrated needs and interests. It presents a methodology and model for reviewing activity-based cost figures in a simple and significantly broader way than is provided by existing methods. It is important to note that this model does not seek to replace existing means of compiling statistics and analyzing production trends, but to expand the scope of this analytic framework into a context in which the value of technical services performance can be more explicitly linked to the nuances of a library’s central mission, especially in regard to its collections and their use.

## Method

Rather than addressing commonly targeted aspects of technical services performance, such as productivity, efficiency, and effectiveness, this study aims to introduce a means to *empirically* evaluate the relationship between the alignment of technical services staff resources with collection policies and use patterns. Further, it considers the importance of using “informed managerial estimates” based on reliably derived data plus a willingness to regard the impact of these estimates with “rough accuracy” to permit easy, periodic reapplication of the assessment instrument (annually, semi-annually, or even more frequently). It is less a formal method for reporting statistical data than a tool for disclosing change in the strategic implications of staff alignment over time and eliciting increased managerial interest in regular, more focused reflection on the factors contributing to this change. It is important to note that this instrument is not intended as a benchmarking tool for comparing alignment across institutions, but as a customizable way to track staff and priority alignment within individual institutions. This last caveat is based on the assumption that

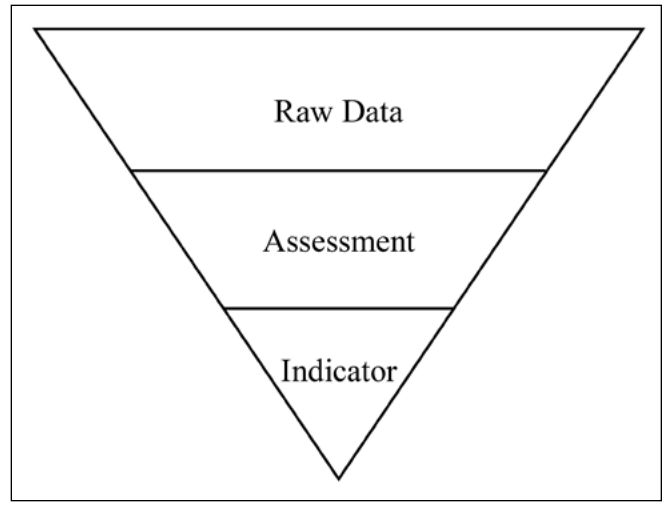


Figure 1. Inverted assessment pyramid.

harmonizing empirical inputs from multiple institutions in a comparative manner would undermine the ability to use the model frequently enough to reflect trends and longitudinal change.

Typically, the assessment of technical services functions begins with raw data such as annual production statistics or, more generally, opinion-based evaluative input from staff or library users. From this data, technical services managers draw conclusions and accordingly adjust practices and/or staff allocations. At a minimum, they will internalize these conclusions for planning purposes. Ideally, the collecting and analysis of this data allows technical services units to demonstrate their importance to library administrators.<sup>10</sup> What is best for these purposes is evidence for and an understanding of these measurements over time, and this requires an instrument that supports an analytical perspective that is easy to reiterate. It is also important to include the relationship between technical services operations and collection policy and use.

To ensure a more holistic context for this kind of assessment, the current model challenges the traditional approach to interpreting technical services statistics. Rather than deriving a service-oriented conclusion from raw production numbers, the authors advocate for approaches that begin with an empirical, service-oriented conclusion, in the form of a single numerical indicator, to inform a broader understanding of the alignment of technical services staffing and performance with library-wide concerns. This approach is best illustrated by an inverted pyramid, with a top layer of raw data, which is distilled through model-driven mathematical factoring, into a single alignment indicator (see figure 1).<sup>11</sup>

The indicator that is generated by the tool becomes the initial focal point for the assessment, rather than the

collection of raw data that traditionally serves as the ground for the evaluative activity.

## The Model (Structure)

To demonstrate the applicability of the theoretical framework for evaluating the impact of technical services within a broader context, the authors present the following prototype for assessing staff alignment within technical services. Managing the scope of such a model to afford easy, reiterated application and to avoid levels of complexity is crucial to its utility. It is important to delimit the model's scope and to define its focus carefully. The benefits of this model derive less from the comprehensiveness of its individual elements than from the provocative power of its singular indicator, which is designed to steer the process of assessment in meaningful directions driven more by staff alignment than by more traditional measurements such as productivity, efficiency, and effectiveness, without marginalizing these factors.

For this study, the authors have chosen the acquisition and cataloging of non-serial titles in physical formats as the primary production focus to illustrate how to use the model. There are two reasons for this choice. First, the units of measurement related to these functions are long-established and are regularly collected at most institutions. Second, the acquisition and cataloging of physical formats is an area of activity that many libraries have targeted for reduction as electronic formats usage continues to rise, both as actual downloads and as a percentage of total use of all library resources.<sup>12</sup>

The authors' tool is mathematical and uses an Excel spreadsheet to record and manipulate raw data on the acquisition and cataloging of titles in physical formats. Two detailed views of this model in spreadsheet form are provided in the [supplementary materials to this paper](#). [Table 1](#) contains sample data from a fictitious large university library for a two-year period. [Table 2](#) shows that same data with the outputs displayed as the formulas used to generate these outputs. Read horizontally, these tables contain: (a) the categories measured, (b) the variable data for each category as input by the institution using the model, (c) the formulaic adjustment of that data to generate the alignment indicator that the model is designed to produce, (d) the variable data for a second year, (e) the adjusted values for this second-year data, and (f) a space for institution-specific notes. The spreadsheet framework enables the optional creation of additional columns to measure and compare data for subsequent years beyond the two years illustrated here. This structure also allows for customization.

The categories to be measured, as laid out vertically from top to bottom, support three key composite

$$\text{adjusted transactions} = \text{titles processed} * \text{contributed value factor} * \text{relative cost factor}$$

Figure 2. Adjusted transactions.

calculations. The first number that the model aims to generate is the *efficiency quotient* (row 65 in the model). This represents the total adjusted acquisitions and cataloging transactions per full-time equivalent (FTE) staff per 1,000 items. The adjusted acquisitions and cataloging transactions (cells C56 and E56) are the product of three variables: the actual number of titles processed in acquisitions and cataloging, the *contributed value factor* as applied to the category of material processed, and the *relative cost factor* based on the level of staff performing each transaction (see figure 2).

To perform the first step of this calculation, the actual number of titles processed (rows 4 and 5) is broken down by the type of material handled and the levels of staff who process it (rows 9-34). These last two factors are used to weigh the acquisitions and cataloging transactions according to values assigned by the individual institution using the tool.

The *contributed value factor* is based on a distinction between commonly held titles and those that are unique or rare. These types, "commodity" and "rare," are derived from terms applied by Dempsey, Malpas, and Lavoie to describe categories of library resources and their relative values within collections. They define commodity items as those non-unique materials that are "widely published or available through many channels"; rare items, conversely, are "unique" and "tend to be in one collection only."<sup>13</sup> By adapting this nomenclature for technical services activities, the authors have divided the processing of commodity material into two types, "commodity (copy)" and "commodity (original)," to distinguish between those commonly held titles that are accessioned into local collections using existing catalog copy and those commodity items that are processed without pre-existing copy (i.e., through original cataloging). While some proportion of items in this latter subcategory may be unique, most of these titles are commodity material that has not yet been accessioned into other libraries' collections. Although these particular resources may have no greater value within an individual library's collection, the original cataloging provided by the first institution to handle them adds value from a processing perspective that lowers processing costs for other institutions. These contributed value factors appear in rows 38-40 of the table.

The *relative cost factor* further influences the weighted adjustment of the raw number of acquisitions and

$$\text{efficiency quotient} = \frac{\text{total adjusted transactions}}{\left( \text{FTE physical material staff} * 1,000 \right)}$$

**Figure 3.** Efficiency quotient.

$$\text{usage value multiplier} = 1 / \left( \% \text{ FTE physical material staff} - \% \text{ physical material collection use} \right)$$

**Figure 4.** Usage value multiplier.

cataloging transactions by incorporating staffing levels, or more precisely, the typical costs (salary, plus benefits) related to the staff who perform the transaction, into the equation. The costs of four levels of staff (including one for students) appear in rows 44-47 of the table. The relative cost factors, comprising a comparison of the four cost levels expressed as ratios, appear in rows 51-54. The model assumes that the lower the staffing costs for each type of transaction counted, the higher the cost efficiency of the technical services unit as a whole.

This three-part weighted measurement of the technical services unit's productivity represented as total adjusted transactions is used as the dividend in the numerical relationship that produces the efficiency quotient (row 65). As explained above, the divisor in this equation is the total number of FTE staff allocated to these tasks per 1,000 items processed (see figure 3).

The second key composite calculation expressed in the model is the *usage value multiplier*, which appears in row 83 of the table. This number reflects the gap between the proportion of total non-managerial technical services staff devoted to the acquisition and cataloging of monographic material in physical formats (row 69) and the percentage of collection use generated by these resources (row 79). The difference between these two percentages reflects the extent to which the allocation of technical services staff effort to the processing of these items is aligned with the overall use of material in these formats (see figure 4).

This is an admittedly crude way to generate what purports to be a precise number. Assuming that: (1) the labor required to process material in physical formats is greater than that required to process titles in electronic formats, and (2) the use of the material in the latter format (represented by number of downloads) is indeed growing, then the smaller this gap, the greater the alignment of technical services staffing with user behavior. As in the formula for weighting productivity (i.e., in the total adjusted ACQ/CAT transactions), the contributed value factor for special/rare material (row 40) is applied here to reflect the added import of this rare and unique material to library users.

When combined with the efficiency quotient, the usage value multiplier contributes to the generation of a figure that integrates the measurement of productivity, efficiency, and the alignment of this work with a library's strategic collecting goals and the behavior of its users regarding the

$$\text{alignment indicator} = \text{efficiency quotient} * \text{usage value multiplier}$$

**Figure 5.** Alignment indicator.

collection as a whole.<sup>14</sup> This figure, the *alignment indicator* (row 85), is the third important composite calculation performed in the model. As the single numeric product extracted from the table's inputs and equations, it represents the instrument's key output. The alignment indicator is the product of the efficiency quotient times the usage value multiplier, the latter of which is expressed as an inverse ratio (see figure 5).<sup>15</sup>

In this way, the alignment indicator integrates a technical services operation's productivity and efficiency with the strategic importance of the material processed by that unit and the anticipated value of this work to the library's user community.

## The Model (Application)

To demonstrate how this assessment method works, the authors have populated tables 1 and 2 with sample data from a fictitious large research library. Column B contains the institution-specific variables for the first-year of the model's use. Column C shows the weighted recalibration and recombination of these variables for this same year, based on the principles elaborated in the previous section.

During the first sample year, the technical services unit acquired 40,000 new titles; it also cataloged 45,000 new titles (rows 4-5, column B).<sup>16</sup> The detailed breakdown of this processing (rows 9-34) shows that 35,000 of the new titles acquired fall into the category of commodity (copy), 3,000 into commodity (original), and 2,000 into special/rare. Forty thousand of the new titles cataloged fall into the category commodity (copy), 3,000 into commodity (original), and 2,000 into special/rare. The library has assigned a contributed value factor of 1.0 (a baseline) for commodity (copy) material, a contributed value factor of 3.0 for material processed as commodity (original), and a contributed value factor of 10.0 for the processing of special/rare items

in the collection to reflect the relative value of these activities (rows 38-40). The authors assume that individual libraries will assign these factors at their own discretion. The basic cost of the four levels of staff who perform this work is recorded in rows 44-47, and the differences among these become the relative cost factors in rows 51-54.<sup>17</sup> For these values to influence the adjusted acquisitions and cataloging transactions in the right direction (i.e., the lower the cost, the more productive the operation), they are expressed as inverse ratios (rows 51-54, column C) for the purposes of performing the weighting required for the adjusted calculations. Applying all of these inputs formulaically results in 158,592 *adjusted* acquisitions and cataloging transactions for the target year (row 56, column C).

The values recorded in rows 60-62 reflect the number of FTE allocated to the operations measured for the year in question. The total FTE (row 63) provides one of the key elements in the equation to calculate the efficiency quotient in row 65. In this case, 18 FTE (adjusted to 17.55 for a 40-hour workweek) were required to perform the 158,592 adjusted acquisitions and cataloging transactions, which generates an efficiency quotient of 9.04 (FTE per 1,000 items).<sup>18</sup> The model prompts further analysis of these FTE as a percentage of the total number of non-managerial technical services FTE in the operation for the target year (rows 69-71). This percentage of non-managerial FTE (51.4 percent) is compared to the number of adjusted uses of items in physical formats (row 79) as a percentage of the total number of charges, renewals, and downloads of the collection as a whole (18.4 percent) to derive the usage value multiplier in row 83 (3.02). Applying this multiplier to the efficiency quotient yields the alignment indicator (27.33) for the first year measured (row 85, column C).

Considered in isolation, this arbitrarily generated number reveals nothing until the model is applied to a second (or subsequent) set of periodically compiled data. It is necessary to remember that this method of assessment is not intended for the analysis of a single snapshot of data, but as a tool to reflect changes in user behavior, developments (or stagnation) in a library's collecting patterns, and adjustments in technical services staffing alignment in response to these changes and developments. For this reason, it will be useful to examine a second year of sample data, as represented in columns D and E of the table.

Keeping in mind the inverted pyramid of the staff alignment assessment methodology in figure 1, the authors note first that the alignment indicator for the second year measured is 29.04 (row 85, column E). This value reflects an increase of 1.71 over the previous year. The allocation of staff in technical services within this fictitious research library now seems better aligned with the library's collection development goals and with its users' interests. The factors influencing this improvement are complex, since

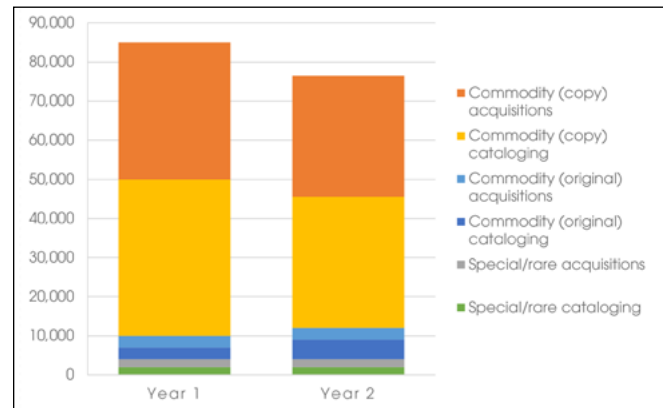
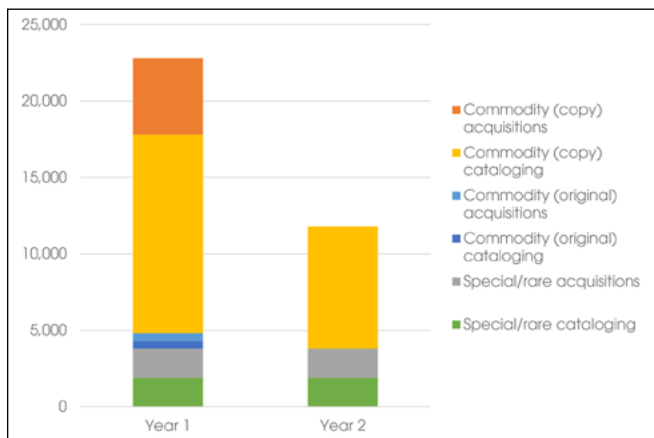


Figure 6. Titles processed by transaction type in Years 1 and 2.

a combination of small and nuanced changes in staff productivity, efficiency, and user behavior contribute to this statistical indicator. The model is designed to help sort this out.

As the notes in column F of table 1 indicate, the increase in the alignment indicator in Year 2 is the product of a number of noteworthy changes in the variables represented in the table. Among these are a significant decrease in the total number of items in physical formats acquired (row 4), all of which fall into the category of commodity (copy), and a decrease in the total number of items cataloged (row 5). In the latter, the number of commodity (copy) titles processed declined by 16 percent, while the number of commodity (original) titles rose by 67 percent (rows 19 and 24). During this same period, copy catalogers' participation in the acquisitions processing of commodity material and in commodity (original) cataloging ceased (rows 12, 17, and 27), and their contributions to commodity (copy) cataloging decreased (row 22). This decrease in overall copy cataloging staff effort is further substantiated by the decrease in cataloging staff allocation during Year 2 (row 62), resulting from the transfer of one FTE of copy cataloger effort to e-resources processing (row 70). The student wage rate also rose in Year 2 (row 44), which negatively affects the relative cost factor for the least expensive labor tier. Finally, collection use statistics for Year 2 reveal a 1 percent decrease in the use of the physical collection and a 10 percent increase in the use of electronic resources (rows 75 and 80). Figures 6, 7, and 8 contain graphic representations of these changes in technical services activity and collection use from Year 1 to Year 2.

The change in the alignment indicator from Year 1 to Year 2 immediately shows an improvement in the alignment of technical services' productivity, efficiency, and staffing allocations with user behavior and the library's strategic aims. However, it is only by (1) digging down into the data that contributes to the derivation of this indicator and (2)



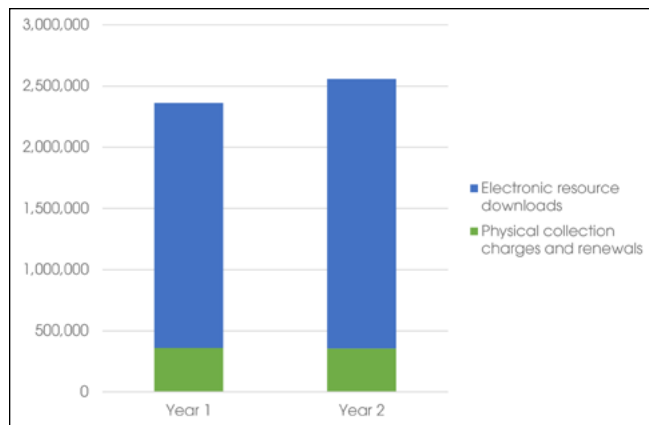
**Figure 7.** Copy cataloging staff effort by transaction type in Years 1 and 2.

taking into consideration administrative changes that may have effected significant variations in this data from one year to the next, that technical services managers can reach a better understanding of how well their units are performing regarding their libraries’ broader goals and why. Such an analysis also reveals how to improve staff alignment further or to correct imbalances in staff alignment when the value of the alignment indicator falls.

**Conclusion: Toward Extending the Model**

The authors have sought to introduce a methodology and to demonstrate a prototypical model that technical services managers can use to better assess their unit’s productivity and efficiency and the extent to which its activities align with a library’s collecting patterns and the behavior of its users using empirical inputs. The model has the potential to reveal both the relative cost-benefit value of the technical services activities measured during the target period and possible misalignments of staff effort or focus outside of technical services. For example, the model might reveal an increase in print acquisitions when the library is purporting to increase its preference for electronic over physical items in its collecting profile and is, consequently, reducing its support for technical staff handling print. In this case, has technical services been able to absorb this unexpected increase by implementing more streamlined or automated workflows? Or is the spike in new items acquired outpacing the rate at which these items are cataloged, leading to cataloging backlogs? Are the latter acceptable? What do the related collection use statistics for the same period reveal?

Readers may have questions about the components of the model. The following questions arose when the authors



**Figure 8.** Collection use by resource category in Years 1 and 2.

discussed the model with colleagues: What about physical processing (stamping, spine labeling, security stripping, and barcoding)? Should this effort be included in the model? Is physical processing work a technical services function in the library in question? Or is the activity provided by a preservation unit? What about shelf-ready receipts? Should those titles be counted in the table even if the staff in question do not handle them? The authors believe that they should as long as the shelf-ready arrangement is deemed cost-effective and would improve the assessed alignment of technical services staffing with the library’s collection building aims. Should the numbers for collection usage be restricted only to those titles processed during the target period? Are these statistics easy to derive? Is this really the most relevant measurement of collection usage for the purposes of assessing staff alignment? What about the relative difference in collection spending allocated to material in physical versus electronic formats? Should these dollar amounts be included in the model to generate another multiplier (similar to the usage value multiplier) for calculating the alignment indicator?

Such questions clearly point to how the proposed assessment model might be modified or extended into other areas of library operations. Given these and other opportunities for extending the model, the version of the model introduced in this study should not be considered as definitive, but rather as the prototype of a new approach to assessing technical services that invites iteration and adaptation. The authors invite readers to experiment with the model, to adapt it to other functional areas (e.g., electronic resources; non-MARC metadata design and consulting; web archiving; processing of unique, non-rare material stored in institutional repositories), and to deconstruct it in ways that will reveal even more nuanced parameters for measuring the organizational impact of technical services work and the strategic alignment of its staff.

## References and Notes

1. Roberta Winjum, "Fast and Sleek: Developing Solutions for Technical Services Challenges—A Report of the Technical Services Managers in Academic Libraries Interest Group, American Library Association Annual Conference, Chicago, June 2013," *Technical Services Quarterly* 31, no. 1 (2014): 67–68.
2. Perhaps the most noteworthy and fruitful of these methodologies were the time and cost studies developed at Iowa State University (ISU) in 1986–87 and 2000–2001, which yielded significant data on departmental productivity and efficiency for later analysis. See, for example, David C. Fowler and Janet Arcand, "Monographs Acquisitions Time and Cost Studies: The Next Generation," *Library Resources & Technical Services* 47, no. 3 (2003): 109–24; and David C. Fowler and Janet Arcand, "A Serials Acquisitions Cost Study: Presenting a Case for Standard Serials Acquisitions Data Elements," *Library Resources & Technical Services* 49, no. 2 (2005): 107–22. Other institutions, such as Cornell University, adopted the ISU framework for their own cost studies in the 1990s.
3. Cheryl McCain and Jay Shorten, "Cataloging Efficiency and Effectiveness," *Library Resources & Technical Services* 46, no. 1 (2002): 23. For an example of one library's workflow/throughput study, see Patricia Dragon and Lisa Sheets Baricella, "Assessment of Technical Services Workflow in an Academic Library," *Technical Services Quarterly* 23, no. 4 (2006): 51–72.
4. It has become increasingly common to resort to less empirical methods, such as customer service surveys, focus groups, and other means of gathering input, to evaluate and assess the relationship and impact of technical services activities on user needs and behavior. See, for example, Rebecca L. Mugridge, "Technical Services Assessment: A Survey of Pennsylvania Academic Libraries," *Library Resources & Technical Services* 58, no. 2 (2014): 100–110; Rebecca L. Mugridge and Nancy M. Poehlmann, "Internal Customer Service Assessment of Cataloging, Acquisitions, and Library Systems," *OCLC Systems & Services* 31, no. 4 (2015): 219–48; and Catherine Sassen, Rebecca Welch, and Kathryn Loafman, "Assessment of Cataloging Services in an Academic Library," *Technical Services Quarterly* 33, no. 1 (2016): 23–41. The first and third of these articles also contain comprehensive, up-to-date literature reviews related to the assessment of technical services productivity, efficiency, effectiveness, and impact, the repetition of which we will forgo here.
5. Fowler and Arcand, "Monographs Acquisitions Time and Cost Studies," 109.
6. Robert S. Kaplan and Steven R. Anderson, "Time-Driven Activity-Based Costing," *Harvard Business Review* 82, no. 11 (2004): 131–38.
7. *Ibid.*, 131.
8. *Ibid.*, 133.
9. Although different in methodology from the model introduced here, a group of Belgian librarians have applied Kaplan and Anderson's "TDABC" methodology to an analysis of a library acquisitions operation. See Kristof Stouthuyzen et al., "Time-Driven Activity-Based Costing for a Library Acquisition Process: A Case Study in a Belgian University," *Library Collections, Acquisitions & Technical Services* 34, no. 2–3 (2010): 83–91. This group emphasizes the importance of assigning tasks to the appropriate level of staff in a unit of this type, an observation that is also germane to the current study.
10. For recent remarks on the importance of this concern, see Mugridge, "Technical Services Assessment," 100; and Sassen, Welch, and Loafman, "Assessment of Cataloging Services in an Academic Library," 23.
11. Matthew Beacom, head of technical services at Yale University's Beinecke Rare Book and Manuscript Library, has characterized this figuration as the "drip coffee assessment pyramid."
12. For instance, see Aiping Chen-Gaffey and Heather Getsay, "More E-books, Less Print?—What Does Usage Data Tell Us?," *Library Collections, Acquisitions & Technical Services* 39, no. 3–4 (2015): 59–67. The question of user preference among various formats within different disciplines and in different circumstances remains open—see Lee A. Cummings, Anne Larrivee, and Leslie Vega, "Comparing Electronic vs. Print Book Preferences between Students in the Social Sciences, the Arts, and STEM," *Library Hi-Tech News* 32, no. 4 (2015): 1–4.
13. Lorcan Dempsey, Constance Malpas, and Brian Lavoie, "Collection Directions: The Evolution of Library Collections and Collecting," *portal: Libraries and the Academy* 14, no. 3 (2014): 402. In addition to rare material per se (i.e., items held in special collections), Dempsey, Malpas, and Lavoie include another type of unique library holding in their taxonomy of collections: research and learning materials and institutional records created locally (394). This portion of the collection falls outside the scope of the current study, but would be relevant to an institution that processes such material as part of its monograph cataloging workflow or to a model for assessing other technical services functions, such as non-MARC metadata processing. This category of material would likely warrant its own contributed value factor.
14. For a related work that seeks to align library collection building with user behavior, see Julie Linden, Sarah Tudesco, and Daniel Dollar, "Collections as a Service: A Research Library's Perspective," *College & Research Libraries* 79, no. 1 (2018): 86–99, <https://doi.org/10.5860/crl.79.1.86>. The juxtaposition of physical format and electronic format usage



data referenced in that study informed our development of the usage value multiplier as applied here (93).

15. The usage value multiplier is expressed as an inverse ratio because as the difference between the staff allocation percentage and the use of the physical collection declines, the alignment indicator must increase inversely to reflect the positive effect of this decrease.
16. In the example, we have not included the acquisition of new serial titles in the count, given the significantly different nature of serials management work from that of monographs. This is an arbitrary choice, as is the inclusion and precise definition of all the variables in columns B and D of the table, which are at the discretion of the individual institution using the instrument.
17. There are obviously multiple ways to establish the basic costs for each level of staff represented in the model, including the inventory of how much the institution pays each staff member, plus benefits, then converting these numbers to cost per FTE and deriving an average. However, to permit easy implementation and reapplication of the instrument, we recommend a simpler method, such as the use of hiring minimums or maximums, including benefits, for each level of staff.
18. For some institutions, the conversion of staff hours to a standard work week may not be necessary. However, in situations where the FTE definitions for staff levels vary (e.g., when the length of the standard workweek for hourly staff is different from that of salaried staff), this conversion increases the accuracy of the measurements.

# Notes on Operations

## Promoting Interlibrary Loan in the Traditional Catalog and Discovery Layer

### Two Pilot Projects

Rachel E. Scott and Gail Barton

*This paper describes two projects that promote interlibrary loan (ILL) in both traditional online public access catalogs and discovery settings to address user frustrations with gaps in the collection. By creating and inserting OpenURL links into bibliographic records for titles held exclusively by external institutions, the authors leveraged the discovery capabilities of their shared catalog and promoted ILL as an alternative means of access. The second project targeted the overwhelming amount of content indexed in the library's discovery layer that was not locally available. To more directly translate discovery into access, the authors worked with EBSCO to create and enable ILL CustomLinks for this content indexed by EBSCO Discovery Service and not available to their users. This paper presents ILL data to investigate whether these projects are changing the ways our users find and access content not held locally.*

Before the advent of publicly searchable, online union catalogs, requesting an item via interlibrary loan (ILL) was discrete from library catalogs and opaque to library patrons. Patrons completed forms by hand and submitted them to the ILL office, often without knowing how many libraries held the item or whether it was possible to quickly get the item. Now that WorldCat and other union or consortial catalogs are linked to local online catalogs, users may see which libraries have an item and they can request it via their library's ILL office or go directly to the holding institution. If an item is available elsewhere and is easily requested, discovering an item that is not available at one's library is made slightly less inconvenient.

The University of Memphis is an urban, public research university with a spring 2017 enrollment of 19,792. The University of Memphis Libraries comprises a main library and three branches and serves as the Federal Regional Depository Library for Tennessee. The University Libraries also shares its integrated library system (ILS) instance with three local institutions. However, the law school, community college, and small private college with whom the ILS is shared all have discrete budgets and do not have consortial borrowing or delivery agreements. The shared Innovative Interfaces Sierra database currently includes 1,428,946 bibliographic and 1,655,015 item records. The law school library shares an instance of Innovative's Encore Duet discovery service with the University of Memphis Libraries, and the two other institutions have separate instances of ProQuest's Summon discovery service. Throughout this paper, the term "partner" refers to the libraries or institutions with whom the authors' library shares an ILS.

The University of Memphis Libraries' users have expressed deep frustration that books from partner schools—particularly those that are not available

**Rachel E. Scott** (rescott3@memphis.edu) is an Integrated Library Systems Librarian, Systems Department, University Libraries, at the University of Memphis. **Gail Barton** (gpbarton@memphis.edu) is the Interim Head of Collection Management and Interlibrary Loan Librarian, University Libraries, University of Memphis.

Manuscript submitted May 8, 2017; returned to authors for revision August 3, 2017; revised manuscript submitted August 28, 2017; accepted for publication November 22, 2017.

locally that must be requested via ILL—can filter into local online public access catalog (OPAC) results. To address this frustration, the authors inserted OpenURL links into the 856 Electronic Location and Access field of MARC bibliographic records for monographs held only by partner institutions. Inserting a direct link to the ILL monographic item request form enables users to springboard from traditional catalog records into ILL. It has allowed us to make the best use of our shared catalog by promoting ILL as a viable access alternative.

Similarly, the authors collaborated with EBSCO to customize Google Scholar and ILL CustomLinks, or buttons that launch a title search in Google Scholar or populate an ILL article request form. The authors decided to activate both of these access options for content indexed by EBSCO Discovery Service that was not available to their users. By adding these smart links to Encore Duet, which the University Libraries uses as the native discovery interface, they have made great strides turning discovery into access for their users. This paper describes how the authors planned and executed both projects and discusses the implications for ILL and public catalogs.

## Literature Review

Mak notes that “self-service, discovery and integration” are essential to effective resource sharing.<sup>1</sup> Nonetheless, there is not much literature detailing the integration of ILL services into traditional OPACs. Part of the problem is specific to ILS and ILL systems infrastructure. According to Breeding, “finding ways for requests to automatically flow among interlibrary loan ILL systems and Integrated Library Systems is one of the great technology challenges to be solved.”<sup>2</sup> However, another part of the problem is local, specifically, sharing a catalog with non-consortial partner libraries. The literature demonstrates that many libraries with shared catalogs also have consortial agreements; there are few examples of institutions that share an ILS instance without a consortial relationship. Bowen Ayre discusses the cost savings and other benefits of a shared library system but does not address the challenges of a shared system without consortial agreements.<sup>3</sup> Libraries that share a catalog among several branches within a single system or within a larger consortium often share resources via the ILS circulation function and, because of existing courier services, do not rely on ILL.

Self-service has been a standard feature of resource sharing since the 1980s. In 1986, Potter found a correlation “between the installation of the user-friendly IBM PC terminals and the almost threefold increase in interlibrary borrowing over three years at the UIUC Library.”<sup>4</sup> By opening the request process to users, libraries dramatically

increased ILL use. In 1999, Copeland, Long, and Mundle discussed the creation of Council of Prairie and Pacific University Libraries Virtual Library resource sharing software, which included an auto-populating user resource requesting component. In the subsequent decades, self-service has become a user expectation, as have resource sharing software integration and discovery.<sup>5</sup> Mak suggests that “technology has moved borrowing from staff-mediated to self-serve requesting.”<sup>6</sup>

Most of the literature on ILL integration addresses integration into union catalogs such as WorldCat or discovery layers such as Summon or the EBSCO Discovery Service (EDS). Many academic libraries that are OCLC partner institutions have embedded ILL request forms in that platform and there is significant literature documenting that process. Ward, Shadle, and Mofjeld report that the University of Washington saw a significant increase in ILL activity after implementing WorldCat Local.<sup>7</sup> Deardorff and Nance explain how the integration streamlined the ILL request process for University of Washington users. Instead of searching siloed local, consortial, and union catalogs for relevant content and submitting ILL request forms on a separate platform, users could now place direct requests in WorldCat Local.<sup>8</sup>

Many current OPACs provide opportunities for integrating external library services into the platform. Widgets for virtual reference software, library hours, citation management software, and other services have been seamlessly integrated into traditional library catalogs. However, because the catalog typically only showed items owned and provided request and recall options for items that were currently checked out or otherwise unavailable, no development was needed to incorporate ILL into the traditional online catalog. In their paper comparing WorldCat Local and Innovative’s WebPAC (OPAC), Thomas and Buck note that even users who are familiar with ILL did not necessarily understand how to place a request: “This is especially true when searching in the WebPAC since there is no link within WebPAC results screens that allows them to place an ILL request.”<sup>9</sup>

In the past decade, several academic libraries have successfully integrated ILL into burgeoning discovery environments. In 2011, Vaughan suggested ILL as an access solution in the discovery era: “Simply knowing of an item’s existence is better than not knowing, assuming that appropriate delivery options (e.g., ILL) are available.”<sup>10</sup> Fawley and Krysak emphasized that discovery layers provide instruction librarians with an opportunity to emphasize ILL services to undergraduate students.<sup>11</sup> More recently, Bryant and Ye described how integrating ILL, the ILS, and consortial borrowing with discovery allows them to “meet dramatically increased requests while costing less.”<sup>12</sup> Discovery systems continue to

improve options for ILL integration and to promote these solutions to their users.

### Method: CustomLinks in EDS

The impetus for this project was the frequent patron complaint that partner school results should not show up in local search results. The traditional catalog has been configured to default to the local institution if a search is initiated within the institution's IP range. However, users frequently search remotely and can easily change the default search setting. Accordingly, they frequently encounter items that are not locally available. Reference librarians at the University of Memphis Libraries frequently reported this problem to the Integrated Library Systems Advisory Council (ILSAC). ILSAC comprises members from each partner institution and most University Libraries units. The group discusses all major changes to the bibliographic database and related systems. The ILL office staff received calls, email, and in-person visits from patrons who were curious about these books in the catalog that were not held by the University Libraries. Patrons expressed frustration that the books they wanted appeared to be available in the library, but were actually held by another institution's library. ILL staff attempted explanations and assured patrons that the book would be requested promptly. Unfortunately, a satisfactory solution was not identified until a new discovery platform was implemented, presenting a different way of approaching the problem.

The University Libraries implemented Encore Duet, an innovative and EBSCO discovery layer, in April 2015. The University Libraries had previously used Encore Synergy, a limited discovery tool composed of selected article databases and the local bibliographic database, the contents of which were not fully integrated. EDS implementation is well documented in both the scholarly literature and vendor-provided materials and will not be discussed here.<sup>13</sup> However, discussing those unique aspects of the Encore Duet implementation relating to ILL may be helpful. Encore Duet and EDS have different interfaces and either interface can be used natively. The University Libraries currently uses Encore Duet as the native search interface, and has worked to customize both platforms. Depending on their needs, patrons can search WebPAC, Encore Duet, or EDS. Catalog records are automatically added and updated in the Encore Duet interface, but the records have not yet been loaded into EDS. For both of these interfaces, EBSCO can create CustomLinks, buttons with customized text, to link dynamically and directly to articles in various databases or to article-specific, fully populated ILL request forms.



Figure 1. ILL Request CustomLink in Encore Duet

The authors were surprised to learn that the initial ILL and discovery integration was not comprehensive. In addition to providing basic ILL information (platform, URL root, etc.) during the EDS implementation, EBSCO also needed to create a separate collection of local holdings information. This local collection data, paired with the serials information tracked in EBSCO Holdings Management, provided a complete picture of our print and electronic serials holdings. Without accurate local print holdings information uploaded into EDS, the ILL CustomLinks appeared when the University Libraries held the print content. The University Libraries Collection Management Librarian provided an updated and accurate list of print holding information in the format EBSCO required. The EBSCO discovery layer implementation specialist worked with technical support to create a new "local collection" within the authors' instance of EDS. This successfully generated a clickable, automatically populated ILL article request form for most of the EDS-indexed content that is not locally available at the University Libraries (see figure 1).

The ILL CustomLinks provided a way for users to gain access to content not locally available. However, it was not necessary to request some of the articles through ILL since they were freely available in individual or institutional repositories. Thanks to growing use of open access article repositories, an increasing number of ILL requests can be filled from personal, institutional, or subject-specific repositories.<sup>14</sup> Because many articles are now posted to repositories and are therefore findable via Google Scholar and other search engines, the authors wondered how Google Scholar results might be incorporated into their library's discovery search results screen.

Libraries have approached this problem in different ways. Some provide a Google Scholar widget to their discovery layers and others have created a failed-search alternative in their link resolver software. Although both solutions are functional, their results are not integrated into the native platform's results screen. Public services staff and users expressed satisfaction with the ILL CustomLinks; accordingly, the authors asked EBSCO to create a Google Scholar CustomLink to complement the ILL CustomLink. EBSCO provides directions on linking from EDS to Google

Scholar.<sup>15</sup> However, Encore Duet customers must have this feature activated within both their EDS and Encore Duet profiles.

## Method B: ILL URLs in OPAC

With the apparent ease of having CustomLinks created for distinct collections, the authors thought that perhaps the long-standing problem might be solved. If CustomLinks were created for items held by partner schools, but not held locally, leaving patrons could seamlessly request items via ILL without leaving the results screen and navigating to the library's homepage or ILL landing page. However, after discussing the possibilities with various EBSCO support, implementation, and developer personnel, the authors learned that they could only create Encore Duet CustomLinks for titles indexed by EDS and not those indexed in the local database. Perhaps this was for the best, as CustomLinks appear only in the discovery layer and would not be present in Innovative's WebPAC or bibliographic MARC records themselves.

The authors were nonetheless inspired by EBSCO's CustomLinks and realized that they could easily insert links into bibliographic MARC records for those items held only by partner institutions. What they did not know is the extent to which these URLs could be customized. In June 2016, they tested the concept to discuss how best to approach the project.

EBSCO's CustomLinks use OpenURL encoding to find and access the designated resource. EBSCO defines OpenURL as "a standardized format of Uniform Resource Locator (URL) that provides a mechanism for passing metadata and data, providing patrons with a way to obtain data from the best source with a single search from one provider."<sup>16</sup> By parsing CustomLinks, they learned a great deal about these links and how they work. For example, EBSCO CustomLinks included source information that indicates to ILL staff where the user found the citation or from which online interface they made the request. For example, "sid=EBSCO:edsebk" indicates that the desired resource is in the eBook Index (edsebk) database in EBSCO Discovery Service. By appending characters to the URL in the MARC record, the authors could populate the ILLiad software's loan request form to distinguish these requests from others. The authors used the tag "sid=SIERRA:ill" to indicate that these requests were generated in the library's ILS. This enabled them to collect statistics on ILL transactions that were initiated using the links embedded in ILS bibliographic records. They also discovered that they could link directly to the book request form rather than link only to the ILL landing page by adding "genre=book." Saving the user the step of



Figure 2. ILL Request URL in Catalog

selecting the appropriate form streamlines the process and saves inexperienced users the challenges of distinguishing between article, loan, and book chapter (see figure 2).

In July 2016, the authors presented the project to the University Libraries' Research and Instructional Services (RIS) group. This group comprises those faculty and staff who provide reference services at the main library's public services desk. The group helped to create concise and descriptive language for the public note. The note initially read "University of Memphis users—request via Interlibrary Loan." It was updated to include information about the wait period: "University of Memphis users—request via Interlibrary Loan (allow 5–10 days)," which clarifies that this is a different process than clicking on a link to immediately view an e-book. While users may expect to get the book right away, the average delivery time is five to ten days. The RIS group expressed concern that the ILL request form would not be automatically populated in the same way as the Encore Duet CustomLinks. Otherwise, their feedback was positive.

Once the authors decided how they wanted to customize the link and gathered input on language for the public note, they immediately set to work on updating the bibliographic records. They used Sierra's "Create List" function to generate lists of items that were available at partner libraries that were not held by the University Libraries. Since they wanted to ensure that the item would likely be loanable, they limited their search to find circulating monographic books that were not reference materials or on reserve. They also limited by item status to ensure that at least one item attached to the bibliographic record was available. The initial list generated 119,747 bibliographic records that met these criteria. Using Sierra's "Global Update" function, the ILS librarian inserted the customized links into the MARC 856 subfield u with a public note explaining that University Libraries users could request the title through ILL.

Upon receiving requests generated from the CustomLink, ILL staff view the "Cited In" field within the ILLiad ILL software client. The field indicates that the transaction was generated from the ILS (Sierra:ill). Regardless of the source of the monographic request, the ILL staff search the local database for the requested item. Staff confirm that the

The screenshot shows the ILLiad Custom Request Search interface. The search criteria are set to 'And' with the query '[Transactions.CitedIn] Contains SIBRA:ill'. The results table is as follows:

Transactio...	Cited In	Credate...	Request T...	Loan Author	Loan Title	Loan Publi...	Loan Place	Loan Date	Loan Edition	Ph
328697	SIBRA:ill	9/21/2016	Loan	text	encycloped...			test		
328788	SIBRA:ill	9/21/2016	Loan	Van Adler, ...	Establishm...			2002		
329007	SIBRA:ill	9/23/2016	Loan	Sandel, Mic...	The case a...	Belnap Pr...		2007		
329042	SIBRA:ill	9/24/2016	Loan	Jenkins, Da...	The Christ...			1964		
329077	SIBRA:ill	9/25/2016	Loan	Appleby, D...	Hector Vill...			1988		
329427	SIBRA:ill	9/28/2016	Loan	Love, Nat...	Life and ad...			1927		
329593	SIBRA:ill	9/29/2016	Loan		The Theod...			1969		
329642	SIBRA:ill	9/29/2016	Loan	Nash, Jay	Murder, A...			1980		
329674	SIBRA:ill	9/30/2016	Loan	Jackson, S...	We have a...			2006		

**Figure 3.** ILLiad Custom Request Search for ILS-Generated Requests

title is not held at their library and note the bibliographic information as needed in the partner library's record. At that point, the ILL staff process the request, directing it to the quickest, most dependable lending libraries. The ILL staff search OCLC holdings and select partners with whom the library is in a consortial agreement that also show holdings for the item (see figure 3).

## Results

Statistics were generated using the ILLiad Client's Custom Request Search. ILL CustomLinks from Encore Duet and EDS are still relatively new; in the first year after implementation, 6,111 of 26,068, or 23.4 percent, of all requests were initiated from EBSCO databases. Prior to implementation, 3,994 of 27,689, or 14.4 percent, of all requests were initiated in EBSCO databases. This marks a 9 percent increase in requests for EBSCO content in one year. In the second full year after implementation, the numbers continued to climb: 7,649 out of 26,414, or 29 percent, of requests were initiated in EBSCO databases. The CustomLinks were not established in other EBSCO databases, only EDS and Encore Duet. However, the "cited in" field for all EBSCO-indexed content is qualified EBSCO. Accordingly, it is easier to track down all EBSCO content than EDS content only. Remaining ILL requests come from WorldCat, Google Scholar, other databases, or are manually entered. Considering the overall decline in University Libraries ILL requests, this increase from 14.4 percent to 29 percent over two years is worth noting.

In the first semester of the bibliographic record links pilot in fall 2016, 63 of 3,329, or 1.9 percent, of loan requests from University Libraries borrowers originated

with the new links in the nearly 120,000 MARC bibliographic records updated. In the second semester of the pilot, the number of requests increased to 89 of 4,098, or 2.2 percent. In summer 2017, the numbers have continued to rise, with 62 of 2,254 loan requests, or 2.8 percent, originating in the ILS.

## Discussion

In a shared catalog setting, making all institutions aware of projects and automated changes to any category of record is extremely important. The first rule and minimum standard is that no harm be done. The authors reached out to the partner schools to ensure that they would not be inconvenienced by the project. Discussions concerning the wording of the public note to clarify intended user group, time, and process included both ILSAC and the local RIS group. Those offering feedback agreed that inserting appropriately qualified MARC 856 fields sufficiently signaled to users at external institutions that the link is not for them.

Another important question is related to workflows. This process originated with the ILS librarian and involved her work on the back end to select and process appropriate titles. Although the authors are in different departments within the University Libraries, this project is coordinated with input from ILSAC, which involves representatives from Library Systems and Collection Management, both of their departments. The Cataloging Department is also represented in ILSAC; that department's role in this project is to remove ILL URLs from MARC records when a title is being added to the University Libraries. The ILS librarian identifies records that need to have a URL added and removed on a scheduled basis and uses Global Update to make these changes.

This project did not create additional work for ILL staff. Indeed, it folded nicely into existing workflows and most requests can be filled using a consortial courier. As a member of the Association of Southeastern Research Libraries (ASERL), the authors' library shares the cost of the Kudzu Resource Sharing Program, which includes a courier system. Requests from other Kudzu libraries are expected to be processed and sent within a day of receipt, resulting in deliveries in two to three days. If the book is requested from one of the partner libraries, it is delivered instead through the US Postal Service and takes longer to arrive. Because there is no courier agreement among the partner schools, books arriving from out of state often arrive more quickly than those in the immediate area.

The authors' library has not experienced a significant amount of increased ILL requests since implementing both of these projects and does not anticipate a large increase. Nonetheless, any project that facilitates user interest in ILL

asserts the importance of the library in academic research. The steady, if modest, increase identified for these two types of ILL requests indicate that a growing number of patrons are willing to make use of the links.

Although the number of requests has not increased significantly, the authors will continue to maintain CustomLinks in the discovery layer and OpenURLs in bibliographic records for materials held only by partner libraries. Both these projects are still early in their inception and will likely be reconsidered on an ongoing basis. Public services personnel and partner libraries have not expressed frustration with either the CustomLinks or MARC 856 links, and the authors have not fielded complaints from any users. The ILL staff no longer receive visits or calls from irritated patrons concerning books held only by a partner library. They do, however, take note of occasional patron comments that are provided in the notes section of the ILLiad request form. For example, one patron asked, "I see that both [two partner schools] have a copy of this book; could we loan it from those collections?" Based on experience, patrons do not actually have an interest in getting books from a particular location; they just want the title. Providing the embedded link has

removed the barrier to access and assures the patron the title displayed is within reach, albeit in a few days.

## Conclusion

Both pilot projects promote ILL use by making the service more visible and convenient. Piloting both projects has required communication and collaboration across technical and public services and among all partner schools. Otherwise, very little work was involved, and minimal maintenance is required. For a small investment in time and planning, the University of Memphis Libraries has been able to promote ILL in both traditional and discovery interfaces. More important than the number of ILL requests originating in the WebPAC or Encore Duet is the opportunity to transform a dead end into an access opportunity. Inserting OpenURLs into the MARC records and CustomLinks into the discovery layer created a bridge between resource discovery and access. It creates a strong visual cue and reminder to our users that the University Libraries can provide them with access to the information they need.

## References and Notes

1. Collette Mak, "Resource Sharing Among ARL Libraries in the US: 35 Years of Growth," *Interlending & Document Supply* 39, no. 1 (2011): 27.
2. Marshall Breeding, "Resource Sharing in Libraries: Concepts, Products, Technologies, and Trends," *Library Technology Reports* 49, no. 1 (2013): 7.
3. Lori Bowen Ayre, "The Holy Grail of Library Automation: The Shared Library System," *Collaborative Librarianship* 7, no. 1 (2015), <http://digitalcommons.du.edu/collaborativelibrarianship/vol7/iss1/9>.
4. William Gray Potter, "Illinois Network Report: Creative Automation Boosts ILL Rates," *American Libraries* 17, no. 4 (1986): 245.
5. Lynn Copeland, Kristina Long, and Todd Mundle, "The COPPUL Virtual Library Resource Sharing Software," *Library Hi Tech Journal* 17, no. 2 (1999): 165–71.
6. Mak, "Resource Sharing," 28.
7. Jennifer L. Ward, Steve Shadle, and Pam Mofjeld, "WorldCat Local at the University of Washington Libraries," *Library Technology Reports* 44, no. 6 (2008): 4–41.
8. Thomas Deardorff and Heidi Nance, "WorldCat Local Implementation: The Impact on Interlibrary Loan," *Interlending & Document Supply* 37, no. 4 (2009): 177–80.
9. Bob Thomas, and Stefanie Buck, "OCLC's WorldCat Local Versus III's WebPAC: Which Interface is Better at Supporting Common User Tasks?," *Library Hi Tech* 28, no. 4 (2010): 655.
10. Jason Vaughan, *Web Scale Discovery Services Library Technology Reports* 47, no. 1 (2011): 9.
11. Nancy Fawley and Nikki Krysak, "Information Literacy Opportunities within the Discovery Tool Environment," *College & Undergraduate Libraries* 19, no. 2–4 (2012): 207–14.
12. Sally Bryant and Gan Ye, "From Discovery to Delivery: Successful Systems Integration," *Technical Services Quarterly* 32, no. 4 (2015): 388.
13. JoLinda L. Thompson, Kathe S. Obrig, and Laura E. Abate, "Web-Scale Discovery in an Academic Health Sciences Library: Development and Implementation of the EBSCO Discovery Service," *Medical Reference Services Quarterly* 32, no. 1 (2013): 26–41; "Getting Started with EBSCO Discovery Service," EBSCO, accessed February 21, 2017, [https://help.ebsco.com/interfaces/EBSCO\\_Discovery\\_Service/Getting\\_Started\\_EDS](https://help.ebsco.com/interfaces/EBSCO_Discovery_Service/Getting_Started_EDS).
14. Tina Baich, "Open Access: Help or Hindrance to Resource Sharing?," *Interlending & Document Supply* 43, no. 2 (2015): 68–75.
15. "How do I link from EDS to Google Scholar for Items not in My Library Collection?," EBSCO, accessed February 21, 2017, [https://help.ebsco.com/interfaces/EBSCO\\_Discovery\\_Service/EDS\\_Admin\\_Guide/link\\_to\\_Google\\_Scholar\\_from\\_EDS](https://help.ebsco.com/interfaces/EBSCO_Discovery_Service/EDS_Admin_Guide/link_to_Google_Scholar_from_EDS).
16. "EBSCOhost OpenURL—Frequently Asked Questions," EBSCO, accessed August 12, 2017, [https://help.ebsco.com/interfaces/EBSCOhost/EBSCOhost\\_FAQs/EBSCOhost\\_Open\\_URL\\_FAQs](https://help.ebsco.com/interfaces/EBSCOhost/EBSCOhost_FAQs/EBSCOhost_Open_URL_FAQs).

# Notes on Operations

## Don't Just Roll the Dice

### Simple Solutions for Circulating Tabletop Game Collections Effectively in Your Library

Diane Robson, Jessica Phillips, and Steven Guerrero

*Tabletop game collections in libraries raise questions regarding standards in collection maintenance. This paper details the University of North Texas Media Library's study to determine best practices and standards for preserving and processing tabletop games for circulation. The authors list and describe the different methods of processing and preserving the games Ticket to Ride and Betrayal at House on the Hill and the project plan to test different copies of each game in circulation. After a period of circulation for each copy, the authors assess each method through an evaluation of damage and loss in relation to time and money spent on preservation and processing. The paper also describes a study of damage intended to simulate the effects of possible hazardous materials and scenarios during a typical play session, along with an assessment of damage to the test pieces. The authors outline the preservation and processing methods they currently use based on their findings from this research.*

An increase in tabletop game collections in all types of libraries has led to questions about library practices related to these materials, specifically preservation, processing, and circulation. Research related to game collections in libraries is also growing, but there is still a lack of information specifically related to tabletop games. The University of North Texas (UNT) Media Library began collecting games in 2009 to support campus curricula and student engagement. The tabletop game collection has expanded in the past few years to 580 games. When the collection was small, it was restricted to campus use only with limited circulation. The growth of the collection resulted from student funds that required reducing restrictions and allowing regular campus circulation. A research project was developed to determine best practices and standards for preserving and processing tabletop games for circulation in the UNT Libraries. Some of the unknowns that the library wished to examine were the potential longevity of a tabletop game, preservation processes that might increase this longevity, and processes that might ease circulation time and limit loss. In 2015, the availability of a UNT Grant made it possible to investigate these unknowns.

**Diane Robson** (diane.robson@unt.edu) is a Media Librarian at the University of North Texas in Denton. **Jessica Phillips** (jessica.phillips@unt.edu) is the Head of Preservation at the University of North Texas in Denton. **Steven Guerrero** (Steven.Guerrero@unt.edu) is the Media Circulation Manager at the University of North Texas in Denton.

Manuscript submitted August 8, 2017; returned to authors for revision September 28, 2017; revised manuscript submitted November 3, 2017; accepted for publication December 26, 2017.

The authors presented on this topic at the American Library Association's 2016 Annual Conference for the Association for Library Collections and Technical Services.

#### Project Description

At the beginning of the project, the UNT Media Library tabletop game collection consisted of 175 games in closed stacks for campus use only. The authors, a preservation librarian, cataloger, and circulation desk manager, proposed a research project to assess different preservation methods for tabletop games to ensure their longevity as a circulating collection. This project was also conducted to determine



which circulation processes and procedures were necessary to reduce the loss of pieces without causing undue burden to circulation desk staff.

This project is beneficial to libraries because there are no comparable studies available to determine the best practices or standards for tabletop game collections. Currently, most of the information related to the subject of preserving games is anecdotal and posted on Facebook or game forums.

## Literature Review

The published literature about game collection management is sparse. Nicholson's "Go Back to the Start: Gathering Baseline Data about Gaming in Libraries" included a question about game circulation but none about processing.<sup>1</sup> A more recent survey about tabletop collections, "Arranging the Pieces: A Survey of Library Practices Related to a Tabletop Game Collection," included questions related to barcoding and processing.<sup>2</sup> Survey responses indicated the need for best practices to help guide libraries with tabletop collections. *Libraries Got Game: Aligned Learning Through Modern Board Games* by Mayer and Harris includes a section on how they manage and loan their collection at Genesee Valley.<sup>3</sup> In his paper "Dungeons and Downloads: Collecting Tabletop Fantasy Role-Playing Games in the Age of Downloadable PDFs," Sich briefly discusses the circulation of roleplaying publications and ensuring completeness of a set.<sup>4</sup> Another paper, "The Protean Challenge of Game Collections at Academic Libraries" by Cross, Mould, and Smith includes a summary of the reasons why tabletop games can be difficult to collect.<sup>5</sup> No concrete practices are discussed or evaluated in any of these papers.

While the authors did not find anything in the professional literature concerning the preservation of actively circulating tabletop games, there is a wealth of suggestions from non-professionals found in blog posts and gaming forums. Some suggestions, while excellent, are not options that a library can easily implement for a circulating collection. These include the use of acrylic sheets to cover maps and delicate boards, which would be unwieldy to store and transport, plus implementing strict no food or drink policies, which would be impossible for the authors to enforce.<sup>6</sup> Another recommendation was to apply a layer of contact paper to the surface of game boards to serve as a barrier against wear.<sup>7</sup>

GeekInsight, of the blog *Giant Fire Breathing Dragon*, suggests storing games flat, rather than on edge, as a protection against game board warping.<sup>8</sup> Coating game miniatures with a clear acrylic as a sealant appears to be a common practice in the roleplaying game community, where user Sean K. Reynolds commented on a Paizo forum thread that

the use of Future, now known as Pledge Floor Care Finish, made miniature figurines exceptionally durable.<sup>9</sup> One blog, *The Game Aisle*, cited a preservation professional, Lindsey Smith, on the care and preservation of old board games. Her recommendations regarding climate control and archival storage are valid suggestions. However, her storage and care suggestions are much more appropriate to a home collection than to an actively circulating library collection.<sup>10</sup>

## Project Plan

For this project, the term "preservation" refers to the materials used to reduce wear and tear on each game, such as card sleeves, clear contact paper, and cloth tape on box corners. "Processing" refers to how the games are barcoded and labeled to circulate efficiently and to prevent loss. The authors hypothesized that if minimal preservation and processing methods are introduced, a tabletop game collection can circulate to the public efficiently and effectively. The experiment covered the spectrum from no preservation or processing to full preservation and processing. This broad spectrum allowed the authors to assess the success of different preservation techniques and processing methods as these games circulated throughout the research time period.

Four new copies of two different game titles were purchased for this research project. The project team chose Ticket to Ride (TR) and Betrayal at House on the Hill (BHH) because of the variety of boards and pieces in each game (see figures 1 and 2). Each copy of each title received different preservation and processing methods. The eight games were available for checkout and play for eight months. After each game was checked back in, it was assessed for damage and loss. The results were evaluated to determine the most cost-effective and efficient way to circulate board games with the least amount of loss and minimal wear and tear. This project ran from July 15, 2015, through May 1, 2016.

## Preservation

The primary concerns for the longevity of the games centered on the boxes' structural integrity and water damage to their contents. While the authors did not anticipate damage to specific game pieces, they tested various techniques for most components of each game. The process of choosing which preservation methods to employ required creativity and a willingness to extend beyond typical preservation and conservation methods. Because the goal was to prolong the usable life of an actively circulating collection, the authors chose some unorthodox methods that would not be appropriate for rare or valuable materials. Some methods, including the use of pamphlet binders, polyester L-sleeves,



Figure 1. Ticket to Ride board game



Figure 2. Betrayal at House on the Hill board game

and Velo binding, were selected based on common preservation practices for other types of materials such as books or music scores. Other methods, such as spraying pieces with a water-resistant spray, adhering tape or book cloth to box corners, and the use of contact paper on board pieces, were tested as potential solutions for observed damage to other games. Additional methods employed were chosen based on their use within the gaming community. These included using sleeves to protect cards from sticky fingers or spilled drinks plus the less commonly used practice of coating miniatures and game movers with a protective wax.

The preservation librarian and her team of student assistants carefully applied the techniques listed in tables 1 and 2 to the various copies of each title. One copy of each title received no preservation treatment, while the other copies received a variety of types and intensities of activity. Due to the innate differences in the types of game pieces for each title, it was impossible to apply consistent preservation treatments to each of the titles. One area with consistency between the copies of each title was reinforcement of the corners of the game boxes with tape or book cloth. Whenever an exterior corner was reinforced, the authors used a three-inch-wide strip of F-grade buckram material that extended up the side and covered one inch on the top surface of the box. When covering interior corners, Arrestox B-Cloth was used because it approximated the thickness of the original box cover, and it was cut closely to fit the height of the box sides without overlapping the original cover or extending to the top or bottom of the boxes.

As stated earlier, copy one of each title received no preservation treatment. For copy 2 of TR, the authors used water-resistant spray on the board, movers, and cards. The instructions were placed in a polyester L-sleeve, and the outside corners of the game box lid were wrapped with 3M acid-free book tape.

Water-resistant spray was applied to the movers and action cards for BHH copy 2 while the board-stock room tiles, character cards, and tokens each had polyvinyl acetate (PVA) painted on the exposed edges of the game components. Game instructions and booklets had staples removed and were sewn into end sheets. The exterior corners of the game box lid were wrapped with acid-free book tape.

For copy 3 of TR, cards were placed in sleeves and board edges were painted with PVA. The authors coated the wooden movers with Johnson's Paste Wax and sewed the instructions into end sheets. The exterior corners of the game box lid were covered in scraps of buckram book cloth adhered using PVA, and the interior corners of the box base were reinforced using the thinner B-grade Arrestox B-Cloth.

A water-resistant spray was applied to the tokens, room tiles, and character cards of copy 3 of BHH. Instructions and game booklets were Velo bound. Playing cards were sleeved, and the plastic movers were coated in paste wax. The external corners of the game box lid were covered with buckram and the interior box base corners with Arrestox B-Cloth.

The most time-intensive preservation methods were reserved for copy 4 of each title. TR had the top of the game board covered with contact paper, the movers dipped in Pledge Floor Care Finish, the instructions sewn into a pamphlet binder, and the cards sealed inside of card sleeves using a Polyweld B-20 sealing machine. The external corners of the box lid were reinforced with buckram while the interior corners of both the lid and base boxes were covered with Arrestox B-Cloth.

For copy 4 of BHH, the character cards, room tiles, and other board-stock tokens were covered in contact paper. The contact paper completely covered the character and room tiles, extending around to cover the edges of these pieces, while the much smaller and oddly-shaped tokens

**Table 1.** Ticket to Ride Preservation Methods

	Board	Movers	Cards	Box	Instructions
Copy 1	Nothing				
Copy 2	Water-resistant spray			Tape exterior box corners	Polyester L- sleeve
Copy 3	Coat edges with PVA	Paste wax	Sleeve cards	Buckram on exterior lid corners & Arrestox B-cloth interior base corners	Sew into end sheet
Copy 4	Contact paper	Pledge floor care finish	Seal cards into sleeves	Buckram on exterior lid corners; Arrestox B-cloth on interior lid & interior corners	Sew into pamphlet binder

**Table 2.** Betrayal at House on the Hill Preservation Methods

	Room & Character Cards	Tokens	Cards	Movers	Box	Books/Instructions
Copy 1	Nothing					Sew
Copy 2	Coat edges with PVA		Water-resistant spray	Water-resistant spray	Tape exterior lid corners	Sew into end sheet
Copy 3	Water-resistant spray & coat edges with PVA	Water-resistant spray	Sleeve cards	Paste wax	Buckram on exterior lid corners & Arrestox B-Cloth on interior base corners	Velo blind
Copy 4	Contact paper		Sleeve cards	Pledge Floor Care	Buckram on exterior lid corners; Arrestox B-Cloth on interior lid & interior base corners	Sew into pamphlet binder

had contact paper adhered only to one flat surface of the pieces. Cards were sleeved, though these sleeves were made in such a way that the authors were unable to seal them. Instruction booklets were sewn into pamphlet binders, movers were dipped in Pledge Floor Care Finish, and the base box was reinforced with book cloth, except for the exterior corners.

### Processing and Circulation

As previously stated, “processing” refers to how the games are barcoded and labeled to circulate efficiently and to prevent loss. The time to provide copy or original cataloging of the game was not included in the study. The extent of processing ranged from minimal, involving a single barcode and call number label for tracking, to full processing in which every piece of the item was labeled, marked, and bagged (see table 3). The time required to process each item was noted to determine the efficiency of processing versus its effectiveness in minimizing loss or damage.

Item records representing copies of each title were attached to a single bibliographic record. The extent of the

item records was different for each copy. Copy 1 of each title received a barcode on the outside of the box lid and a call number label. This barcode was for a single item record in the library system that tracked circulation. The time needed to process each copy one title was seven minutes.

Circulation for this item required a single scan of the barcode on the box lid for checkout. After check-in, the game was examined, and any damage was recorded for this project. Pieces for copy 1 were not counted until the end of the research project. This would help determine what type of inventory control at check-in would affect loss rates.

Copy 2 also had a single barcode and item record. Additional processing included bagging the pieces and labeling the bags with the number of pieces in each bag. The time to process each copy 2 title was fifteen minutes. Circulation for this item also required a single scan of the barcode on the box lid for checkout. After check-in, the game was examined for damage. Pieces for copy 2 were counted in mid-November, mid-March, and at the end of the project.

Copy 3 was barcoded on the box lid, piece bags, card bag, and board for TR. Each of these barcodes correlated with an item record in the system. The volume field included

**Table 3.** Processing, Cataloging, and Circulation for Both Titles

	Processing			Cataloging	Circulation
Copy 1	Barcode on box lid only			Single item record (box lid barcode)	Count pieces at end of project (yearly)
Copy 2	Barcode on box lid only	Pieces bagged & labeled with # of items		Single item record (box lid barcode)	Count pieces at 4 & 8 months
Copy 3	Barcode on box lid, board (TR), each bag of items	Pieces, cards bagged & labeled with # of items, bags & TR board barcoded		Item record for box lid, each bag of items, board (TR) & instructions	Count pieces every month
Copy 4	Barcode on box lid, each bag of items, board	Pieces, cards bagged & labeled with # of items, bags & TR board barcoded	Cards, board (TR), tiles, & pieces labeled with "UNT"	Item record for box lid, each bag of items, board (TR) & instructions	Count pieces at every return

the component type, e.g., board, trains (green), etc. Processing time for each copy 3 title was thirty minutes. Checkout for copy 3 required circulation desk staff to scan the box lid barcode, all bag barcodes, and the board barcode for TR. After check-in, the game was examined for damage. Copy 3 had the pieces counted at the end of each month.

Copy 4 was also barcoded on the box lid, piece bags, cards bag, and board for TR. Each of these barcodes correlated with an item record in the system. The volume field listed the item, e.g., board, trains (green), etc. The additional step for copy four was to mark "UNT" on every single item in the game with a marker. Processing time for each copy 4 title was fifty minutes. Checkout for copy 4 again required the circulation desk staff to scan the box lid barcode, all bag barcodes, and the board barcode for TR. Following check-in, the game was examined for damage and all of the pieces were counted.

Since the UNT Media Library has closed stacks, this project did not test ways to house games to reduce loss for items on open shelving. Patrons must request the item at the circulation desk to check out items from the Media Library. Staff retrieve the item and check it out to the patron. There is no self-checkout. Patrons are not allowed to return games to the drop box.

Once all the preservation and processing was complete, the authors were ready to circulate the games. The goals were to circulate the games a similar number of times, determine damage and loss, take photos and record statistics to determine the most efficient processes, and determine best practices for managing a game collection efficiently and effectively.

At the start of the circulation phase of this project, the Media Library let patrons and staff know that the research project copies existed and promoted their use through Facebook posts, digital signage, and a staff newsletter. Copies were rotated to ensure that each item was circulated at least fifteen times. Library staff were guided in how to

circulate and handle each copy with check-in pop-up messages in each item record.

### Circulation results: Damage and Loss

The damage results after eight months of circulation were graded on a scale from zero to three where zero equals no damage, one equals minor damage (still usable), two equals moderate damage (may impede game play), and three equals significant damage (unusable). Lost pieces were tallied (see table 4).

TR copy 1 took seven minutes for preservation and processing. It circulated twenty-five times. Pieces were counted at the end of the project. The damage to this copy was minor, with the lid torn open along the corner seam and a tear on the first page of the instructions. One train car was lost from this game.

BHH copy 1 took seven minutes for preservation and processing. It circulated twenty-two times. The pieces were not counted for loss until the end of the project. The damage to this item was minimal. There were minor abrasions on the box lid edges and corners and minor wear on the cards. One room tile, one card, and one token were lost. The authors did not bag the pieces in this game, but a patron returned it with bagged pieces. This bag was discarded by the circulation desk manager.

TR copy 2 took about one and a half hours for preservation and processing and was circulated sixteen times, with pieces counted mid-November and again in mid-March. Damage to this copy was minor, with moderate damage to the top right corner of the box. It was torn along the edge through the cardboard along the seam. The back of the game board is stained and scratched. None of this damage impedes play. Loss for this game amounted to two train cars.

BHH copy 2 took about six and a half hours for preservation and processing and was circulated fifteen times. Pieces were counted in mid-November and again

in mid-March. The damage to this game was minor, with abrasions on the edges of the lid. The PVA on the edges of the pieces, meant to prevent liquids soaking into the board should there be a spill, was noticed by patrons as it added a bit of tackiness, causing some pieces to temporarily stick together. These patrons relayed this information to our front desk staff at check-in. One room tile and one item token were lost with this copy.

Copy 3 required more extensive processing. TR took two hours for preservation and processing and was circulated fifteen times. Pieces for this copy were counted each month. There was no damage to this copy. There was minor card sleeve bending at the corners of the sleeves most likely from storage in the box. Loss included two train cards and one train car.

BHH copy 3 took about five and a half hours to preserve and process. Adding the preservation processes was quicker for this copy due to practice. It circulated eighteen times and the pieces were counted each month. The damage consisted of minor abrasions on the box edges. The loss for this copy was one token and one room tile missing.

Copy 4 received extensive preservation and processing—TR copy 4 took about three hours. The pieces for this copy were counted at each check-in. This copy circulated fifteen times. There was no damage or loss with this copy of the game.

BHH copy 4 took almost twenty-six hours for preservation and processing. It circulated sixteen times and pieces were counted at each check-in. There was no damage or loss for this copy of the game.

All of the circulating copies suffered very little damage. The items that were preserved and processed to the fullest extent did not suffer any damage or loss, but the goal was not only to minimize damage and loss but also to use staff time effectively. The authors question if the time spent to process items fully versus loss rate was worth it. TR has 375 pieces. The highest loss rate was .8 percent (3 pieces). The salary cost to process this game to the fullest extent equals the cost of a new game. BHH has 328 pieces. The highest rate of loss for this game was .91 percent (3 pieces). The salary cost to process this game to the fullest extent equals the cost of twelve new games. Is the time and salary costs required to minimize damage worth it? Damage to all the game boxes could be repaired. All of the games remained playable despite the lost pieces (see table 5).

The results of this research show that there is no real benefit to preserving and processing a circulating tabletop game collection to the fullest extent. The loss rate is negligible between no processing and full processing. Counting the pieces at each return alerts the library if something is missing, but does not decrease the loss rate substantially. Although the preservation processes seem to help prevent some damage, the labor cost to apply these methods negates any savings.

**Table 4.** Damage and Loss Results

Game	Time to Preserve & Process (hrs)	Circulation Count	Pieces Lost	Damage
TR copy 1	0.12	26	1	minor
TR copy 2	1.5	16	2	minor
TR copy 3	2	15	3	minor
TR copy 4	2.92	15	0	minor
BHH copy 1	0.12	22	3	minor
BHH copy 2	6.7	15	2	minor
BHH copy 3	5.58	18	2	minor
BHH copy 4	25.92	16	0	minor

**Table 5.** Cost/Benefit

Game	Time (hrs)	Salary Cost to Process (USD)*	Pieces Lost	% Loss	Cost of New Game (USD)**
TR copy 1	0.12	1.56	1	0.27	33.99
TR copy 2	1.50	19.50	2	0.53	33.99
TR copy 3	2.00	26.00	3	0.80	33.99
TR copy 4	2.92	37.96	0	0.00	33.99
BHH copy 1	0.12	1.56	3	0.91	25.99
BHH copy 2	6.40	87.10	2	0.61	25.99
BHH copy 3	6.70	72.54	2	0.61	25.99
BHH copy 4	25.92	336.96	0	0.00	25.99

\*Source: [https://www.glassdoor.com/Salaries/library-assistant-salary-SRCH\\_KO0,17.htm](https://www.glassdoor.com/Salaries/library-assistant-salary-SRCH_KO0,17.htm)

\*\*Source: Cost of new game (www.amazon.com) July 2017

## Additional Stress Testing

As noted above, the games received very little damage following eight months of circulation. At the conclusion of the project, a decision was made to test the preservation processes by exposing them to additional hazards. This controlled experiment would test each component by exposing them to several damaging substances for three different time periods. The box lid and instruction guide preservation procedures were also strength tested.

Most tabletop games have components made of different materials. Playing cards are pasteboard, which consists of multiple layers of paper or pulp. Tiles and tokens are often made of chipboard or punch board. Chipboard is layered and compressed and comes in various thickness. Tokens are also made of wood and plastic resin. The manufacture and quality of these items can affect a game's durability.<sup>11</sup>

The authors exposed each game component type (card, tile, mover, token) to water, a carbonated cola, and a store brand cheese dip and salsa. These products were chosen because they are the types of products that could be in close proximity to a game. Each item was exposed to these substances for thirty seconds, one minute, and five minutes.

No liquids were left on the cards. All of the liquid, salsa, and cheese was gently wiped off with a damp cotton cloth after each timed experiment and items were set to dry. This practice mitigated the damage for this research study, but may not reflect the behavior of patrons. Full damage was assessed after items were left to air dry. No attempt was made to flatten game cards, tiles, or tokens before fully dry.

The results were graded on a scale from zero to three, in which zero equals no damage, one equals minor damage (still usable), two equals moderate damage (may impede game play), and three equals significant damage (unusable). The durability of games depends on manufacturing quality, which undoubtedly affected the results of this experiment.

### Cards

Card quality varies by game. The authors were unable to verify the exact card type for these games. TR by Days of

Wonder is considered a high-quality game on Board Game Geek.<sup>12</sup> This game has paper (playing cards), wood, and plastic resin components. With this in mind, the game that received no preservation or processing procedures fared well during the stress testing. This game showed the most damage to the playing cards. Cards left in water and soda started to curl at thirty seconds and began to warp and split at one minute. The warping and splitting of the card layers was more pronounced at five minutes when wet. Full damage was assessed after the cards were left to air dry. Again, no attempt was made to flatten the cards before they were fully dry. After drying, the splitting was not noticeable but the cards were still warped. Although there is minor to moderate damage to the cards, they can still be used.

Cards left in salsa and cheese dip showed minor damage, with the cards slightly warped from the liquid in both of these food products after five minutes. Some cards still had a residue from the cheese dip even after they were wiped with a cloth. The damage was minor and did not affect the use of the cards in this game. The wooden tokens in TR showed no damage after this experiment. The plastic train tokens were not tested (see table 6).

BHH by Avalon Hills is manufactured with different components than TR. The first printing of the second edition of this game had warping problems, but the authors' copies were not a part of that print.<sup>13</sup> BHH has components that are paper (playing cards), chipboard, and plastic resin. The cards for copy 1 of BHH showed a little less damage than those in TR. The authors were not able to get specifics from the game company but believe that these cards have an additional coating that increases their durability. These cards showed minor damage such as warping at thirty seconds and one minute. The water and soda began to cause the layers to separate at the edge after five minutes, causing moderate damage. After air drying, all of the cards were still usable. The salsa and cheese caused less damage to these cards, with one card showing warping and some splitting at the edge after five minutes in the salsa. The splitting is not noticeable when the cards are dry. They remain slightly warped but all of them are still usable in the game.

Sleeving the cards mitigates the damage caused by water and soda but can increase the damage done by salsa

**Table 6.** Ticket to Ride Card Damage

Type of Preservation		Water			Soda			Cheese Dip			Salsa		
		30s	1m	5m	30s	1m	5m	30s	1m	5m	30s	1m	5m
copy 1	none	1	1	2	1	2	2	0	0	0	0	0	0
copy 2	water-resistant spray	1	1	2	0	2	2	0	0	0	0	0	0
copy 3	sleeved	0	0	0	0	0	0	0	2	2	0	0	0
copy 4	sealed sleeves	0	0	0	0	2	0	0	0	0	0	0	0

Damage scale: 0 (no damage), 1 (minor damage), 2 (moderate damage), 3 (significant damage)

**Table 7.** Betrayal at House on the Hill Card Damage

Type of Preservation		Water			Soda			Cheese Dip			Salsa		
		30s	1m	5m	30s	1m	5m	30s	1m	5m	30s	1m	5m
copy 1	none	1	1	2	0	1	2	0	0	0	1	0	0
copy 2	water-resistant spray	0	0	1	0	0	1	0	0	0	0	0	0
copy 3 & 4	sleeved	0	0	0	0	1	0	1	1	2	1	0	0

Damage scale: 0 (no damage), 1 (minor damage), 2 (moderate damage), 3 (significant damage)

**Table 8.** Betrayal at House on the Hill Tokens

Type of Preservation		Water			Soda			Cheese Dip			Salsa		
		30s	1m	5m	30s	1m	5m	30s	1m	5m	30s	1m	5m
copy 1	no preservation	1	2	3	0	2	3	0	0	0	1	1	1
copy 2	PVA on edged	0	1	1	1	1	3	0	0	0	1	1	1
copy 3	water-resistant spray	0	0	2	0	1	3	0	0	0	1	1	2
copy 4	contact paper	1	3	3	0	1	2	0	0	0	0	0	0

Damage scale: 0 (no damage), 1 (minor damage), 2 (moderate damage), 3 (significant damage)

and cheese dip. The copies of both games with sleeved cards had minor damage for cards left in the liquid for one minute and cheese dip for thirty seconds and one minute if the open end of the sleeve was in the liquid. The cheese dip caused moderate damage if left for five minutes. Both the salsa and cheese dip caused staining of the cards if they were not removed, wiped with a damp cloth, and put back into the sleeve when dry. Wiping the outside of the sleeved card was not sufficient for items with the sleeve edge in any liquid. To be sufficiently cleaned, the cards need to be removed from the sleeve. The TR cards that were sealed into their sleeves suffered no damage (see table 7).

The items most affected by the additional testing were the tokens and tiles made of chipboard in BHH. Chipboard is paper pulp pressed and glued together. The tokens with no processing left in water for five minutes had the layers of the chipboard separate completely. The polyvinyl acetate (PVA) on the edges helped mitigate the damage a bit, but not fully. The PVA dissolved in the water in the longer tests, losing its effectiveness. Water resistant spray held up a little longer to the liquids, but tokens still suffered with time. The tokens with contact paper were not fully wrapped, and also suffered significant damage when left in water or soda. Despite the considerable damage to the tokens, there were enough of these items for the game to remain usable (see table 8).

BHH's larger tiles are made of chipboard. These pieces also suffered damage when placed in a liquid, with the severity of the damage increasing greatly with time. The edges on the larger tiles from copy 1, 2, and 3 split, with the top layer curling up over the card when placed in cola and water after five minutes. The top printed design layer was easily rubbed

off from the saturated tile. These pieces suffered the most irreparable damage during the stress test. The only process that mitigated this damage was copy 4's contact paper. The significant damage to the character tiles would require the purchase of a new game (see table 9).

Despite the damage to the tiles, none of the preservation processes to mitigate damage for this chipboard justify the staff time it would take to apply them. Even though the water-resistant spray did mitigate some damage and does not take long to apply, there are other problems related to its toxicity when being applied. Not many libraries have a vent hood or the time to take games into a ventilated area (outside in many cases) to spray the pieces and let them dry. The contact paper on the tiles and character cards saved them from damage, but again, the time and skill needed to apply this to prevent potential damage is too costly.

### Game Box Lid

One of the places damaged during the regular circulation time period was the box lid corners. Three separate processes were used to reinforce these corners to prevent damage. Game boxes are made of cardboard. The thickness of this cardboard can vary with each game title. BHH's box is 1.84 mm thick and TR's box lid is 1.5 mm thick.

The additional stress testing included a dual wall edge crush test of just the box lids. Each box lid was crush tested with approximately twenty-eight pounds per inch of pressure applied to a corner. Again, each copy had a different type of preservation treatment applied to the corners. The copy with no treatment on the corners suffered moderate damage from this test. The corner tore down the corner

**Table 9.** Betrayal at House on the Hill Tiles

Type of Preservation		Water			Soda			Cheese Dip			Salsa		
		30s	1m	5m	30s	1m	5m	30s	1m	5m	30s	1m	5m
copy 1	no preservation	2	2	3	2	3	3	0	0	0	0	0	0
copy 2	PVA on edged	2	3	3	2	2	3	0	0	0	0	0	0
copy 3	water-resistant spray	1	1	3	3	1	3	0	0	0	0	0	0
copy 4	contact paper	0	0	0	0	0	0	0	0	0	0	0	0

Damage scale: 0 (no damage), 1 (minor damage), 2 (moderate damage), 3 (significant damage)

seam and the cardboard bent from the corner outward along the lid's edges.

Copy 2 had the corners reinforced with clear book tape. The damage was moderate. The box seams did not tear, but the box bent and tore at the edge of the tape along the sides. The lid was still usable and stable.

Copy 3 had cloth tape applied to the outside corners. After testing, this box corner was easily popped back into place with minor damage. The box lid had a small 0.125-inch tear next to the cloth tape along the bottom edge, the box cardboard was bent, and the top printed layer of the cardboard was cracked but not torn.

Copy 4 had cloth tape on the interior and exterior lid corners. After testing, this box also popped back into place. The lid had a tear down the middle of each side adjacent to the tested corner. The box showed crush damage, but the damage was moderate.

All of the boxes were still usable with minimal to moderate repair needed after crush testing. Adequate repairs can be done with book cloth and PVA or with acid-free book tape.

### TR Game Board

The board preservation methods were tested with a tablespoon of each liquid (cola, water, cheese dip, salsa) added to the TR board for five minutes, then carefully wiped off with a damp cotton cloth. Copy 1 and 3 sustained the most damage from this test. Copy 1 had no processing, while copy 3 had the board edges sealed with PVA glue. Immediately after testing, each board had a stain where a drop of liquid had sat on the board.

Copy 2 was preserved with water resistant spray on the board. After testing, this board had a small stain from the cola. Copy 4 was covered with contact paper. None of the liquids caused any damage to this board.

After drying, the staining from water or cheese dip on the boards is not visible. Copies 1 and 3 both showed slight stains from the liquids. The test area for both of these copies is easily identified through touch, with each spot raised and bumpy to touch where the liquid sat. Copy 1 had a scuff mark in the design layer where the cheese dip was wiped

off. Both copy 1 and copy 3 had minor damage from this test. Both copy 2 (water resistant spray) and copy 4 (contact paper) did not show stains or damage from this test. All of the boards are still usable.

### Instruction Booklets/Guides

The instruction booklets were stress tested by being hurled against a wall. The TR guide is a single-folded sheet. The guide for copy 1 of TR had no processing. After stress testing, this guide had a bent corner with very minor damage. Copy 2 of the TR guide was in a polyester L-sleeve. This guide was protected by the cover when stress tested. The sleeve has a few dents but damage is very minor. The copy 3 TR guide was sewn into an end sheet. Damage was very minor with a slight bend in the cover end sheet. Copy 4 TR guide was sewn into a pamphlet binder. The binder corner was bent but there was no damage at all to the guide inside.

Each BHH guide was also stress tested. This guide is about fifty sheets folded and stapled along the fold. Copy 1's guide had the staples removed and the fold sewn. The guide survived the stress test with a few minor dents in the paper. Copy 2 was sewn into end sheets. This copy was not damaged by the stress testing. Copy 3 was Velo bound. There was no damage to the cover or guide after stress testing. Copy 4 was sewn into a pamphlet binder. The spine was wrinkled and bent, but the guide inside showed no damage. The Velo and pamphlet binding protected the guide completely with no dents or wrinkles related to storage or stress testing.

### Best Practices for Preservation and Processing

What types of preservation, processing, and circulation procedures are needed to keep a game viable, yet do not consume much staff time? UNT Library's goal is for high-use games to have at least a three-year lifetime before wear and tear make them unusable and they need to be replaced. Circulating these games for eight months and stress testing





Figure 3. Cloth Corners

them was beneficial to gain insight into what best practices the authors should set for their collection.

Preservation decisions for the UNT Library tabletop game collection were informed by our research project. Despite the time and expense required for card sleeves, the authors found that cards quickly absorb liquids, oils, and other contaminants. Investing in sleeves can extend a game's life. Scratches or staining on a card may lead to success for unscrupulous players who memorize this damage for an easy win. The authors decided to sleeve their collection, especially high-use games that are not easily available for replacement. About 90 percent of our collection is sleeved, with the exception of about fifty party games such as *Apples to Apples* and *Cards Against Humanity*.

The authors decided to mitigate damage to the game box. Most of the box damage was minor, but smashed and torn box lids make it harder to shelve and circulate games. The authors' library is in a good position to minimize box damage by adding cloth corners to the outside of the boxes to add stability (see figure 3). The UNT Library does in-house binding and can use leftover pieces of cloth tape to corner game boxes. This greatly minimizes the cost of this preservation process.

Game pieces are also bagged. Many newer games come with bags, so the costs for this processing is minimal. The authors' library believes this is the one way to minimize loss without greatly increasing staff time.

Because the loss rate between minimal and full processing was insignificant, with less than 1 percent loss for both games, the authors decided that minimal processing was sufficient for our collection. Each of the games is cataloged and a single barcode is added to the lid of the box. This single barcode and item record are used for circulation. Games are labeled with the call numbers on the lids and sides for easier stacks management.

## Conclusion

The type of damage that a library is willing to accept for any collection varies. Nevertheless, the authors hope that this exploratory research into the durability of tabletop games helps libraries more easily develop their procedures. The conclusion is that tabletop games, much like any other type of item, can be circulated to the public without expanding preservation and processing procedures far beyond the norm. The damage and loss rates between an item with no processing and full preservation and processing is not high enough to warrant the cost required. Tabletop game collections require more time to manage but not enough time to forego collecting these items.

## References

1. Scott Nicholson, "Go Back to Start: Gathering Baseline Data about Gaming in Libraries," *Library Review* 58, no. 3 (2009): 203–14, <https://doi.org/10.1108/00242530910942054>.
2. Teresa Slobuski, Diane Robson, and P. J. Bentley, "Arranging the Pieces: A Survey of Library Practices Related to a Tabletop Game Collection," *Evidence Based Library and Information Practice* 12, no. 1 (2017): 2–17, <https://doi.org/10.18438/b84c96>.
3. Brian Mayer and Christopher Harris, *Libraries Got Game: Aligned Learning Through Modern Board Games* (Chicago: ALA Editions, 2010), 68–71.
4. Dan Sich, "Dungeons and Downloads: Collecting Tabletop Fantasy Role-Playing Games in the Age of Downloadable PDFs," *Collection Building* 31, no. 2 (2012), <https://doi.org/10.1108/01604951211229854>.
5. Emma Cross, David Mould, and Robert Smith, "The Protean Challenge of Game Collections at Academic Libraries," *New Review of Academic Librarianship* 21, no. 2 (2015), <https://doi.org/10.1080/13614533.2015.1043467>.
6. "Map Protection, Wargames Forum," BoardGameGeek, accessed July 22, 2017, [www.boardgamegeek.com/thread/115334/map-protection](http://www.boardgamegeek.com/thread/115334/map-protection); GeekInsight, "Errata: Preserving

- Your Board Games,” Giant Fire Breathing Robot, August 23, 2011, <http://gfbrobot.com/2011/08/23/errata-preserving-your-games/>.
7. “Protecting the Surface of Your Board Games . . .,” Board & Card Games Stack Exchange messageboard, accessed August 6, 2017, <https://boardgames.stackexchange.com/questions/194/protecting-the-surface-of-your-board-games>.
  8. Ibid.
  9. “Future Floor Polish—The Mini Painter’s Best Friend!,” Miniatures messageboard, Paizo, accessed August 6, 2017, <http://paizo.com/threads/rzs2othj?Future-Floor-Polish-the-mini-painters-best>.
  10. “Preserving Old Games: Tips from Lindsey Smith of Exhibitsmith,” *The Game Aisle* (blog), August 30, 2011, [www.thegameaisle.com/preserving-old-games/](http://www.thegameaisle.com/preserving-old-games/).
  11. “Demystifying Game Components (Printed Components),” Gate Keeper Games, accessed July 6, 2017, [www.gatekeepergaming.com/article-11-demystifying-game-components/](http://www.gatekeepergaming.com/article-11-demystifying-game-components/).
  12. “Ticket to Ride,” BoardGameGeek, accessed July 21, 2017, <https://boardgamegeek.com/boardgame/9209/ticket-ride>.
  13. “Betrayal at House on the Hill is Literally Warped,” *Held Action* (blog), October 25, 2010, <https://heldaction.wordpress.com/2010/10/25/betrayal-at-house-on-the-hill-is-literally-warped/>.

---

# Book Reviews

Elyssa M. Gould

***Resources Anytime, Anywhere: How Interlibrary Loan Becomes Resource Sharing.*** By Ryan Litsey. Cambridge, MA: Chandos, 2017. 136 p. \$80.95 softcover (978-0-08-101989-4).

At the conclusion of *Resources Anytime, Anywhere: How Interlibrary Loan Becomes Resource Sharing*, the author asks readers to “imagine the future of resource sharing, which is less the sharing of disparate resources between libraries but more of a globally floating library collection” (130). This might seem mere fantasy, but the rapid growth of interlibrary loan (ILL) and progression of technologies used in such services makes the fantasy attainable provided individual libraries, their governing and funding institutions, and the wider public can both adjust to such a situation and find it a desirable vision.

A librarian who finds this desirable is Ryan Litsey, one of the developers of the e-book lending system Occam’s Reader. Litsey serves as a knowledgeable and authoritative guide on the development and history of ILL and its related technologies and workflows in larger academic institutions.

The author’s primary argument is that the changes in the library world’s technology have driven similar changes in expectations on the part of patrons, particularly those concerning levels of access and speed. These changes have strongly affected ILL services, causing responsive libraries to adjust their methodologies and even ontologies, shifting to a resource sharing mindset. The author is correct that patrons are becoming accustomed to and demanding ever faster response times, and are not particularly concerned about who owns what item and where. He is certainly correct in that these changing expectations are married tightly to changes in technology. Any responsive library must adjust its operations accordingly or go unused.

To accomplish the transition from traditional ILL to resource sharing, Litsey details shifting staff toward supply-chain management and leveraging the disconnections of actual items in a transaction and their digital surrogates used in transaction management. Further, resource sharing departments should strive to understand how their operations fit in, not just with their academic library or consortium, but the entire network of lenders and borrowers; should take into consideration all the multiple streams of materials (courier services, technologies for requesting and discovery, etc.); and attempt to diminish inefficiencies as much as possible. Targeted inefficiencies include poor staffing decisions, overreliance on conditionals, choosing incorrect courier services, focusing too much time on

individual turnarounds, maximal and undo effort on outliers, and other workflow bottlenecks.

Additionally, Litsey proposes leveraging new technologies such as “big data” to allow large scale performance analyses and scorecards for consortium members. Such scoring could be used to encourage members into better response times and accuracy. Litsey also proposes using machine learning to create predictive algorithms so a library can have material on hand before a patron knows he or she needs it. Regarding this concept, there are myriad logistical problems in borrowing another library’s resources on the chance a patron might need it, but the concept seems valid from a collection development perspective as many libraries tightly connect their acquisitions management and resource sharing operations. To Litsey, the future also holds the sharing of 3D printer materials and research data sets. Many libraries are expanding collections well beyond traditional formats, including circulating tools, musical instruments, cake pans and easy entry science equipment (e.g. telescopes and microscopes), and Wi-Fi hotspots. It is conceivable that these might be lent more broadly in time. If these items can be discovered, a patron from another institution will want them.

The real strength of *Resources Anytime, Anywhere* is in the case study section following each chapter. Two or three studies, written by individuals involved in resource sharing, library consortia, or technology vending, provide detail and specificity to the author’s generalizations. These case studies function as guideposts for readers interested in greater detail about a specific element of resource sharing, such as Dethloff’s case study on restructuring staff configurations in “Case Study: The Rotation.” Following a holiday break and facing low staffing plus enormous backlogs, Dethloff’s team was forced to work on unfamiliar workflows without typical expertise. After this debacle, staff members performed a resource sharing function each week before rotating to another function the following week. In this way, every staff member would stay fresh on general procedures and workflows, and no one staff member would be overburdened, particularly when absences occur.

There are some weaknesses in *Resources Anytime, Anywhere*. The author is mostly on point, but tends to digress with broad statements such as that patrons view

“the academic library as almost a holy shrine that must be experienced” (xxii). Additionally, there are some structural problems, particularly in the first chapter, as the transition from supply-chain considerations to professional development plans is abrupt and lacking context, making it initially difficult to follow. Further, the entire work would have benefited from another round of editing as occasional sentence fragments, misspellings, and other misconstructions hinder clarity. And yet, such infelicities are not dramatic enough to recommend against this title.

*Resources Anywhere, Anytime* provides a welcome

survey of the present situation for larger academic libraries involved in ILL services. The case studies and the occasional specific tidbits (e.g. such as how to handle conditionals) could also help make this applicable to ILL operations at smaller libraries involved in more traditional practices. This is a good companion to Nyquist’s *Resource Sharing Today* (Rowman & Littlefield, 2014), as Nyquist helps readers become familiar with current lending and borrowing operations and Litsey helps push those operations into the future.—*Evan M. Anderson (evananderson1@gmail.com), Kirkendall Public Library, Ankeny, Iowa*

***Migrating Library Data: A Practical Manual.*** Edited by Kyle Banerjee and Bonnie Parks. Chicago: ALA Neal-Schuman, 2017. 176 p. \$56.00 softcover (ISBN 978-0-8389-1503-5).

Just the thought of migrating to a new library management system (LMS) or institutional repository (IR) is enough to make many librarians shiver in fear. It is a process that not only involves a tremendous amount of data, but includes both library and IT staff members. *Migrating Library Data: A Practical Manual* describes what is involved in a migration, plus many of the challenges librarians encounter when moving to a new system. However, this book addresses more than data migration. Its contributors discuss “how to extract, analyze, structure, and modify data to achieve the desired effect in a new system. It is about understanding the relationship between the system itself, the configuration, and the data” (xix).

Edited by Banerjee and Parks, *Migrating Library Data* consists of thirteen chapters, with each addressing a separate aspect of the migration process. While each author has been through a migration at their respective libraries, no two write about the same project. This variety of experience gives this book an added depth that would otherwise be lacking. Those who have been involved in migrations know each project possesses unique challenges and problems. While contributors paint their respective areas of expertise using broad strokes, there is enough detail that readers can apply the insights to their individual projects.

*Migrating Library Data* begins with an overview of the migration process, including descriptions of the types of data used by LMSs. Later chapters discuss in detail how to process bibliographic and item data, patron information, acquisitions, serials, and MARC data. Other chapters examine adding libraries to a shared system, post-migration tasks such as testing, going live, and working with vendors. Additionally, some chapters conclude with lists of resources, including websites for those readers who wish to investigate further.

While this book could have limited its focus to LMSs, its editors chose to include electronic resource management systems (ERMS), IRs, and digital collections. The

challenges posed by these systems are described in Enoch’s chapter “Electronic Resources Management” and “Institutional Repositories and Digital Collections” by Banerjee. Although both note that moving to a new ERMS or IR rely on the same tools and skill sets as those used in LMS migrations, they involve a different set of challenges. For example, Enoch addresses the variety of information stored in an ERMS. Unlike an LMS, an ERMS holds holdings information for individual journal titles, title-specific data, and vendor contacts in addition to bibliographic data. This information may be in multiple formats and come from various sources. Enoch focuses on locating data sources and mapping the data that is to be moved to the new system. Additionally, these migrations often have a different focus from that of an LMS migration. That is, as Banerjee notes, “librarians tend to focus on transferring objects and metadata” while migrating a digital asset management system or R is “more about migrating an effect than it is about migrating data” (184).

Of particular note is Reese’s chapter, “Working with MARC Data.” Reese, the author and creator of MarcEdit, describes how to utilize MarcEdit to prepare, edit, and merge record data. Although it is called MarcEdit, this tool can be used with non-MARC metadata schemas such as Dublin Core, Encoded Archival Description, and MARCXML, as well as metadata discovery services like OAI-PMH. Reese’s focus is on working with MARC data. Since MarcEdit offers almost 200 editing functions, Reese limits his discussion to those that are the most relevant to the migration process: character conversions, data preparation, record editing, working with non-MARC data, merging record data, and beyond MarcEdit. An extra benefit of this chapter is that important information is emphasized via pictures, hypothetical scenarios, and “Pro Tips” sections.

Despite its strengths, a downfall of *Migrating Library Data* is its focus on large academic libraries. The inclusion of smaller academic, public, and special libraries that may

lack the technical knowledge and/or staff members would display a wider variety of migration strategies. Hearing about their struggles and how they overcame challenges such as an already overburdened IT department would help readers realize that while migrations are demanding and taxing even for well-staffed libraries, a library of any size and type can successfully move their data. For example, while several authors mention working with vendors, this reviewer occasionally formed the impression that much of the work was done in-house, a scenario that is not possible for all libraries. Many libraries would benefit from learning how other similar institutions worked with their LMS vendor before, during, and after a migration and how libraries

decided which migration tasks they wanted to manage themselves and which ones they passed on to their vendor.

*Migrating Library Data: A Practical Manual* is a resource that any library considering migrating its data should read before embarking on a project of this nature, whether it is to a new LMS, IR, or ERMS. This volume manages that rare feat of not overwhelming readers with too much detail, but providing enough information to keep readers engaged. Even those librarians who have managed a migration project would benefit from reading this book because there is always something new.—Allison Badger ([allison.badger@nebraska.gov](mailto:allison.badger@nebraska.gov)), *Nebraska Library Commission, Lincoln, Nebraska*

***Protecting Patron Privacy: A LITA Guide***. Edited by Bobbi Newman and Bonnie Tijerina. Lanham, MD: Rowman & Littlefield, 2017. 142 p. \$45.00 paperback (ISBN 978-1-4422-69705); \$90.00 hardback (ISBN 978-1-4422-6969-9); \$42.00 e-book (ISBN 978-1-4422-6971-2).

Today's world is consumed with using technology at an instant. Often this means that the desire to use technology immediately takes priority over taking the time to understand how to protect yourself while using mobile devices and even the internet. *Protecting Patron Privacy* is a well-developed guide that takes the reader through learning about technological privacy from the beginning. It serves as a history of the topic, while also presenting real-world challenges that occur in libraries.

Keeping patron information private is a test about which librarians constantly worry. There are many ways that identifying information could be communicated between library websites, catalogs, integrated library systems (ILS), and databases. Several of the chapter authors emphasize the importance of being aware of what these technologies ask of both patrons and librarians, and that not all responsibility lies with the librarian.

The author(s) of each chapter bring their own perspective to the common problem of patron privacy. Although the book is not broken into sections, the chapters are arranged in a way that provides background information about the history of patron privacy, as well as some relevant privacy laws in the first half of the book. Readers should not be frightened away by the heaviness of the beginning of the book. The remainder of the book focuses on areas where privacy could be a problem and practical case studies of how different libraries have approached training staff and teaching patrons about internet and mobile device safety. Although these last few chapters are not as difficult to read they are not any less important, and each chapter brings its own light to a topic that is at the core of librarianship values.

Understanding contracts between libraries and third-party vendors consumes much of the first half of the book. Several of the authors touched upon the different ways

patron privacy could be compromised through linking patron data from the ILS to the third-party vendors. The authors also make suggestions of how to avoid these problems by making sure the contracts are extremely clear to both parties.

A common theme throughout several chapters is the effort to stay current with technology. Contrary to what some may think, library staff are not all-knowing and the quick paced changing of the technology landscape can make it quite difficult to make sure all staff are up-to-date in both knowledge and training. Small libraries can struggle to provide current technology because of small budgets. This presents another challenge for technology class teachers who do not have the teaching tools on their library computers to match those that patrons may have at home.

Melissa Morrone from the Brooklyn Public Library wrote about her library's data privacy project which included a pair of three-hour workshops to educate staff about different aspects of privacy. Morrone wrote, "I'm sensitive to what often happens here, which is that there's a major training initiative that comes and goes with little follow up" (113). This quote brings together several aspects of the book. Libraries often act with good intentions to educate their communities while also protecting their rights. The staff need the support to adequately inform themselves about current trends to help patrons, but often these initial trainings are not provided frequently enough for staff to keep the material fresh in their minds, nor are changes to the technology taught quickly to make sure staff are prepared to handle every question from patrons.

This book has something for beginners just starting their journey to understanding patron privacy rules and regulations, as well as those who may want to brush up on their knowledge. Those that are new to the topic will

find comfort in the amount of history provided, the clear guidelines written by the American Library Association for libraries to follow, and the areas still being developed, such as security officers wearing body cameras. Even those familiar with the technology may find new considerations to think about or gain an understanding of what some of your coworkers need to consider. *Protecting Patron Privacy* logically presents what acquisitions or electronic resource librarians need to be aware of when negotiating contracts with vendors that provide materials, databases, and more.

It also thoroughly covers the needs of reference and instruction staff who need to understand the inner workings of the technology to teach their patrons and students how to best use the programs. Though the book would likely be beneficial to many readers, it would best benefit early career librarians in acquisitions, electronic resources, reference, and instruction areas.—*Brittney (Buckland) Bergholm, (brittney.buckland@gmail.com), Merrimack Public Library, Merrimack, New Hampshire*





# ALCTS

Association for Library Collections & Technical Services

a division of the American Library Association

50 East Huron Street, Chicago, IL 60611 • 312-280-5038

Fax: 312-280-5033 • Toll Free: 1-800-545-2433 • [www.ala.org/alcts](http://www.ala.org/alcts)