

Library Resources & Technical Services

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What Cost and Usage Data Reveals About E-Book Acquisitions

*Steven B. Carrico, Tara Cataldo, Cecilia Botero,
and Trey Shelton*

Value Added: Book Covers Provide Additional Impetus for Academic Library Patrons to Check Out Books

Steven A. Knowlton and Lauren N. Hackert

FRBR Aggregates: Their Types and Frequency in Library Collections

Edward O'Neill, Maja Žumer, and Jeffrey Mixter



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Editorial: New Year, New Possibilities

Mary Beth Weber



As 2015 progresses, there have been additional changes to *LRTS*. In addition to the new e-only format, the journal has transitioned from a commercial hosting service to the Open Journal Systems (OJS) platform. There are several advantages of moving to OJS. First is cost savings, which are important for a member organization. OJS offers the ability to customize the platform to provide services and information that will improve access and irretrievability. OJS will also enable us to consider new functionalities. The new website is available at <http://journals.ala.org/lrts> and I encourage you to try it. The new website is part of an open house that ALA is promoting for three months (April-June 2015) for some of its journals. Your feedback regarding the new website is welcome.

Editing *LRTS* and working with the editorial board is both rewarding and challenging. Reviewing papers, returning papers to authors for revision, and soliciting content are important aspects of my position as editor. Conference presentations, poster sessions, and research analysis are ideal candidates for papers. The *LRTS* website offers resources for authors, including how to turn a presentation into a paper. Visit <http://www.ala.org/alcts/resources/lrts> and scroll down to the “For Authors” section for more information.

ALCTS has embarked on a media and publicity blast to announce its publishing program and the venues available to authors. The ALCTS Publications Committee’s Publicity Subcommittee has produced flyers and has done a monthly email and social media blast that highlights a specific ALCTS publication. The ALCTS New Members Interest Group has held two chats on publishing, and I participated in part three of an ALCTS Virtual Preconference “Turn Your Idea into a Publication” in January. The speakers covered a wide range of experience and provided a wealth of information. The goal of all this activity is to attract authors. This includes experienced authors and new potential authors. ALCTS offers guidance and advice to all potential authors and welcomes ideas for new topics or types of publications.

I am confident that *LRTS* will change to meet new publication models and reader expectations. How that happens, when it will happen, or what will be implemented are yet to be determined. I do know that ALCTS membership is innovative and creative and will find a way to provide the best resources to serve technical services professionals.

In conclusion, I would like to highlight this issue’s contents:

- “What Cost and Usage Data Reveals About E-Book Acquisitions: Ramifications for Collection Development, by Steven B. Carrico, Tara Cataldo, Cecilia Botero, and Trey Shelton. The authors launched a project to access cost and usage of e-book purchased using three different acquisition methods to determine how e-book acquisitions might impact future collection development decisions.

- In “FRBR Aggregates: Their Characteristics and Frequency in Library Collections,” Edward O’Neill, Maja Žumer, and Jeffrey Mixter discuss how to better understand aggregates through the analysis of a sample of bibliographic records and a review of the cataloging treatment applied to aggregates.
- “Value Added: Book Covers Provide Additional Impetus for Academic Library Patrons to Check Out Books,” by Steven A. Knowlton and Lauren N.

Hackert consider how the presence of dust jackets may influence book circulation. Their study involved a physical inventory of 1,319 recently published books in an academic library, and compares circulation statistics for different cover types.

- Book Reviews courtesy of *LRTS* Book Review Editor Elyssa Sanner. I enjoy reading the book reviews to see what new professional literature is available, and what might benefit my staff or me in our work.



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What Cost and Usage Data Reveals About E-Book Acquisitions

Ramifications for Collection Development

Steven B. Carrico, Tara T. Cataldo, Cecilia Botero, and Trey Shelton

To better determine how e-book acquisitions might affect future collection development decisions, a team of librarians from the University of Florida (UF) launched a project to assess cost and usage of e-books purchased using three different acquisitions methods: e-books acquired in large publisher packages; single-title e-books selected through firm orders; and e-books purchased through two patron-driven acquisitions (PDA) plans. The cost-usage data were then sorted into three broad areas of subject disciplines—humanities and social sciences (HSS); science-technology-engineering-mathematics (STEM); and medicine (MED)—and the results were reviewed and summarized. The authors compared the cost-usage data of e-books acquired by the acquisitions methods across the three subject areas and describe how the findings are affecting current and future acquisitions, traditional collection management, and budgeting at UF.

The Smathers Libraries has a primary mission to support the wide-ranging research and instructional activities at the University of Florida (UF), a large land-grant university with an annual enrollment of more than 49,000 and employing more than 3,000 faculty.¹ The university also has more than one hundred undergraduate and two hundred graduate degree programs based in sixteen colleges that entail dozens of subject disciplines.² With such a large scope of departments and degree programs to support across the sciences, humanities, social sciences, and medical-health related fields, the Smathers Libraries are challenged to meet the needs of this vast and diversified clientele. Moreover, the state is emphasizing distance-learning initiatives, with the libraries expected to develop and boost online resources to serve these new constituents.

Within this landscape, a team of librarians from the Smathers Libraries (two from the acquisitions department, one from the Marston Science Library, and one from the Health Science Center Libraries) began a project to assess the number, cost, and use of e-books acquired for perpetual ownership by the libraries. The importance of determining the cost and usage of e-books purchased to support multiple subject disciplines is paramount as the Smathers Libraries face restrictive annual materials funding. A primary goal of the project was that the Libraries might apply the findings to improve the method of allocating e-book budgets.

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The authors wish to acknowledge Michelle Leonard's contributions to the project culminating in a poster presented at the 2013 ACRL Conference.

The team focused on three purchase methods: (1) e-books acquired through large publisher packages; (2) e-books acquired through firm ordering, which includes selection of e-books from the primary approval/slip plan; and (3) e-books acquired through patron-driven acquisitions (PDA) plans. The team was especially interested in determining the cost effectiveness of purchases in different disciplines, accomplished by sorting the e-books using Library of Congress Classification (LCC) across broad subject areas.

The team posed three questions to serve as the project's guiding objectives:

1. How does cost-use of e-books purchased in packages, selected using firm orders, and acquired by PDA compare with regard to the methods of acquisitions?
2. How does the cost-use of e-books as acquired using the three main acquisitions methods compare when sorted by three broad subject areas—humanities and social sciences (HSS); science, technology, engineering, and mathematics (STEM); and medicine (MED), which includes related health and physiology disciplines?
3. How will this study of cost-use analysis of e-books at UF affect collection development, particularly future e-book initiatives and budget allocation?

Literature Review

A plethora of research on e-book acquisition methods, usage studies, and collection management has been published. This review of the literature highlights research that the authors deem most relevant to the analyses described in this paper. PDA, also known as demand-driven acquisitions (DDA), is an increasingly popular method for acquiring e-books in academic libraries. For many college and library administrators battling stringent materials budgets, PDAs are becoming mainstays for e-book collection building. Several recent articles and books have been published on the PDA/DDA model. Herrera shares experiences of developing and running a PDA at the University of Mississippi.³ Nixon, Freeman, and Ward's *Patron-Driven Acquisitions: Current Successes and Future Directions* and Swords' *Patron-Driven Acquisitions: History and Best Practices* were published in 2011 and contain chapters examining the historical, current, and future permutations of the PDA model.⁴ Shepherd and Langston share the planning, processes, implications, and future of shared, consortial PDA plans at the California State University system.⁵ Shepherd and Langston's finding that "in general, the number of books purchased in each subject was proportional to the number of books represented by that subject in the entire collection" should inform

librarians establishing PDA profiles and would most likely also apply to other parameters of the profile.⁶

Anderson et al. and Bracke, Hérubel, and Ward offer insightful overviews on the books received through PDAs using their libraries' interlibrary loan (ILL) programs.⁷ Although both articles focus on print, not e-books, the studies conducted analyze the college and subject areas of the faculty or students requesting the books via ILL. A team of librarians from the University of Illinois at Urbana-Champaign (UIUC) and Penn State libraries did a study on print monographs purchased on approval at the two ARL libraries, performing in-depth analyses on costs, usage, and coverage across subject disciplines, similar in approach to the study described in this paper. Research conducted during the period July 1, 2004–March 31, 2007 at the two institutions showed approval books had an average cost per use of \$19.83 at Penn State and \$22.28 at UIUC; more significantly, circulation data revealed 31 percent of approval books at Penn State and 40 percent of approval books at UIUC did not circulate approximately two to three years after purchase.⁸ Hinken and McElroy discuss the implications of e-books purchased through consortial PDAs.⁹ An interesting 2010 analysis was conducted by Reynolds et al. of the user-driven acquisitions program at Texas A&M University Library demonstrated many advantages of the use-driven acquisitions model related to user satisfaction, librarian perception, budgeting and accounting, and return on investment.¹⁰ The Texas A&M study utilized a "suggest a purchase" form that students, faculty, and staff could use to request monographs or media resources in any format. The Texas A&M study showed that 78 percent of materials purchased from the "suggest a purchase" form were used, with 40 percent of the titles being used more than once.

Sharp and Thompson's case studies considered the various e-book purchasing models, comparing PDA and title by title purchasing.¹¹ Shen et al. compared e-book purchases triggered through a PDA program to hypothetical librarian selections and discovered that "patron selections closely resemble librarian selections in terms of content level and recommended use."¹² Yet, despite the widespread adoption of PDAs in academic libraries, there are few published studies that demonstrate how these e-book programs are boosting collection building and user support across subject disciplines. Nor has there been much published on how academic libraries are integrating PDAs into traditional collection management policies.

Sprague and Hunter analyzed their library's e-book holdings and usage with three major e-book aggregators using LCC to determine which subject areas each title supported.¹³ Further studies compare e-book usage across subject disciplines. Hoseth and McLure discuss e-book usage in the social sciences.¹⁴ McLure and Hoseth analyzed e-book usage from an e-book library PDA plan using broad

subject categories, and found that business, education, engineering, fine arts, and science seemingly garner the most usage.¹⁵ Pomerantz investigated the e-book content made available to users in the nursing and business subject disciplines.¹⁶

Other studies focus on the effect of e-books acquisitions methods on usage patterns. Lamothe compared e-book usage from individual title purchases and packages in both NetLibrary and Ingram's MyiLibrary, along with Springer packages.¹⁷ According to Lamothe, 66 percent of individually purchased books in NetLibrary were used compared to only 29 percent of the NetLibrary packages. With MyiLibrary, 72 percent of the individually purchases titles were used compared to 6 percent of package titles. An analysis of usage in Springer packages showed 32 percent of this collection was used. Individually purchased titles received greater usage, followed by the publisher package, and the lowest use was with the aggregator packages. Roncevic suggested that availability of usage reports is a key factor to consider before purchasing e-books on a particular platform.¹⁸ Lannon and McKinnon analyzed usage patterns of business and economics e-book collections at McGill University from NetLibrary, SpringerLink, and Ebrary.¹⁹ The authors at least partially proved their hypothesis that the majority of usage resulted from a small percentage of the title purchased was true. The authors also speculated that concurrent user limits and the method of selection (approval plans, firm orders for course reserves, and packages) may have influenced the usage for the various e-book collections. Lannon and McKinnon concluded that their analysis supported the purchase of e-books through approval-plan and PDA models, but questioned the sustainability of purchasing e-books in packages; however, as the authors did not include a cost-per-use analysis in their report, it does not seem entirely reasonable to question this acquisition method, which is based on usage alone. Studies on the acquisitions of e-books through packages are available in the literature.

Tucker conducted a case study analysis of the usage of two e-book collections offered, NetLibrary and ebrary, and reviewed trends in publishing, including breakdowns in specific areas of subject disciplines.²⁰ Use of NetLibrary e-books was highest in the liberal arts and health sciences, while ebrary's e-books received the highest use in the urban affairs, health sciences, hotel, and fine arts collections. Five publishers were in the top ten publishers of both packages. In contrast to Lannon and McKinnon's findings, Tucker discovered e-books in the business subject areas received lower usage compared to other subject areas. This finding may be because of the acquisition methods employed and the number of students enrolled in business programs at each institution. An important factor in Tucker's study was that because the "study is analyzing the percentage of titles used," it did not take into account titles used more than once.²¹

E-Book Acquisitions at UF

The Smathers Libraries have acquired e-books since the mid-1990s and currently have collective access to 899,296 e-books.²² For the greater part of two decades, the majority of e-books offered to UF users were either purchased in large publisher packages (e.g., SpringerLink collections) or maintained through subscriptions to collections of various sizes (e.g., Books 24 X 7), but seldom through individual firm or approval orders. Few firm order requests were placed for e-books as many selectors reported UF faculty and users voiced displeasure with e-book usability and navigation, in addition to mutual complaints about the lack of research-level published content available in e-book versions.

Fueling this reluctance to place firm orders for e-books was a sustained series of flat or reduced material budgets experienced by the Smathers Libraries. Annual book budgets not only became increasingly restrictive, but the cost of e-resources were escalating, resulting in depletion of print serial and book funds to pay for online resources. Economically, it made good sense for selectors to support e-book acquisitions through annual subscriptions and large package purchases paid for by a central or auxiliary fund and not from their own monograph budgets. From an operations standpoint, subscribing to or purchasing large packages containing dozens or hundreds of e-book titles requires only one license agreement, and one invoice was advantageous. Firm ordering the same number of e-books requires considerably more overhead in the selection and ordering processes, thus acquisitions, especially for the larger packages, is a far more efficient method for staff and selectors. Not only are e-book packages faster and easier to acquire, the acquisitions of e-books packages often contain content in specific subject collections, such as business or sociology. Purchasing publisher packages is a highly efficient method for acquiring e-books that can target broad or specific subject disciplines.

As e-book aggregators and publishers improved platform functionality, and as academic publishers and university presses offered more of their content faster as e-books, e-book use increased at UF. The convenience of accessing e-books from laptops and offices also was an important contributing factor in the growth of e-book use. The spike in e-book use impelled selectors to place more individual firm orders for e-books, but firm order selection at the Smathers Libraries spiked after the large library book vendors—Coutts, Blackwell's, and YBP—began to offer e-books in their online databases. The vendor databases made e-book browsing, review of content, and ordering quick and convenient; and, not surprisingly, selectors at the Smathers Libraries responded by placing more orders for e-books. Now, even with depressed book budgets, selectors, especially in the sciences, frequently choose an e-book version over a

print counterpart, resulting in a substantial increase in the number of e-books purchased using firm orders.

Besides obtaining e-books through packages or individual firm orders, a third and relatively recent acquisitions method for UF is PDA. The two PDA projects used in this study were developed with Coutts, hosted on their MyiLibrary e-book platform, and offered e-book content across all subject disciplines. The first PDA was a six-month pilot launched in 2009 to test the feasibility of PDA as an e-book acquisitions method. Almost 5,000 e-book records were loaded into the Smathers Libraries' online catalog and made accessible to users. During the six months of the PDA project, users accessed the e-books 912 times, resulting in 193 purchases across all subject disciplines. Additionally, a usage report was generated months after the pilot ended that revealed most of the 193 e-books purchased had been accessed again with a favorable average cost per use.²³

Spurred by the success of the first PDA, a shared plan to acquire research-level e-book content across multiple subject disciplines was developed and run as a partnership between the libraries at UF and Florida State University (FSU). The plan ran for two years, and the PDA was judged very successful by many librarians and selectors from both institutions on the basis of the e-books accessed and acquired, the average purchase cost, and the average cost per use.²⁴ This shared PDA was similar in most elements to the conventional single library PDA, but it had four distinguishing elements that are worth mention: (1) each library contributed an equal share of funds to a deposit account; (2) usage was combined and neutral so expenditures were split evenly; (3) the e-book records loaded into the catalogs linked to the MyiLibrary platform allowed users from one or both libraries to access e-books simultaneously; and (4) after a purchase was triggered by use each library owned a copy of the same e-book. The fact the shared plan offered unlimited concurrent use across both libraries was a factor in its ultimate demise, as eventually many academic publishers withdrew from participation to the point the libraries shut down the PDA.

Method of the UF Cost-Usage Studies

UF's cost-usage studies focused on perpetually owned e-books purchased through package deals, firm orders, or PDA plans. This study relied on publisher- or vendor-supplied usage statistics for purchased titles in the form of Microsoft Excel spreadsheets. When available, COUNTER (Counting Online Usage of Networked Electronic Resources)-compliant reports were used in the analysis; however, COUNTER-compliant reports have their own limitations, for example, lack of subject- or call-number designations for each title. For this reason, the authors often relied on non-COUNTER-compliant reports. For the purposes of the

study, an e-book use is defined on the basis of either COUNTER standards or the standards of a particular publisher or vendor. For all firm order and PDA analysis, MyiLibrary usage reports, which counted the number of "hits" (visits a title received), were consulted. The package analysis combined usage from the following publishers and vendors: Springer, Oxford, Rittenhouse, and Morgan and Claypool's Synthesis collections. All reports used in analyzing packages described usage as the number of successful full-text section or chapter requests. While these differences in defining use pose limitations on the ability to truly compare the cost and usage of various acquisitions methods, they do not eliminate the effectiveness of the study entirely. In many ways, these differences highlight the inconsistencies found between e-book providers that librarians must attempt to reconcile and strengthen the call for more robust, standardized publisher- or vendor-supplied usage reports.

Calculating cost and usage as comparisons across the three acquisitions methods was equally problematic. Cost per use was determined by taking the average price of an e-book purchased in the package and dividing it by the usage for each title, although many were not used. For e-books purchased using firm orders or through the PDA plans, the final cost of each title was available in the Coutts reports, so average cost and average cost per use were accurate. In this study, costs and cost usage for e-books received through publisher packages is based on an average, so direct comparisons to cost and cost usage to e-books purchased on firm ordering or via PDA plans can only be close approximations.

To analyze e-book cost and usage across acquisition methods and subject areas, usage statistics were aggregated from multiple e-book providers and their platforms. Cost and usage statistics for e-books purchased in packages from four publishers during 2009 to 2012 were downloaded from platforms or received directly from the publishers. For e-books purchased by firm orders (in 2010–12) and acquired as triggered purchases from the two PDA plans previously cited, reports were downloaded from Coutts' MyiLibrary platform and OASIS database. In all cases, the cost and usage figures for the three acquisitions methods were loaded into Excel spreadsheets, compiled, and sorted. For expediency and clarity, cost and usage statistics gathered in 2013 for e-books purchased via the two PDAs were combined into one table.

For e-books purchased in packages, cost and usage statistics were gathered from the following publisher sites: Springer's SpringerLink platform, Oxford Handbooks Online, Rittenhouse's R2 Digital Library, and Morgan and Claypool's Synthesis collections. Unfortunately, cost and usage figures for individual titles were not available for the e-books purchased in these publisher packages at the time of this study. Instead of sorting the titles by LC subject

Table 1. Cost-Use of E-books Purchased in Packages by Subject Area

Subject Area	Expenditures	% of Expenditures	No. of E-books Purchased*	% of E-books Purchased	Avg. Cost per E-book	Total Uses	% of Total Uses	Avg. Cost per Use
Humanities/Social Sciences	\$54,701.09	14.30	2,218	16.43	\$24.66	13,270	11.77	\$4.12
STEM	\$262,755.73	68.69	9,938	73.60	\$26.44	72,774	64.55	\$3.61
Medicine	\$65,079.52	17.01	1,346	9.97	\$48.35	26,704	23.68	\$2.44
Total = all subject areas	\$382,536.34	100.00	13,502	100.00	\$28.33	112,748	100.00	\$3.39

* Includes Synthesis package e-books

Table 2. Cost-Use and Non-use of E-books Purchased in Packages by Subject Area

Subject Area	No. of E-books Purchased*	No. of E-books Used	% of E-books Used	No. of E-books Not Used	% of E-books Not Used	Expenditure for E-books Used	Expenditure for E-books Not Used
Humanities/Social Sciences	2,218	1,037	46.75	1,181	53.25	\$27,327.37	\$27,373.72
STEM	9,463	4,666	49.31	4,797	50.69	\$123,330.43	\$117,525.30
Medicine	1,346	848	63.00	498	37.00	\$48,175.23	\$16,904.29
Total = all subject areas	13,027	6,551	50.29	6,476	49.71	\$198,833.04	\$161,803.30

* Excludes Synthesis package e-books

classification, each e-book package was assigned one of the three broad subject areas. In some cases e-books were classed by the publisher's preassigned disciplines. While this method of subject assignment is broad and not specific by title, it offers a simple but effective overview of the primary subject areas being supported.

The cost and usage of e-book titles acquired by firm order or through the PDA programs were kept separate while organized using a similar method: the e-books were sorted by call numbers as found in the bibliographic records into subject disciplines using LCC. The e-books sorted by LC disciplines were organized into three broad subject areas defined by LCC: classes A-P and TR-Z were designated HSS; classes Q and S-TP were designated STEM; and class R was designated as MED. It was a matter of compiling and determining the number of e-books purchased, total usage, average cost per title, and average cost per use by these three subject areas.

Results of the Cost-Usage Studies

E-Book Package Acquisitions

Cost and usage statistics for all the e-books purchased through publisher packages were gathered, sorted, and compiled into two tables. Table 1 details the composite

results of several large package purchases that were often acquired to support the disciplines. The STEM area shows the most purchased e-books (9,938) compared to HSS (2,218) and MED (1,346). The e-books acquired for STEM equated to 74 percent of the total number of e-books purchased (13,502) with by far the highest expenditures (\$262,756) compared to expenditures in HSS (\$54,701) or MED (\$65,080). With almost three-fourths of the e-books purchased in these packages, STEM titles also had the most uses (72,774) and percentage of usage (65 percent). The average cost per use for STEM titles (\$3.61) was lower than average cost per use of HSS e-books (\$4.12), but not lower than the average cost per use of MED e-books (\$2.44). Interestingly, MED had the highest average purchase price (\$48.35) compared to STEM (\$26.44) or HSS (\$24.66), which shows despite the higher cost, MED titles are actually the most cost-effective.

Table 2 shows that MED also had the highest percentage of e-books used from the purchased packages (63 percent) compared to STEM (49 percent) and HSS (47 percent). The negative component of package purchases is the number of e-books that went unused: 1,181 in HSS; 4,797 in STEM; and 498 in MED. At the time of the study, the unused e-books accounted for 6,476 of the 13,027 titles purchased in publisher packages. The libraries spent \$382,536 dollars on e-book packages in this four-year

Table 3. Cost-Use of Firm Ordered E-books by Subject Areas

Subject Area	Expenditures	% of Expenditures	No. of E-books Purchased	% of E-books Purchased	Avg. Cost per E-book	Total Uses of E-books Purchased	% of Total Uses	Avg. Cost per Use
Humanities/Social Sciences	\$80,170.33	64.05	1,011	71.45	\$79.30	3,484	61.83	\$23.01
STEM	\$25,640.69	20.49	211	14.91	\$121.52	1,043	18.51	\$24.58
Medicine	\$19,350.12	15.46	193	13.64	\$100.26	1,108	19.66	\$17.46
Total = all subject areas	\$125,161.14	100.00	1,415	100.00	\$88.45	5,635	100.00	\$22.21

Table 4. Cost-Use and Non-use of Firm Ordered E-books by Subject Area

Subject Area	No. of E-books Used	No. of E-books Not Used	Cost of E-books Used	Cost of E-books Unused	% of E-books Used	% of E-books Not Used
Humanities/Social Sciences	452	559	\$36,471.69	\$43,698.64	44.71	55.29
STEM	120	91	\$14,976.68	\$10,664.01	56.87	43.13
Medicine	162	31	\$16,790.79	\$2,559.33	83.94	16.06
Total = all subject areas	734	681	\$68,239.16	\$56,921.98	51.87	48.13

period, and consequently the libraries spent a substantial amount of funds on thousands of e-books that went unused.

Firm Order Acquisitions

A summary of cost and usage statistics for e-books firm ordered at UF in 2010–12 were sorted by LCC into three broad subject areas and recorded in two tables (see tables 3 and 4). Table 3 shows that during the three-year period, 1,415 e-books were acquired through firm orders with a total cost of \$125,161. HSS disciplines were the primary subject areas targeted for e-book firm ordering, with 1,011 e-books purchased for \$80,170, accounting for the greater percentage of the total expenditures (64 percent) and titles received (71 percent). The predominance in acquisition of titles and fund expenditures for the HSS subject area can be attributed to several factors: (1) HSS selectors outnumber the librarians who do firm order selection in STEM and MED; (2) HSS selectors are also allocated the most funds for firm ordering, as STEM and MED selectors elect to spend their aggregate funding on databases and e-journals that are of a higher priority to their clientele; and (3) the average cost of a HSS e-book (\$79 per title) is much lower than the average cost of a STEM e-book (\$122 per title) or an e-book in MED (\$100 per title), so HSS funds stretched further. With more funds to spend and lower pricing, it is understandable that a significant percentage of firm-ordered e-books fell into the HSS subject area. As the bulk of firm orders occurred in the

HSS disciplines, it follows that the total number of uses for the e-books in HSS (3,484) was much higher than e-books purchased in STEM (1,043) or MED (1,108). However, MED had the lowest percentage of expenditures (15 percent) for the three subject areas, yet had the best average cost per use (\$17) compared to HSS (\$23) or STEM (\$25). Despite the Health Science Center Libraries (HSCL) at UF having a very limited budget to purchase e-books through firm orders, the study revealed a healthy cost benefit for the money spent on e-books in MED. The high cost-use ratio for MED e-books is explained by HSCL firm ordering practices that are discriminate and usually in response to requests from faculty and researchers.

Table 4 shows that MED had the highest percentage of firm-ordered e-books that were actually used by patrons (162 of 193 e-books purchased = 84 percent) when compared to STEM disciplines (120 of 211 e-books purchased = 57 percent) or HSS disciplines (452 of 1,011 e-books purchased = 45 percent). The fact that almost half of the e-books purchased in the STEM disciplines and more than half of the e-books firm ordered in the HSS disciplines were unused is troubling because it suggests e-books individually selected for purchase might have the same circulation issues associated with individually selected print books in academic libraries. Over the three years, \$56,922 was spent on individually selected e-books that were not used at the time of the study, which is not a pattern of cost value for a library facing restrictive material budgets.

Table 5. Cost-Use of PDA Purchased E-books by Subject Area

Subject Areas	Expenditures	% of Expenditures	No. of E-books Purchased	% of E-books Purchased	Avg. Cost per E-book	Total Uses of E-books Purchased	% of Total Use	Avg. Cost per Use
Humanities/Social Sciences	\$42,857.35	61.76	363	64.36	\$118.06	4,971	63.60	\$8.62
STEM	\$16,461.47	23.72	123	21.81	\$133.83	2,074	26.54	\$7.94
Medicine	\$10,076.79	14.52	78	13.83	\$129.19	771	9.86	\$13.07
Total = all subject areas	\$69,395.61	100.00	564	100.00	\$123.04	7,816	100.00	\$8.88

Patron-Driven Acquisitions

Cost-usage figures were gathered from the two Ingram Content Group patron-driven acquisitions plans run at UF and compiled into table 5. Of the 564 e-books purchased during the two PDAs, 363 of the titles were classified as HSS (64 percent), 123 of the titles were classified as STEM (22 percent), and 78 of the titles purchased were classified as MED (14 percent). The total expenditures and percentages of spending have an almost identical breakdown across the three subject areas because the cost of the e-books purchased in HSS amounted to \$42,857 (62 percent of the total) while STEM amounted to \$16,461 (24 percent) and MED amounted to \$10,077 (15 percent). Usage statistics follow a similar pattern, with 4,971 uses occurring in HSS (64 percent) compared to 2,074 uses in STEM (27 percent) and 771 uses in MED (10 percent). The propensity of titles purchased, costs, and usage for HSS e-books can be explained by the fact that approximately the same percentage of e-book discovery records loaded into the OPAC were classified in HSS disciplines (65 percent). Not surprisingly, with almost two-thirds the number of e-book records available in the OPAC for users to access, the final cost-usage statistics of the two PDA plans would be HSS dominated.

Despite more HSS classified e-books being made available, used, and purchased through the PDA plans, STEM had the most efficient average cost per use (\$7.94) compared to HSS (\$8.62) or MED (\$13.07). MED by far is the subject area that benefits least from the two PDA plans, with the fewest number of titles purchased, least amount of uses, and highest cost per use. These statistics seem to indicate that PDA plans designed to offer content across all disciplines are more likely to be HSS-centric; and perhaps publishers of e-books in medicine—and to an extent publishers in the science and engineering fields—do not offer all or their most-desired content through PDA. Future studies to investigate how STEM and MED e-book content is or is not made available by some publishers for PDA plans, and the effect this has on collection endeavors in academic and medical libraries, would seemingly be a logical and productive area of research.

Comparing Cost-Usage across Acquisitions Methods

Comparing the compiled cost-usage statistics of the three methods of acquisition across the three broad subject areas reveals several interesting facets. The average cost of an e-book purchased through packages is by far the lowest (\$28.33 per title; see table 1) compared to e-books purchased by firm orders (\$88.45 per title; see table 3) or from PDAs (\$123.04 per title; see table 5). This notable average cost disparity is perhaps because of the discounts publishers offer for package deals. Yet the fact that all the e-books purchased through PDA are used and many of the e-books purchased by firm orders or in packages go unused certainly balances the lower average cost for e-books acquired on PDA.

In general, all three acquisitions methods reflect solid total usage: the 1,415 e-books purchased through firm orders had 734 uses (see tables 3 and 4); the 564 e-books purchased through the PDA plans had 7,816 uses (see table 5); and the 13,502 e-books purchased in packages (that were used) had 112,748 uses (see table 1). Most telling is the comparison of the average cost per use from the three acquisitions methods because it demonstrates a wide range of results. The average cost per use of e-books purchased through firm orders is \$22.21 (see table 3), for e-books purchased through the PDA plans it is \$8.88 (see table 5), and for e-books purchased in packages it is \$3.39 (see table 1). While the lowest (and best) cost per use is for the e-books purchased in packages, the fact that almost half of the e-books were never used is disconcerting.

Comparing Composite Cost Usage by Subject Areas

Table 6 shows a composite summary of cost-use of the three acquisitions methods, sorted into the three broad subject areas. The Smathers Libraries spent the most funds on STEM e-books (\$304,858) representing slightly more than half (53 percent) of the total amount spent (\$573,493). STEM disciplines also showed the most e-books purchased (10,272), the most usage (75,891), the lowest average cost (\$29.68), and an excellent cost per use (\$4.02). This dominance in expenditures, e-books purchased, and usage can be

Table 6. E-books Purchased Firm Order-PDA-Package Composite by Subject Area

Subject Area	Expenditures	% of Expenditures	No. of E-books Purchased	% of E-books Purchased	Avg. Cost per E-book	Total Uses of E-books Purchased	Avg. Cost per Use	% of Total Usage
Humanities/ Social Sciences	\$177,728.77	30.99	3,592	23.20	\$49.48	21,725	\$8.18	17.21
STEM	\$304,857.89	53.16	10,272	66.35	\$29.68	75,891	\$4.02	60.14
Medicine	\$90,906.43	15.85	1,617	10.45	\$56.22	28,583	\$3.18	22.65
Total = all subject areas	\$573,493.09	100.00	15,481	100.00	\$37.04	126,199	\$4.54	100.00

explained by the fact that STEM disciplines were the recipients of large, often expensive package purchases.

HSS disciplines had the second most funding spent on e-books (\$177,729), and had the second highest number of e-books purchases (3,592), yet the HSS e-books had the least amount of uses (21,725) equating to a mere 17 percent of the total usage. HSS e-books also had the highest cost per use (\$8.18) of the three disciplines. These figures can be attributed to many of the e-books purchased either by firm orders or through packages that went unused in the HSS disciplines, which might indicate that PDA is the acquisitions method best suited for HSS.

MED had by far the lowest amount funding spent on e-books (\$90,906) of the three broad subject areas and fewest e-books purchased (1,617), accounting for a little more than 10 percent of the total e-books purchased (15,481). Much of this can be attributed to the UF Health Science Center Libraries having smaller budgets for e-books in general, with most of their e-books acquired in costly packages. Despite the low funds expended and number of e-books purchased, MED had the second highest usage (28,583). Also, despite the highest cost per title of all the subject areas for e-books purchased on PDA, the MED titles still had the best combined cost per use (\$3.18) figure.

Effect on Collection Development and Budgeting

At the Smathers Libraries, an important strategic objective has been the crafting of new evidence-based budget and collection management policies. The findings of this project are proving to be helpful in planning future strategies. At the beginning of fiscal year 2013–14, steps were taken to reallocate and better utilize e-book budgets in part because of the cost-usage data gathered during this project. These steps are summarized below:

1. For the HSS disciplines, e-books purchased by package or firm ordered revealed a high percentage (approximately 50 percent) of nonuse while the e-books acquired from the PDA plans in the HSS areas show a robust average cost per use. Given that

workflow for firm ordering involves a lot of selector and staff time to select, order, and purchase each e-book individually, the number of unused e-books would indicate that PDA seems the more efficient method for acquiring e-books in HSS disciplines. However, it was also determined that a minimum level of firm-ordered e-books was essential because often the individually ordered e-books are in response to faculty and researcher requests—in a sense “patron-driven”—so firm-order budgets were reduced, not eliminated. This resulted in a significant portion of the e-books budgets used in the past for firm orders in the HSS subject areas being transferred and used for e-book PDA and package purchases.

2. For the STEM disciplines, the vast usage of e-books is revealing about the value of the e-book format for STEM users, but equally important is the relatively low average cost per title (\$26.44) and excellent average cost per use (\$3.61) for e-books purchased in publisher packages. Despite the significant numbers of unused e-books that were acquired in package purchases, the cost-use statistics for STEM e-books show this to be a valid method of acquisitions. It is also recognized that purchasing e-books packages requires much lower overhead in staff time and maintenance because selection is at the collection level, there is a single invoice, and records are batch loaded. The result is that e-book budgets for individual firm orders in the science disciplines were batched by selectors in the Marston Science Library and used to purchase a large e-book package.
3. For the MED disciplines, funding for package purchases is often derived from one-time or carry-forward types of windfall budgets, but since a high percentage of e-books received through package purchases are used (63 percent), and many are used heavily with an excellent final average cost per use (\$2.44), these figures indicate that MED truly benefits from these package deals. Individual e-book firm orders also revealed a high percentage of use and were very cost-effective, but with a relatively small budget, firm

ordering for e-books in MED is not a viable option. As a result, the findings indicate that the UF Health Science Center Libraries had been on the right track in limiting individual firm orders for e-books while using carry-forward or one-time funding to purchase large e-book packages.

The findings of this cost-usage project legitimized the PDA model for acquiring e-books, especially for HSS disciplines. Earlier studies conducted at the Smathers Libraries had indicated that e-books acquired through PDA plans require less staff time and overhead to manage than e-books purchased through firm ordering. In addition, the administration and librarians at UF are staunch supporters of the cost-effectiveness of PDA because e-books are purchased and used. However, there was a legitimate concern that the two Coutts PDAs were not supporting the STEM and MED disciplines as strongly as the HSS subjects, so this problem was addressed with an alternative PDA plan. A good portion of material budgets used in the past for e-book firm ordering were channeled into the creation of several new PDA plans:

- One large PDA project is using existing profiles from the libraries' approval/slip plan established with Coutts to load MARC e-book records into the catalog, making the approval/slip plan "PDA-preferred."
- Noting the cost-usage of the two previous PDA plans with Coutts were HSS-dominant, the libraries established an e-books PDA with another aggregator (EBL) to supply content in the STEM and MED subject areas.
- To take advantage of the quality content and high use of e-books received through packages, and to offset the lost funds for unused titles, the Smathers Libraries have launched three evidence-based acquisitions (EBA) plans in the current fiscal year, two of them focusing on acquiring e-books for the STEM and MED disciplines. EBA plans are an appealing option as publishers will load packages of e-books into the library's catalog for use, but the library purchases only a certain percentage (the higher-use titles) of the package. The assumption is that EBA plans will retain the positive attributes of package purchases (high use, low maintenance) but will no longer require the Libraries to purchase large numbers of unused e-books as part of the agreement.

In addition to funding the number and type of PDA plans, the Smathers Libraries noted the value of purchasing small and large publisher package plans for specific subject areas, and the Libraries still support this mode of acquisitions. One-time funding received by the Libraries at the end of the past fiscal year was used to buy large publisher packages of

e-books in STEM and MED, while other subjects disciplines (e.g., architecture) were supported in smaller scope.

Conclusion

The cost-usage research project conducted at the Smathers Libraries initially set three key objectives for what the data might reveal for e-books purchased by firm order, PDA, or packages, particularly across three broad subject areas. The first objective of the research project was "How does cost-use of e-books purchased in packages, selected using firm orders, and acquired by PDA compare with regard to the methods of acquisitions?" The cost-use data reviewed during the project revealed that e-books purchased in the three acquisitions methods do have differences, and that each method has its place in the collection development strategies of the Smathers Libraries. Firm-ordered e-books may not be as cost-effective as e-books acquired through packages or PDA plans, but the e-books that do get accessed at least once often have significant usage.

The second objective of the project built on the first, "How does the cost-use of e-books as acquired using the three main acquisitions methods compare when sorted by three broad subject areas—humanities and social sciences (HSS); science, technology, engineering, and mathematics (STEM); and medicine (MED), which includes related health and physiology disciplines?" Again, data from the study showed that e-book usage sorted into the three broad subject areas support all disciplines, while cost-usage analyses indicate that e-books received on package purchases and PDA plans support certain subject areas more than others. While package purchases of e-books show effective cost-usage in the STEM and MED fields, the PDAs run on the Coutts' MyiLibrary platform support HSS disciplines more than STEM and MED. Such observations are proving to be useful for UF selectors and librarians in developing more informed acquisitions strategies.

Finally, the third objective of the project may have been the most important of all, "How will this study of cost-use analysis of e-books at UF affect collection development, particularly future e-book initiatives and budget allocation?" As summarized in the "Effect on Collection Development and Budgeting" section of this paper, the cost and usage data analyzed during the project are already affecting collection and budgeting endeavors at the Smathers Libraries. For example, the study showed a spotty cost-usage benefit for e-books purchased by firm orders, and the Smathers Libraries took steps to reallocate material budgets from the purchase of e-books by firm orders and use the funds for PDA and package purchases. Yet, because many of the firm ordered e-books are acquired from faculty and user requests (a type of PDA), the libraries are still allocating funds for

these purchases, indicating firm ordering still has a role in collection development.

The research project showed that each of the three acquisitions methods have positive and negative attributes, and each has its role in collection development. The study provided statistical evidence to apply in the reallocation of budgets for e-book purchases made across subject areas and by varying acquisitions methods. Based on the cost-usage project results as described in this paper, the Smathers Libraries will continue to pilot and explore many patron-driven acquisitions models while making ongoing adjustments to budget allocations that are driven increasingly by evidence-based initiatives. Thus cost-usage and e-book user research needs to be ongoing and applicable when developing collection and budget strategies.

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Value Added

Book Covers Provide Additional Impetus for Academic Library Patrons to Check Out Books

Steven A. Knowlton and Lauren N. Hackert

Publishers attract readers to books and inform them about the books' contents by adding information to the books' covers. In many academic libraries, the dust jackets of cloth-bound books are discarded. This study was a physical inventory of 1,319 recently published books in an academic library, and comparison of circulation statistics between different cover types. By every measure, books with publisher-supplied information on the cover circulated at a higher rate than books with plain covers. The implications of our findings for collection management are discussed.

Sages ranging from George Eliot to Bo Diddley have advised against judging books by their covers.¹ Although the proverb is indubitably correct as prescriptive advice, the question remains whether readers *do* judge books by their covers. Publishers must believe they do, as those firms go to great lengths to provide attractive book covers, with the intention of making “maximal impact on the minds of purchasers.”² In our study, we discovered that academic library patrons check out books with information-bearing covers more than those with plain covers. Just as the covers add value for publishers by attracting readers in bookstores, so do they add value in libraries by engaging readers in ways that catalog entries do not.

Libraries and purveyors of books have each developed unique methods for informing potential readers of the existence, contents, genres, styles, and approaches of books. For libraries, the primary means of informing patrons about books are the metadata contained in catalog records. For publishers and booksellers, the external packaging of books is an important method to alert readers to titles that may be of interest. A book jacket can also signal the currency of a book, both through its physical condition and the style of its design, which can reflect the era of its publication.

Library patrons who rely on catalog records are provided information that is primarily focused on the three categories of information that Charles A. Cutter declared a catalog should contain: authors, titles, and subjects.³

Patrons who rely on Dewey Decimal Classification, Library of Congress Classification (LCC), or other schemes to guide them to a particular topic know only that a book classed at a particular location has some content that caused a librarian to place it in a “convenient sequence of the various groups” of books in the collection.⁴ Although newer additions to the cataloger’s toolkit, including genre and form headings, provide “enhanced resource discovery,” library catalogs are limited in the amount of information about a book they convey to a patron.⁵

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In many academic libraries dust jackets are discarded, leaving a browsing patron to determine the value of the book from the spine and front matter alone. If publishers and bookstores believe there is value to customers in the information conveyed by dust jackets, might academic libraries also find value for their patrons in the same information?

Evolution of the Book Cover

For several centuries after the invention of printing, the purchase of a book did not necessarily include its binding. Printers often distributed loose sheets, which the buyer could have bound in leather or vellum in the style of his or her choosing.⁶ In the 1820s, William Pickering introduced cloth bindings, and in 1832, John Murray developed a method to apply gold-leaf lettering and decorations to a book cover.⁷ These advances allowed publishers to create covers of increasingly artistic design that were intended to appeal to the aesthetic senses of customers, as well as “reflect the contents of the book.”⁸ By the 1880s, such book covers could include full-color designs.

The introduction of cloth bindings, with their attendant problems of wear, led publishers to start covering them with paper jackets for storage. The earliest extant dust jacket dates from 1832.⁹ However, dust jackets were not commonly issued until after 1890, and illustrated dust jackets only became popular in the decade before the First World War.¹⁰ Early dust jackets were plain affairs, often showing only the title and perhaps the author’s name. The first use of dust jackets for advertising purposes listed other titles from the same publisher.¹¹

The flourishing of book jackets in the 1890s led to increasingly creative use of the available space. That decade saw the first printing on the flaps, plus the advent of the blurb, which is “a favorable comment about the book or its author, usually of greater extent than a simple descriptive phrase.”¹² By the beginning of the 1920s, the use of all the surfaces of a book’s cover to attract a potential reader had been perfected.

The development of paper book covers, pasted onto the boards, preceded cloth bindings by a few decades, having become common by 1805.¹³ The earliest paper-over-board covers were purely decorative, with perhaps a title being printed on the spine. By the 1840s, full color printed covers related to the book’s theme had become a regular sight at bookstores.¹⁴ Paper-over-board was restricted largely to popular titles until the development of several styles of sturdy paper resembling cloth in the mid-twentieth century; these “non-woven materials” are “embossed to imitate woven cloth” but can be printed by using the same presses as used for other paper.¹⁵ Nonwoven covers are found on textbooks and have been appearing more regularly on scientific and

academic titles in the last decade. A recent trend is for literary fiction to be bound in paper-over-boards.¹⁶ Such books have no need for jackets, as the promotional and informational material is printed directly onto the paper serving as the book’s cover, and the more durable material requires no extra layer of protection.

Paperback books, which entered the mainstream book trade in the 1930s, were slower to develop elaborate covers. However, by the 1960s, printing techniques had advanced enough to allow “elaborately illustrated” paperbacks to be published economically, and cover designers of paperbacks also made full use of their available space.¹⁷

Advantages and Drawbacks of Information-Bearing Book Covers

For many patrons, there are other considerations in selecting a book that are often left unaddressed by cataloging and classification. Publishers long ago determined that adding metadata beyond those found in catalog records enhances the attractiveness of a book to customers, and have made a practice of including some or all of it on dust jackets of cloth-bound books or the printed covers of paperbacks. O’Connor and O’Connor identified numerous elements commonly found on dust jackets that are only occasionally present in catalog records, including the author’s credentials, the opinions of experts in the field about the book, a summary of the book’s contents, information about the intended audience, and a visual representation of some element of the work.¹⁸ DeZelar-Tiedman showed that dust jacket copy is rich enough in additional data to be helpful to catalogers of fiction, providing access points for character, setting, genre or form, and topic.¹⁹

Readers value the additional metadata on dust jackets: a 2000 study conducted by *Publisher’s Weekly* found that a majority of book buyers indicated that “information printed on the flaps and back cover was very or extremely important” in their decision to purchase a book.²⁰ Towery’s close study of reader interactions with book covers revealed that “art on a cover seems to carry weight with browsers and provides a clue to the viewer not only about content, but about mood and tone.”²¹ Dust jackets have also become the subject of “paratextual” analysis of literature.²² For all these reasons, Bee urges that dust jackets should be subject to preservation programs as much as books.²³

Dust jackets are not without drawbacks. In an early critique, Schlegel, Cummings, and Imberman found that many dust jackets offered misleading information regarding a book’s contents or quality.²⁴ Massey noted that they can be awkward to handle.²⁵ And, despite the average dust jacket’s seemingly infinitesimal thickness of .006 inches, they can add bulk to a collection. Petroski calculated that “to shelve each book with its jacket requires an additional 2½ percent

of shelf space over what would be required to shelve unjacketed books. This is equivalent to an extra book for every 40, and 25,000 books—a fair-sized branch library—for every million volumes in a large university library.²⁶

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Book covers have been studied as objets d'art and as collectibles.²⁷ However, little attention has been paid to the effects that they are intended to achieve as part of a book's publicity campaign: "Covers can act as an attraction or a deterrent, as something that makes us covet or put down again with indifference what we have casually picked up."²⁸ Libraries that have a practice of discarding dust jackets may be losing valuable visual and textual information that will entice users to read an item in the collection.

Several librarians have conducted studies comparing the circulation of books with visually active covers to those without. In 1972, Goldhor determined that public library patrons in Champaign and Urbana, Illinois, used browsing more than any other method to find a desirable book, and concluded that "whatever device induces browsing will increase these patrons' use of the books in question."²⁹ His 1981 replication of the study in Kingston, Jamaica, showed that the presence of a dust jacket was one of the devices that had an effect on patron selection of books.³⁰ In 1990, Lador shared his anecdotal observation from the Bibliothèque Municipale de Lausanne, Switzerland, that books with vivid covers circulated more, but he limited his study to the effects on circulation of placing books in a prominent display location; books on display circulated at a rate ten times higher than books in the stacks.³¹

School librarians have also found positive correlations between vivid covers and circulation. From 1994 to 2000, Maxwell had students at an elementary school in Memphis, Tennessee, re-cover worn books with illustrations of their own design. The re-covered books were three times more likely to be checked out than those with plain cloth covers.³² From Boulder City, Nevada, Muir reported on her informal poll of students browsing a table full of books: "They inevitably picked up the brightly-covered ones first and ultimately said they would prefer to read one of them."³³

A pair of surveys of teen readers of fiction revealed that covers play an important role in their choice of novels. In 2005, Jones surveyed 250 middle school students in Frisco, Texas, who reported that the cover was the most important factor in their decision to select a work of fiction to read.³⁴ In 2011, Miller's survey of 100 middle school students in Grand Junction, Colorado, showed that cover art was second only to a librarian's recommendation in making a decision about which novel to read.³⁵ Most of the circulation studies in school libraries concentrated on works of fiction.

To our knowledge, the only academic library study of circulation related to dust jackets occurred at the University of South Carolina in 2004. Massey tracked fifty books with dust jackets and fifty books without jackets for a year. In that year, "non-jacketed books had an increase of 15%, while the jacketed books had an increase of 54% usage while in the stacks."³⁶ In her follow-up study of patron behavior, Massey discovered that they use the catalog primarily to find what shelf section has books on their topic of interest, and proceed to browse in that shelf section. She also observed patrons "go directly to jacketed books and investigate their contents before looking at the non-jacketed books."³⁷

Massey's study covered a small sample size and limited period, and was restricted to measuring only two types of book covers. Using her basic idea, we tested whether her findings hold true with a larger sample size that includes many types of book covers.

We gathered data from a natural experiment that arose in the Ned R. McWhorter Library at the University of Memphis. Because of decisions made for purposes other than conducting this study, we have books that have retained publisher-generated information, and others that are presented to patrons with plain covers. We examined whether books with dust jackets or other publisher-generated covers circulated at a higher rate than plain-covered books.

Local Situation and Methods

The University of Memphis is a publicly supported research university with more than 17,000 students. The Ned R. McWhorter Library is the main library, with more than 1,100,000 volumes in its stacks. Since the founding of the university's library in 1914, it has been the policy to discard dust jackets of cloth-bound books, and to have paperback books re-bound in plain buckram "library binding." As binding budgets became tighter in the 1990s, many paperbacks were placed in the stacks with their original covers intact. Beginning in 2011, the library adopted two new practices that allowed for more publisher-generated covers to appear in the collection. First, the library began displaying selected "new additions" on a separate shelf near the circulation desk. To enhance the attractiveness of this display, dust jackets were retained by gluing them to the endpapers. When the "new additions" books were transferred to the main collection, the dust jackets were retained. Also in 2011, the library began placing orders for paperback books to be bound at the jobber in such a way that the original covers are visible on the shelf. The chosen binding method is Vinabind, in which a reproduction of the original cover is pasted over new boards.

There are six different types of book covers found in the McWhorter Library collection; they have differing

Table 1. Types of Book in the Turner Library Collection

Cover Type	Publisher-Supplied Information Present?	Binding Type
Plain cloth	No	Hardcover
Dust jacket	Yes	Hardcover
Paper-over-boards	Yes	Hardcover
Paperback with publisher-supplied information (resembling a dust jacket)	Yes	Paperback
Paperback with plain cover	No	Paperback
Vinabind with publisher-supplied information	Yes	Hardcover

Note: In theory, there should be a seventh type, Vinabind with plain cover, but our survey did not discover any actual specimens of this type in our collection

attributes of publisher-supplied information and binding type. Table 1 displays all relevant attributes of books in the collection.

Figure 1 demonstrates the six types of cover and typical metadata available to a patron perusing books on the shelf. To assess whether a particular cover type is more likely to have circulated, we surveyed the batch of recent acquisitions and compared the aggregated circulation figures for each type of book. Our data set consists of new circulating books cataloged since 2011, and their circulation figures. To ensure that the age of the material was not a confounding factor, we limited the data set to books published in 2010 or later, meaning that each book would be relatively recent at the time it was cataloged.

Because our integrated library system does not record what type of cover is on a book, we performed a physical inventory of the books in the data set. Our initial projections about the pace at which we could survey the books were overoptimistic. To speed the project to its conclusion, we limited the survey to books in the following classes of LCC: A, B (including all subclasses), C (including all subclasses), D (including all subclasses), E, F, G (including all subclasses), H, HB, HC, HD, HE, HF, N, NA, QH, QK, QL, QM, QP, and QR. A total of 1,515 books were identified for physical inventory, but 196 of them were not on the shelf; the survey therefore covered 1,319 books. In contrast to most other studies, all the works inventoried are nonfiction.

After sorting by type of cover, we compared the circulation rates of the books surveyed across all the categories listed in table 1. Circulation is difficult to compare between books that have been on the shelf for varying amounts of time. To normalize circulation figures, we calculated the number of years each book had been available on the shelf. We divided the number of circulations by the number of years available to produce a figure that is the number of checkouts per year. If the book had been available for less than one year, the number of years was rounded to one. Additional measures of use were calculated. One was the percentage of books that circulated more than once; another was the percentage of books that had ever circulated.



Figure 1. First row, left to right: Plain cloth cover; dust jacket; paper-over-boards (the material covering the boards wraps around the edges and is glued under endpapers). Second row, left to right: paperbacks with publisher-supplied information; paperback with plain cover; Vinabind (the material covering the boards is applied only to the outer surface of the boards; the white edges show the boards underneath the cover).

Results

Tables 2, 3, and 4 show the circulation for each type of book according to the stated categories. Lines shaded in grey are those categories of books with publisher-supplied information on the cover.

Discussion

By any of the measures shown, books with publisher-supplied information on their covers out-circulated their counterparts with plain covers. The figures do not show a marked difference in outcomes based on binding type, however.

Because the books with dust jackets were initially on display—and display is known to be correlated with higher

Table 2. Books that Circulated at Least Once

Cover type	% Circulating at Least Once	Better/Worse than Avg. (raw %)	Better/Worse than Avg. (% difference)
Average for entire dataset	48.4		
Dust jacket (<i>n</i> = 143)	54.5	6.1	12.6
Vinabind with publisher-supplied information (<i>n</i> = 77)	49.4	1.0	2.1
Paperback with publisher-supplied information (<i>n</i> = 199)	46.7	-1.7	-3.5
Paper-over-boards (<i>n</i> = 266)	46.6	-1.8	-3.7
Plain cloth (<i>n</i> = 610)	43.3	-5.1	-10.5
Paperback with plain cover (<i>n</i> = 24)	29.2	-19.2	-39.7
Publisher-Supplied Information Present			
Average for entire dataset	48.4		
Information present (<i>n</i> = 685)	48.6	0.2	0.4
Plain cover (<i>n</i> = 634)	42.7	-5.7	-11.8
Binding Type			
Average for entire dataset	48.4		
Vinabind (<i>n</i> = 77)	49.4	1.0	2.1
Hardcover (<i>n</i> = 1,019)	45.7	-2.7	-5.6
Paperback (<i>n</i> = 223)	44.8	-3.6	-7.4

Table 3. Books that Circulated More than Once

Cover Type	% Circulating More Than Once	Better/Worse Than Avg. (raw %)	Better/Worse Than Avg. (% difference)
Average for entire dataset (<i>n</i> = 1319)	22.0		
Vinabind with publisher-supplied information (<i>n</i> = 77)	29.9	7.9	35.8
Paperback with publisher-supplied information (<i>n</i> = 199)	24.1	2.1	9.6
Dust jacket (<i>n</i> = 143)	23.8	1.8	8.1
Paper-over-boards (<i>n</i> = 266)	19.9	-2.1	-9.4
Plain cloth (<i>n</i> = 610)	18.4	-3.6	-16.5
Paperback with plain cover (<i>n</i> = 24)	12.5	-9.5	-43.2
Publisher-Supplied Information Present			
Average for entire dataset (<i>n</i> = 1319)	22.0		
Information present (<i>n</i> = 685)	23.1	1.1	4.8
Plain cover (<i>n</i> = 634)	18.1	-3.9	-17.6
Binding Type			
Average for entire dataset (<i>n</i> = 1319)	22.0		
Vinabind (<i>n</i> = 77)	29.0	7.9	35.8
Paperback (<i>n</i> = 223)	22.9	0.9	4.0
Hardcover (<i>n</i> = 1019)	19.5	-2.5	-11.2

Table 4. Average Circulation per Year

Cover Type	Checkouts per Year per Book	Better/Worse Than Avg. (raw %)	Better/Worse Than Avg. (% difference)
Average for entire dataset (<i>n</i> = 1319)	0.45		
Vinabind with publisher-supplied information (<i>n</i> = 77)	0.70	0.25	55.6
Dust jacket (<i>n</i> = 143)	0.50	0.05	11.1
Paper-over-boards (<i>n</i> = 266)	0.44	-0.01	-2.2
Paperback with publisher-supplied information (<i>n</i> = 199)	0.42	-0.03	-6.7
Plain cloth (<i>n</i> = 610)	0.35	-0.10	-22.2
Paperback with plain cover (<i>n</i> = 24)	0.17	-0.28	-62.2
Publisher-Supplied Information Present	Checkouts/Year per Book	Better/Worse Than Avg. (raw %)	Better/Worse Than Avg. (% difference)
Average for entire dataset (<i>n</i> = 1319)	0.45		
Information present (<i>n</i> = 685)	0.48	0.03	6.7
Plain cover (<i>n</i> = 634)	0.34	-0.11	-24.4
Binding type	Checkouts/Year per Book	Better/Worse Than Avg. (raw %)	Better/Worse Than Avg. (% difference)
Average for entire dataset (<i>n</i> = 1319)	0.45		
Vinabind (<i>n</i> = 77)	0.70	0.25	55.6
Hardcover (<i>n</i> = 1019)	0.39	-0.06	-13.3
Paperback (<i>n</i> = 223)	0.39	-0.06	-13.3

circulation—figures counting books with dust jackets that circulated at least once may be artificially inflated compared to the plain-covered counterparts that were never on display.³⁸ However, subsequent checkouts originated from the stacks, so the higher performance of books with dust jackets on the measure of circulating more than once supports our observations stated below.

This study did not include any direct observation of user behavior, but it is probable that the browsing behavior observed by Massey is also occurring in McWhorter Library.³⁹ Patrons who find themselves in the correct section of the stacks for their topic may well proceed to review the publisher's copy on the cover to help them decide whether a book will be useful. The eye-catching designs supplied by publishers may also play a part in drawing the readers' attention.

The eye-catching covers, crucially, make a difference when they are *on the shelves*. Our OPAC and discovery layer usually display a facsimile of the cover for books of recent vintage, regardless of whether the physical copy has retained its dust jacket. If the OPAC display of book covers had the same effect as actual dust jackets, there would be little difference in circulation rates between books with dust jackets and those without. Of course, OPAC cover displays usually include only the front cover, and may have illegibly small

text, making them an inadequate substitute for physical dust jackets.

Jones's study also supports that browsing continues by showing that in most libraries, oversized books shelved separately circulate at a lower rate than books in the main collection.⁴⁰ This phenomenon has also been observed at the McWhorter Library. Many patrons are looking for books in a broad area rather than seeking a specific item, and they may not know about or care to make the extra effort to browse books in a separate set of stacks.

The implications of these findings for collection maintenance strongly support retention of dust jackets, even in academic libraries. If our intention in collection development is to give, in Ranganathan's words, "every book its reader" and "every reader his book," we should avail ourselves of all the tools at hand—even those designed with mercantile ends in mind.⁴¹ Publishers go to great lengths to provide information that will attract readers to books, and evidence shows that readers use that information in selecting materials to check out. Because only about 61 percent of the books identified by a patron in a catalog search are available to check out at the time of the search, providing additional information about similar books shelved near the missing titles will help patrons find *something* of use, even if it is not the specific title that they originally sought.⁴²

Future studies to explore the effect of dust jackets on circulation may wish to sample across all disciplines. Analysis of variance in circulation according to discipline would illuminate user behavior in different areas of study.

To put the question in terms of dollars and cents, a book with a dust jacket will circulate once every two years, while a plain book will circulate once every three years. Retaining the dust jacket reduces the cost-per-use by 33 percent. This more than offsets the additional 2.5 percent of shelving and maintenance costs identified by Petroski.⁴³

At McWhorter Library, we plan to implement a system to retain dust jackets for all cloth-bound books that enter our collection. We expect it will pay dividends in higher circulation and greater patron satisfaction with the browsing experience.

Conclusion

Over the last two centuries, publishers have pursued numerous innovations in book covers to attract the attention of readers and entice them to purchase books. Libraries that discard dust jackets are depriving their readers of a useful tool to supplement catalog records for learning information about the contents, credibility, and appeal of a book.

Our survey of 1,719 recently published books in an academic library showed that books with publisher-supplied information on the covers outperform plain books in several measures of circulation. These findings corroborate those of earlier researchers in school and public libraries, and support the observation that patrons still rely on browsing to find books they wish to read.

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FRBR Aggregates

Their Types and Frequency in Library Collections

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Aggregates have been a frequent topic of discussion between library science researchers. This study seeks to better understand aggregates through the analysis of a sample of bibliographic records and review of the cataloging treatment of aggregates. The study focuses on determining how common aggregates are in library collections, what types of aggregates exist, how aggregates are described in bibliographic records, and the criteria for identifying aggregates from the information in bibliographic records. A sample of bibliographic records representing textual resources was taken from OCLC's WorldCat database. More than 20 percent of the sampled records represented aggregates and more works were embodied in aggregates than were embodied in single work manifestations. A variety of issues, including cataloging practices and the varying definitions of aggregates, made it difficult to accurately identify and quantify the presence of aggregates using only the information from bibliographic records.

Seventeen years after the publication of the Functional Requirements for Bibliographic Records: Final Report (FRBR Report), discussions about the FRBR model have not ceased.¹ Aggregates, which are relatively common, have been a frequent topic of discussion because of their rather vague treatment in the FRBR Report. Aggregates are formed when two or more resources are published together as a unit. Two novels published in a single volume, a book with a foreword, a journal containing many scholarly articles, and a festschrift are examples of aggregates. Varying interpretations of aggregates have surfaced, resulting in a need for clarification.

The approval of the *Final Report of the Working Group on Aggregates* (Aggregates Report) increased the interest in aggregates but failed to resolve all the conceptual issues.² This paper approaches these issues from an analytical perspective. Four main research questions are addressed:

1. What types of aggregates exist?
2. How prevalent are aggregates in library catalogs?
3. How are aggregates described in bibliographic records?
4. Can bibliographic records for aggregates be easily identified?

The goal of this study is to gain a better understanding of both the information about aggregate resources recorded in bibliographic records and the nature of aggregates represented by these records.

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Literature Review

The term *aggregate* is relatively new to the cataloging vocabulary. Neither Chan in *Cataloging and Classification: An Introduction* (2007) nor Taylor in *Introduction to Cataloging and Classification* (2006) include aggregates in their glossaries or indexes.³ However, neither the concept nor the bibliographic description of aggregates is new. Smiraglia points out that, as early as 1876, Cutter recognized that multiple works could be published in a single physical manifestation and that Cutter “advised distinguishing between the case of joint authors of one work [not an aggregate], and two authors of separate works joined in one volume [an aggregate].”⁴

The FRBR Report provided a new way to think about bibliographic entities and a more precise vocabulary. The four group 1 entities, the products of intellectual or artistic endeavor, are defined as

- *Work*: a distinct intellectual or artistic creation;
- *Expression*: the intellectual or artistic realization of a *work* in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms;
- *Manifestation*: the physical embodiment of an *expression* of a *work*; and
- *Item*: a single exemplar of a *manifestation*.⁵

Since aggregates and the group 1 entities are interrelated concepts, any review of the aggregates literature must also include the related FRBR literature.

The FRBR Report was one of the first documents to use the term *aggregate* in the bibliographic context but only briefly discussed aggregates and failed to provide a precise definition. The 2005 workshop *FRBR in 21st Century Catalogues* (FRBR Workshop) is the first known venue that included a detailed discussion of aggregates since the publication of the FRBR Report in 1998. That workshop took place over three days and covered a wide variety of FRBR related topics. The first session was devoted exclusively to aggregates and included presentations by O’Neill, Žumer, Kuhagen, and van Nuys and Albertsen.⁶ The presentations covered a variety of issues: the definition of works and aggregates, approaches to modeling aggregates, the treatment of augmentations, continuing resources as aggregates, and the difficulty of retrieving works published as aggregates.

Although the phrasing and details varied considerably, there was general agreement at the FRBR Workshop that multiple works embodied in a single manifestation form an aggregate. However, following the presentations and ensuing discussion, there was no consensus on either the definition or the modeling. This lack of consensus was due, at least in part, to differing concepts of works. Svenonius notes that

as “critical as it is in organizing information, the concept of work has never been satisfactorily defined.”⁷ Smiraglia provides a comprehensive review of varying concepts of works beginning with Cutter’s views in the 1870s through the views expressed in the FRBR Report.⁸ Without an unambiguous definition of works, the understanding, defining, and modeling of aggregates is problematic.

The publication of the Aggregates Report led to several conceptual papers discussing the report. Žumer and O’Neill’s paper reviewed the manifestation-of-expressions model that was endorsed by the working group; Tillett’s paper described the work-of-works model, which had also been considered by the working group; and Taniguchi’s paper discussed aggregates in the context of RDA.⁹

Revisions to the FRBR Model

At the FRBR Workshop, expressions and aggregates generated lengthy discussions. Because of the questions raised at the FRBR Workshop, the International Federation of Library Associations and Institutions’ (IFLA) FRBR Review Group established a working group on aggregates. The FRBR Review Group had previously established a working group on expressions.

Working Group on the Expressions Entity

The Working Group on the Expression Entity was formed in 2003 and tasked “to clarify the *expression* entity and provide application guidelines through examples.”¹⁰ The working group proposed two major changes to the FRBR Report. The FRBR Report stated, “Any change in intellectual or artistic content constitutes a change in *expression*. Thus, if a text is revised or modified, the resulting *expression* is considered to be a new *expression*, no matter how minor the modification may be.”¹¹ The “no matter how minor” clause proved to be overly strict and resulted in expressions with very minor differences that rarely would be noticed or deemed significant. A detailed comparison of two similar manifestations frequently would disclose some differences, often the result of typesetting errors, spelling differences (colour versus color), or other differences so minor that they would be detected only by a detailed textual comparison.

Recognizing that the “no matter how minor” requirement was impractical and did not serve the users, the working group dropped that requirement and replaced it with “minor changes, such as corrections of spelling and punctuation, etc., may be considered as variations within the same *expression*.”¹² The other change the working group made was to clarify the treatment of augmentations. That change specified that “when an *expression* is accompanied by augmentations, such as illustrations, notes, glosses, etc.

that are not integral to the intellectual or artistic realization of the *work*, such augmentations are considered to be separate *expressions* of their own separate *work(s)*.¹³ It was recognized that not all augmentations are significant enough to warrant distinct bibliographic identification. This change created a new type of aggregate; when combined with original text, the supplemental material formed an aggregate whereas previously it resulted in a new expression of the primary work.

Working Group on Aggregates

The Working Group on Aggregates was formed to evaluate the approaches to modeling aggregates identified during the FRBR Workshop. Specifically, the working group was tasked “to investigate practical solutions to the specific problems encountered in modeling (a) collections, selections, anthologies . . . (b) augmentations, (c) series, (d) journals, (e) integrating resources, (f) multipart monographs, all of which are gathered under the generic term ‘aggregates.’”¹⁴ The fact that the FRBR Report does not clearly distinguish between components and aggregates has been a source of confusion.

To better understand aggregates, the working group collected and discussed numerous examples of aggregates. Various definitions and modeling approaches were applied in an attempt to determine which definitions were most appropriate and which models were consistent with the aggregates examined. While a variety of definitions were explored, the working group focused primarily on two alternative definitions: a broad definition that allowed aggregates to be formed from most FRBR entities based on whole/part relationships and a more limited definition that restricted aggregates to expressions based on the many-to-many relationship between expressions and manifestations shown in figure 3.1 of the FRBR Report. The broader definition would not only allow all four group 1 entities (works, expressions, manifestations, items) to be aggregated but also treat combinations of group 2 (person, corporate body) and group 3 (concept, object, event, place) entities as aggregates. While both definitions have their particular strengths, it was recognized that they were incompatible. While the narrower definition was more restrictive, it was unambiguous and covered all of the resource types that the working group was tasked to investigate. After an extended investigation and discussion, the narrower definition was chosen. An aggregate was defined as “a manifestation embodying multiple distinct expressions” and that aggregates should be modeled as manifestation-of-expressions.¹⁵ This definition does not preclude other groupings based on whole/part relationships but limits the term *aggregate* to manifestations containing two or more expressions.

The essence of the manifestation-of-expressions model is that separate expressions can be embodied in a single

manifestation without creating an encompassing work. When, for example, essays by different authors are published as a collection, it is an aggregate. Each essay is a work, able to stand on its own and is not a component of a larger work. The same may be said for the individual articles contained within a serial issue or volume. It is assumed that structural components, such as chapters of a novel, verses of a poem, or scenes of a play or movie do not form an aggregate; they are identifiable parts of the work and should be modeled as such. A flower is not an aggregate of a stem, leaves, and blossom, and a novel is not an aggregate of chapters.

The *aggregating work* is an important aspect of this model. It is defined as the intellectual contribution of selecting and arranging expressions into an aggregate. The aggregating work has also been figuratively referred to as the glue, binding, or mortar that transforms a set of individual expressions into an aggregation. “This effort may be relatively minor—two existing novels published together—or it may represent a major effort resulting in an aggregate that is significantly more than the sum of its parts (for example an anthology).”¹⁶ It is important to note that the aggregating work does not contain the aggregated works themselves.

The working group went on to identify three types of aggregates: aggregates of collections of expressions (collections), aggregates resulting from augmentation (augmentations), and aggregates of parallel expressions (parallels).

Collections: An aggregate is a collection when it consists of expressions of works of the same type. In FRBR, each such work is labeled as independent. Usually an editor or compiler selects and arranges texts, images, or other expressions of works of one or more creators. Anthologies of poetry or short prose, collected and selected works, and scholarly journals comprised of separate articles are typical examples.

Augmentations: When an expression is complemented by additional distinct content in a manifestation, such an aggregate is a result of augmentation. In FRBR, this additional content is labeled as “dependent.” Illustrations, forewords, introductions, and biographical essays are the most common examples. The additional content may have a title (for example “illustrations”), but the creator usually differs from the creator of the main work.

Parallels: Parallels are manifestations embodying multiple expressions of the same work. They are the easiest to recognize and model. Typical examples include bilingual editions of poetry, multilingual tourist guides, multilingual manuals, etc.¹⁷

Effect of Revisions

The revisions made by the two working groups significantly altered the FRBR model. O'Neill's analysis of *The Expedition of Humphry Clinker* provides a practical example of how the changes affected one particular work. *Humphry*

Table 1. Expressions Originally Identified

Type of Expression	No. of Expressions
Unaugmented	1
Translations	8
Edited	15
Illustrated	13
Edited and illustrated	11
All expressions	48

Clinker, Tobias Smollett's last novel, is a work that has been extensively studied in the FRBR context. It was originally published in 1771 and has been frequently republished. In his 2001 study, O'Neill found 165 bibliographic records and identified 114 distinct manifestations of the work in OCLC's WorldCat.¹⁸ After examining the bibliographic records and, when necessary, an item exemplifying the manifestation, forty-eight distinct expressions were identified. That study did not attempt to identify minor differences, but if the "no matter how minor" criteria had been strictly applied, the number of expressions would have been much higher.

Eight of the *Humphry Clinker* expressions were translations. Excluding the translations, the text of the novel has not changed significantly since it was originally published. All of the other expressions resulted from the addition of introductions, notes, bibliographies, illustrations, and similar augmentations. At least nine different illustrators are known to have contributed to various manifestations. None of the augmentations could be considered integral since many editions are unaugmented and all of the augmented editions were published after Smollett's death. After the Working Group on the Expression Entity amendment, these "illustrations, notes, glosses, etc." became separate works with their own separate expressions. As a result, the number of *Humphry Clinker* expressions dropped from forty-eight to nine: the original English language expression plus the eight translations.

While treating nonintegral augmentations as separate expressions of their own separate works greatly reduced the number of expressions, it created in a new set of works and expressions. The data collected for the *Humphry Clinker* study lacked sufficient detail to reliably estimate the number of expressions and works embodied in each manifestation on the basis of the revised criteria. However, more than thirty different editors and illustrators were identified. Since there were also several unidentified contributors, it is likely that there are many more augmented works. O'Neill's analysis of *Humphry Clinker* revealed forty-eight distinct expressions as shown in table 1.¹⁹ The authors reexamined the original data using the postamendment criteria, and those results are shown in table 2. Before the amendments, all of the

Table 2. Revised Frequency and Type of Works

Type of Work	Frequency
Original English expression	1
Nonintegral illustrations	12
Supplemental text	22
All	35

manifestations were considered to embody the same work. After the amendments, *Humphry Clinker* itself is a single work, but now it is estimated that expressions realizing at least thirty-four different works were embodied with expressions of the main work.

O'Neill observed that there was a wide variation in the significance of the supplemental material and that not all warranted bibliographic description.²⁰ Determining which works are significant is somewhat subjective. Much of the supplemental material, such as a brief dedication, would rarely be considered significant. Illustrations that may not be significant for a literature collection could be significant for an art collection. However, some of the augmentations (introductions, forewords, notes, and illustrations) were extensive and likely to be sought by readers. In many cases, the supplemental materials provided valuable insight into the novel. Presumably these manifestations were acquired largely for their augmentations since there was no obvious need for additional copies of the novel itself.

In estimating the number of works following the revisions, an augmentation was considered significant if its creator was identified in the bibliographic record. There were many manifestations with augmentations for which no editor or illustrator was identified in the bibliographic record. In these cases, it was assumed that the augmentation did not warrant bibliographic identification or description.

WorldCat Sample

To better understand how to identify and categorize aggregates, the investigators collected and analyzed a sample of bibliographic records. The sample needed to be large enough and varied enough to be statistically significant. It was also important for the bibliographic data to be representative of data commonly held by libraries. OCLC's WorldCat database is the world's largest repository of bibliographic metadata. Additionally, since OCLC's primary partners are libraries, WorldCat data reflects the material typically found in library catalogs. Despite its North American bias, these two factors made the WorldCat database an appropriate source of data for this study.

WorldCat bibliographic records are roughly equivalent to FRBR manifestations, and holding symbols are

roughly equivalent to FRBR items. These equivalences are not exact; not all bibliographic records describe manifestations, and holding symbols may represent multiple items. However, making these equivalences does not introduce a significant bias and is acceptable for the purpose of selecting a representative sample.

Drawing a representative sample from a large union catalog such as WorldCat poses some methodological challenges. As union catalogs grow, the proportion of unique resources grows disproportionately. As of January 2015, WorldCat included 333,518,928 bibliographic records, only a third of which had more than a single holding symbol attached, indicating that they were held by more than one library. However, 91 percent of all holdings symbols were attached to a third of bibliographic records held by multiple libraries. Because of the high proportion of manifestations that are either not held by any library or only held by a single library, a random sample of manifestations from WorldCat would not be reflective of a typical library. Two-thirds of the manifestations in such a sample would be unique resources: archival resources, rare books, manuscripts, and other similar materials. Widely held books from major publishers would be significantly underrepresented in such a sample. Few, if any, libraries have collections with such a high proportion of unique materials and an equally low proportion of commercially published materials.

To overcome this bias inherent in a random sample of bibliographic records from a union catalog, the sample was selected so that the probability of a bibliographic record (manifestation) being selected was proportional to the number of holdings (items) associated with the bibliographic record. A record held by two libraries was twice as likely to be included in the sample as a record held by a single library; a record held by a hundred libraries was a hundred times more likely to be included. This weighting ensured that the resulting sample was representative of the collections of OCLC's member libraries at least in terms of the number of type and uniqueness of the resources.

The sample was restricted to English language textual materials to keep it somewhat homogeneous. Specifically, the bibliographic records in sample were limited to the following:

- English language material (008 Fixed-Length Data Elements, Bytes 35–37 = *eng*)
- English language cataloging (040 field, subfield \$b = *eng*)
- Language materials (Leader Byte 06: Record type = *a* or *t*)

The English language restrictions were pragmatic limitations; a close categorization and analysis of the bibliographic records for non-English materials or for non-English cataloging was beyond the investigators' language skills.

Reviewing the Sample

Each of the three investigators independently reviewed the sample and coded each entry as an aggregate or a nonaggregate. The investigators also determined the aggregate type and, when appropriate, added a note explaining why they thought it was an aggregate. The analysis was done in multiple steps. After each step, the investigators compared their results and, if necessary, refined the criteria.

The primary question for the investigators was to determine whether the item was an aggregate and, if so, what type. The guidelines in the amended FRBR Report and in the Aggregates Report were initially used to identify aggregates. As anticipated, the existing guidelines were not precise enough, and the investigators frequently failed to agree on the category. When the investigators differed, they met to review the record and attempt to resolve any differences. Often the differences resulted from one investigator missing something or misinterpreting an element, and these differences were quickly resolved. In other cases, the differences resulted from varying interpretation of the guidelines or, more often, conflicting or incomplete data elements in the bibliographic record.

Determining when a particular part or section of a manifestation is a work or simply part of a larger work proved to be particularly difficult. While the Working Group on the Expression Entity amendment introduced the concept of integralness and made it clear that non-integral augmentations are separate expressions, it failed to clearly define the concept. What does it mean to be integral? What are the criteria? In the case of textual augmentations such as introductions, notes, or essays, it was relatively easy to determine whether they were integral. If the authors of the "main" or primary work are different from those of the supplemental texts or the primary text has been published unaugmented or with different augmentations, then the augmentations probably are not integral.

Deciding whether illustrations were integral proved to be more difficult. To address this issue, the investigators used the illustration codes (bytes 18–21 in fixed-length data elements) and the physical description to identify bibliographic records in the sample that represented illustrated manifestations. From this subset, it was determined that many of the bibliographic records in question were associated with children's literature. A second subset consisting only of children's literature was separately reviewed. Children's literature is extensively illustrated, and it was not initially clear how to determine whether the illustrations were integral. The researchers did not initially agree on the integralness of the illustrations of thirty-five illustrated children's books. This review focused on a specific subset of work types and led to an effort to establish a set

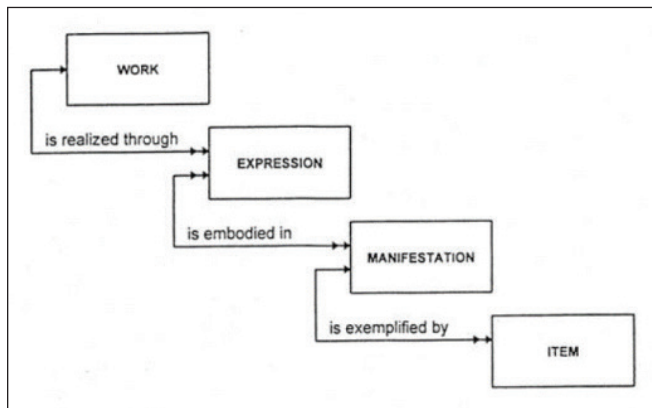


Figure 1. WEMI Hierarchy

of criteria for determining whether illustrations are integral. The issue of integrality, specifically in children's literature, can be difficult to determine in practice because information about the authors' creative process or intent is often unavailable.

After reviewing numerous examples, the authors identified five criteria that were used to determine whether the illustrations are integral to the work:

- the illustrations and the text were created as the result of a collaborative effort
- the illustrations are referred to in the text
- the illustrations were selected by the author for inclusion with the text
- there is a single copyright covering the illustrations and the text
- all known manifestations have the same or similar illustrations

The first criterion acknowledges that many works are the result of a collaborative effort—multiple people working together to create a single work. For example, a physician and a medical illustrator collaborate to create a book on human anatomy. Although the physician and the illustrator played distinct roles, their contributions were coordinated with the intent of creating a single illustrated work. Similarly, many children's books are the result of collaborations between authors and illustrators. In these cases, the illustrations were considered to be integral.

It was frequently difficult to determine whether an illustrated work was the result of a collaborative effort. The second criterion is based on the assumption that if the illustrations are referenced or discussed in the text, they are integral. The FRBR Report is an example of a book meeting the second criterion. As is common with nonfiction works, there are many illustrations in the form of figures, examples, and tables including the frequently

cited group 1 Entities and Primary Relationships in figure 1. The figure is referenced in the text and is an integral part of the work.

The third criterion addresses the case when an author selects preexisting illustrations that were combined with the text. A large number of images are available online from sources such as Getty Images, Flickr, Google Images, and Facebook, plus millions of photographs are available from libraries, historical societies, private collections, etc. An author writing a Cuban travel guide who wants to include a photograph from the Tropicana Club could travel to Havana to take the needed picture. Alternately, the author could select an image from those available online. Considering the wide selection of high-quality images available online, using existing images is a convenient and very attractive option. For historical works, selecting existing images may be the only available option. If the author selects the images, the third criterion is satisfied, and the text and embedded illustrations will form a single work. *Charlevoix's Hotels* (see figure 2) is an example of a book that meets the third criterion. This book provides a historical perspective on hotels in Charlevoix, Michigan, before 1950. The book includes about seventy-five historical photographs, most taken from the Charlevoix Historical Society's collection. The text describing each of the town's hotels is combined with one or more photographs of the hotel. The compilers selected the illustrations and the text and photographs form a single illustrated work.

The fourth criterion concerns copyright assignment associated with the text and illustrations. Copyright assignment provides insight into the relationship between the text and illustrations. If the text and illustrations are separately copyrighted, this could indicate that the illustrations are distinct and are not integral to the text. Copyright can also imply that the illustrations and text were created as part of a collaborative effort. If the text is still under copyright, republishing it with new illustrations would violate copyright unless there was collaboration between the author or the author's agent. Copyright information, particularly as it applies to illustrations, is not consistently included in bibliographic records.

Not all illustrations are integral, and the final criterion, the publication history, can assist in identifying nonintegral illustrations. *Humphry Clinker* is a classic example of a work that has been augmented with nonintegral illustrations. It was originally published without illustrations. Thomas Rowlandson's drawing (see figure 3) was one of the many illustrations subsequently added to augment the main expression. In this case, it is clear that the illustrations were not created as part of a collaborative effort nor did the author select or approve the addition of the illustrations. Therefore the illustrations added to *Humphry Clinker* are separate expressions of separate works.

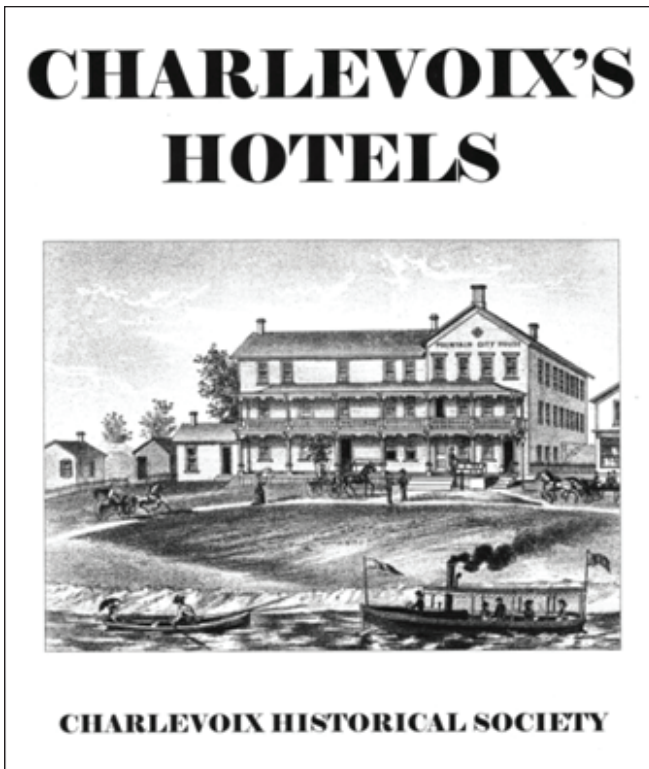


Figure 2. Charlevoix's Hotels

Limitations of Bibliographic Data

It was often difficult for the investigators to determine whether an item was an aggregate since the decisions were initially based on bibliographic records and descriptions. Even when an item was determined to be an aggregate, it was sometimes difficult to determine the type(s) of aggregate on the basis of the information in the bibliographic record. To resolve these problems, some of the sampled items were obtained from local libraries or borrowed through interlibrary loan. This allowed for a manual review of the item and the associated bibliographic record. When it was difficult to obtain the item and hard to determine whether it was an aggregate, other bibliographic records for the same work were reviewed to see if they contained richer bibliographic information that could be used. When inspecting the actual items, the researchers noticed that they often included additional materials such as introductions, which were not included in the record descriptions. This means that the number of aggregates, as identified from bibliographic records, is underestimated.

One of the primary limitations in determining whether a work was an aggregate was the reliance on bibliographic records. The completeness of the records varied widely,



Figure 3. The Expedition of Humphry Clinker

and it was not uncommon to find records with very limited descriptive information. Conversely, other records included a multitude of additional information that was time consuming to review and process. The disparity between these two extremes highlights the inconsistencies that exist in every catalog but are particularly noticeable in union catalogs. To help overcome this problem during the sample review, efforts were made to identify and use additional bibliographic records that could be used to help determine whether the manifestation was an aggregate. These additional records included duplicate records, parallel records (records cataloged in different languages), and sometimes records that represented different editions of the work. Duplicate records were an easy way to compare two bibliographic records and thus construct a more complete bibliographic description. For these records, the information found could simply be combined. This was particularly beneficial when the primary record (the one included in the sample) was less complete than the duplicate. Records cataloged in different languages were also helpful because, as with duplicate records, they often included information that was not included in the English language record.

The final type of records used to help improve the review process were bibliographic records for different editions of the work. Unlike the information found in the previous types of records, it was not appropriate to combine original bibliographic information with information found in records from different editions. Rather, this information was primarily used to determine whether statements of responsibility for illustrations changed. If so, that was evidence that the illustrations were not integral, and consequently, the work was by definition an aggregate. Even though there were means to overcome the deficiencies found in some of the bibliographic records, the

Table 3. Key Attributes

Attribute	Source	Possible Values
Type of resource	Bibliographic level (leader byte 7)	a (monographic component part), i (integrating resource), m (monograph), s (serial)
Number of holdings	WorldCat holdings record	Actual number of holdings
Date of publication	Date1 (bytes 7–10 of 008 field)	Contents of date1
Fiction	Literary form (byte 33 of 008 field)	Yes or no
Juvenile resource	Literary form (byte 33 of 008 field)	Yes or no
Illustrated	Illustrations (bytes 18–21 of 008 field); 245 (c) subfield; 300 (b) subfield;	Yes or no
Brief title	245 (a) subfield	Title proper
Broad subject	Library of Congress Classification	24 broad subject areas derived from the Library of Congress Classification
Genre	Genre	12 general genres
Primary aggregate type	Manual review	Collection, augmentation, parallel
Secondary aggregate type	Manual review	Collection, augmentation, parallel

inconsistencies in cataloging practices posed a problem in judging whether a work was an aggregate.

Analysis

The investigators analyzed bibliographic records and identified key attributes. The key attributes and their descriptions are included in table 3. Most of the attributes were algorithmically extracted from the bibliographic records and recorded in an Excel spreadsheet. The investigators reviewed and edited the extracted information. When the bibliographic records contained inconsistent or missing data, the attributes were manually assigned. The number of holdings was taken from the WorldCat holdings records. The investigators identified the aggregate types by independently reviewing the bibliographic records and, when necessary, examining an item exemplifying the manifestation or a similar manifestation. The investigators visited libraries, borrowed books, and examined items that were available online. Despite a concerted effort, it was not always possible to determine whether certain manifestations were aggregates. Although it is likely that many of the questionable manifestations are aggregates, these were not categorized as aggregates.

It also became evident that a single manifestation could actually represent multiple types of aggregates. For example, a manifestation containing a collection of short stories with a foreword or introduction is both a collection and an augmentation. When a manifestation was a collection that had also been augmented, it was categorized primarily as a collection.

A total of 212 aggregates were identified from the 1,000 records in the sample. This likely underestimates the actual number because, when in doubt, manifestations were not assumed to be aggregates. Collections were the most common type of aggregate and accounted for 73 percent of the primary aggregates. Collections were frequently augmented with notes, introductions, forewords, and other similar textual material; 23 percent of the collections were also augmented. As a primary type, augmentations accounted for 26 percent of the aggregates, with illustrations being the most common type of augmentation. Parallels were relatively rare, accounting for just 1 percent of the aggregates.

Both the frequency and type of aggregates differed considerably for various resource types. Some types—anthologies and scholarly journals—are, by definition, aggregates. Others—comic books and reference materials—are unlikely to be aggregates. Table 4 lists the major types of the items in the sample. Conference proceedings, scholarly journals, and compilations are similar material types consisting of individual articles or papers, each of which is a separate expression of a separate work. Conference proceedings are often collections of scholarly papers from an academic conference and may be described as either monographs or serials. Scholarly journals are serial publications, and compilations are monographs.

Four types of library materials: anthologies, conference proceedings, scholarly journals, and compilations accounted for almost 15 percent of the sample. These four material types are usually aggregates and can contain thousands of distinct expressions. Considering how common these material types are and the number of expressions they contain, far more works are realized by expressions embodied in

Table 4. Aggregates and Material Types

Material Type	No. in Sample	% Aggregates	No. of Collections	No. of Augmentations	No. of Parallels
Anthologies	75	100.0	75	0	0
Archival collections	1	100.0	1	0	0
Children's books	93	8.6	4	4	0
Comic books & graphic novels	4	0.0	0	0	0
Compilations	33	100.0	33	0	0
Conference proceedings	23	100.0	23	0	0
Fiction	98	30.6	0	30	0
Nonfiction	595	4.5	4	21	2
Newspapers & magazines	13	7.7	0	0	1
Reference	39	0.0	0	0	0
Scholarly journals	14	100.0	14	0	0
Transcripts	12	0.0	0	0	0
All material types	1,000	21.2	154	55	3

aggregates than are realized in expressions embodied in nonaggregate manifestations. Fifty-eight percent of the manifestations in the sample were illustrated, but in all but eight cases, the illustrations were considered to be integral.

Conclusion

Aggregates are very common; more than 20 percent of the library resources sampled were aggregates. While some aggregates embody only a few expressions, scholarly journals, conference proceedings, and compilations usually embody a large number of expressions. More works are realized by expressions embodied in aggregates than in nonaggregate manifestations. Despite their frequency, aggregates are not well understood, lack an accepted definition, and are cataloged inconsistently.

This study confirmed the findings of the Working Group on Aggregates, at least for textual materials. Only three distinct types of aggregates were found: collections, augmentations, and parallels. This study went beyond the working group report by estimating that 73 percent of the aggregates were collections, 26 percent were augmentations, and 1 percent were parallels. It was also observed that these three types of aggregates were not mutually exclusive. In particular, a significant number of collections were also augmented.

Reliably identifying aggregates based on the information in bibliographic records proved to be problematic. The two working groups established by the FRBR Review Group clarified many of the issues associated with expressions and aggregates. However, even utilizing the findings of these

working groups, it was found that bibliographic records frequently lack the detail necessary to determine whether the manifestation described is an aggregate; that is, whether the manifestation embodies multiple expressions.

The FRBR Working Group on the Expression Entity introduced the concept of integralness by stating that augmentations that are not integral to the intellectual or artistic realization of the work are separate expressions of their own separate work. While the guidelines provided by the working group for determining the integralness were generally adequate for textual augmentations, they did not provide sufficient guidance for illustrations. To assist in determining the integralness of illustrations, the authors proposed five criteria.

The ease of identifying aggregates varied considerably. Collections and parallels were generally easy to identify, but augmentations were more problematic primarily because of the difficulty of determining whether the supplemental material, particularly illustrations, was integral to the work. Evaluating the significance of augmentations is highly subjective, and their significance varies widely. Many augmentations were not considered significant enough by the cataloger to be explicitly identified or described and were discovered only when the publications were examined. Some, such as a simple dedication, rarely warrant bibliographic description. Others, such as extensive notes or comments, are often sought by readers and do warrant bibliographic description.

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Book Reviews

Elyssa M. Gould

RDA and Cartographic Resources. By Paige G. Andrew, Susan M. Moore, and Mary Larsgaard. Chicago: ALA Editions, 2015. 152 p. \$62.00 softcover (ISBN: 978-0-8389-1131-0).

The implementation of Resource Description and Access (RDA) has inspired much recent cataloging literature, which has been largely focused on understanding and employing RDA in general.¹ Now that the initial shock has worn off, and catalogers have become more or less familiar with the basics of RDA, the need for more specific how-to manuals such as this one can begin to be met. Devoted entirely to cartographic resources, this book offers a focused look at how RDA will affect the cataloging of cartographic resources, complete with useful examples and explanations. All three authors are experienced and distinguished catalogers of cartographic resources, and as a result, this book is practical in nature, using theory only to explain the reasoning behind the changes introduced by RDA.

The book focuses on examining the similarities and differences between cataloging cartographic resources using the Anglo-American Cataloging Rules, Second Edition (AACR2) and using RDA.² It is not written for complete beginners, as it assumes knowledge of AACR2 and some experience cataloging cartographic resources. The authors also recommend familiarity with previously published manuals such as *Cartographic Materials: A Manual of Interpretation for AACR2* and the Library of Congress's *Map Cataloging Manual*.³

The book is short and to the point, and chapter 1 sets the tone with a brief introduction to RDA and an even briefer history of cartographic resources cataloging. Chapter 2 provides the requisite discussion of Functional Requirements for Bibliographic Records (FRBR) work, expression, manifestation, and item (WEMI) entities, which one would expect to find in a book about RDA. Fortunately, the authors forgo a general overview and concentrate on how the WEMI model applies to cartographic resources. To help catalogers determine where to draw the line between work and expression, a list of attributes unique to cartographic resources are provided, such as coordinates and equinox (which are attributes of a work) and scale and projection (which are attributes of an expression). Furthermore, specific examples are given to illustrate which attributes of a cartographic resource can differentiate expressions and manifestations of the work.

Chapters 3 and 4 are the heart of the manual and are where catalogers would turn with specific questions about

how to apply RDA rather than AACR2. Chapter 3 is an overview of similarities and differences between cataloging cartographic resources in AACR2 and RDA. It begins with a field-by-field outline of what remains the same in RDA, a reassuring strategy for those who may be feeling overwhelmed. While continuing to emphasize that the difference in applying AACR2 rules and RDA instructions is minimal, it then offers an overview of concept-level differences between the two standards, such as sources of information, the “take what you see” principle, and core elements, some points of which are clarified using cartographic cataloging examples. Changes in the use of abbreviations and square brackets in RDA are described as “continuing but different practices” (37) and are addressed in this chapter.

Chapter 4 goes into detail about how to apply RDA instructions when providing descriptive information about cartographic resources. This section is organized by MARC field, making it easy for a cataloger with a specific question to consult this guide for advice. The depth of explanation for each field depends on the complexity of the field and the complexity of the RDA instructions applicable to it. For each MARC field covered in this chapter, the corresponding RDA instructions are cited, which is useful for those who are still learning to navigate the layout of RDA. The extensive examples and occasional illustrations, all of which are specific to cartographic resources, are also useful for identifying and addressing common issues in the application of RDA instructions. New instructions for familiar MARC fields, such as 245 and 300, are explained, and new fields, such as 264 and 336, 337, and 338, are thoroughly introduced. The strength of this chapter and of this book is its specificity; not only are all examples directly applicable to cartographic resources cataloging, but also a significant portion of the chapter is devoted to MARC field 255, cartographic mathematical data, which is not likely to be addressed in more general RDA manuals.

Chapter 5 is a brief conclusion to the book, letting the contents of the middle chapters speak for themselves. The seven appendixes, however, are more noteworthy than the final chapter, offering yet more samples, examples, and checklists to aid the practical cataloger.

Written by cartographic resources catalogers for cartographic resources catalogers, this book is most useful and effective for those who are ready to catalog a resource using RDA. As a practical manual, it is a valuable addition to the RDA canon because of its focused and thoughtful coverage of cartographic resource-specific concerns. Because RDA

is a new standard that is continuing to evolve, it is impossible to capture within one publication all of the changes that have been made from AACR2 or the changes that have occurred within RDA since its implementation, even when focusing on one type of resource. This book makes a good start, however, and cartographic resources catalogers will find it addresses most of their questions about cataloging with RDA.—*Laura Evans (evans@binghamton.edu), Binghamton University, Binghamton, New York*

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After the Book: Information Services for the 21st Century. By George Stachokas. Kidlington, UK: Chandos, 2014. 210 p. \$80.00 softcover (ISBN: 978-84334-739-2).

Both inside and outside of the library, the use of print information objects declines while the use of electronic information objects escalates. This phenomenon and how libraries respond to it should be the chief concerns of librarians going forward, according to author George Stachokas. Stachokas argues that nearly everything about the practice of current librarianship is rooted in “the print era” and is therefore “intrinsically linked to the physical library” (35). Given that society “increasingly abandons print” (1), librarians face the daunting task of reshaping themselves and their profession; otherwise, they “risk the problem of seeming and becoming obsolete” (36). Stachokas warns, “Those who manage information in the so-called information age do not really have the luxury of clinging to the past” (39). He proposes that libraries move away from print resources altogether and become fully electronic.

Stachokas understands the value of the profession, even in this information age. He does not want librarians to become obsolete and believes the possibility to be thoroughly avoidable. In *After the Book*, he lays out a three-part roadmap to the fully electronic library. Chapter 4, “Solving the Problem, Part 1: Professional Identity and Preparation,” calls for root-and-branch education reform in library and information science (LIS). Though he acknowledges a few exceptions, Stachokas paints LIS higher education with a broad brush. He calls the MLIS and its equivalents “too

simple to earn” (55) and claims that classroom learning does not “[reflect] the full range of actual practice” (14). LIS education should create information specialists rather than generalist librarians, asserts Stachokas, and librarians of the twenty-first century should specialize in areas relevant to the current profession. Such areas include technical support, evaluating emerging technology, human-computer interaction, metadata creation/curation, analytics, informatics, and information law. Developing a “new professional culture” (65) within LIS education will allow graduates to go directly to their markets and serve users at the point of need.

This final point leads straight into the argument presented in chapter 5, “Solving the Problem, Part 2: Reorganizing the Library to Serve Users.” Here, Stachokas dismisses the idea that the library as an entity is inherently tied to a physical place. In the first chapter, “The Challenge of Electronic Resources,” Stachokas claims rather that the twenty-first-century library “retains its importance as an organizational unit, not as a building or physical facility” (14) thanks to his idea that libraries “exist to provide services based on information” (36) rather than information objects themselves. Given these assertions, the need for reorganization becomes apparent.

Stachokas stresses that this reorganization will dramatically benefit library users. Studies show that over the last fifteen years the circulation of print materials in libraries has been on a steady decline, while the use of the library’s electronic resources has risen exponentially (23). This trend is not limited to academic repositories. The book retailer Borders closed its doors in 2011; conversely, the e-book is the “fastest growing segment of the market for overall book sales” (27). For Stachokas, it is clear that “what is not available in [electronic] format must become electronic in order to be useful” (79).

In light of this information seeking behavior, librarians—no longer tied to physical spaces or objects—will embed themselves where their markets are: in schools, malls, community centers, and law offices. Organizational units of librarians will be embedded in some cases; in others, a single librarian will suffice. Whether their units are made up of one or many, Stachokas’s twenty-first-century librarians are meant, with the electronic resources at their disposal and with their technological know-how, to individually fill the role of the twentieth-century physical library. Of course, this level of reorganization is the end game, and Stachokas recognizes that such a shift will not come all at once. Furthermore, he acknowledges, some institutions, such as universities that place emphasis on a particular discipline, will continue to require some sort of physical space for library operations.

Librarians will require novel survival strategies in the brave, new world of fully electronic libraries. Stachokas outlines a few in chapter 6, “Solving the Problem, Part 3:

Adapting to Scarcity.” In this information age, the ratio of the total amount of information created to the amount of available library collection space will continue to shrink. Librarians need to be “more selective in identifying what information should be included in or defined as part of their own unique collections and what should be left to other information service providers” (131). The rapid rate at which information is created and acquired entails a “scarcity of information about information” (131), and librarians will need to adopt new approaches to metadata.

Additionally, ever-tightening economic constraints result in a scarcity of financial resources for libraries. For libraries to thrive in times of scarcity, Stachokas believes they must remain flexible, ready to quickly adapt to changing user behavior and to experiment with new technologies. He sees consortia as one way of mitigating economic scarcity. Library consortia can pool funds to pay for information access and IT infrastructure that individual members cannot afford on their own. Implementation of patron-driven acquisition and acquisition on-demand programs can ease the aforementioned selection problem and ensure that library collections remain relevant to user needs. Consortia have the opportunity to use their platforms to “[combat] commonly held misconceptions about open access” (141), to calm the fears of academia and to eventually reduce journal subscription costs.

After the Book outlines quite a radical transition for libraries, one that even Stachokas admits many libraries either will be slow to begin or, perhaps, may not be able to begin at all because of financial constraints, lack of qualified personnel, or other reasons. Libraries that serve large numbers of disabled users will not be able to act on Stachokas’s advice because of usability concerns. Such a hard shift will also require a good deal of administrative support that may be difficult or impossible to obtain. Libraries may encounter opposition to his proposed changes, from both librarians and nonlibrary administrators, for reasons ranging from lack of financial resources to a fear of technology. While Stachokas delves deeply into what libraries need to do to continue thriving in the twenty-first century, he does not have much to say about the real-world feasibility of his proposal. Should some libraries move forward with abandon while others lag behind? If so, this may create an unnecessary division between libraries (electronic haves and print have-nots) reducing the commonality between librarians. For that matter, will the heavy specialization suggested above be worth the trade-off of partitioning the profession and possibly diminishing the professional community between librarians? And what should be done in situations where fiscal concerns are a severely limiting factor? These are all big questions that will have to be dealt with if anything like Stachokas’ vision can come to fruition.

Of course, Stachokas states upfront that his treatise “is not intended to answer all possible questions about how to make a successful transition to a more purely electronic library . . . but it should inspire critical thought and discussion about how to get started” (17). And on these terms, *After the Book* is wildly successful.—Chuck Hodgin, (chuck.hodgin@belmont.edu), Belmont University, Nashville, Tennessee

Preserving Complex Digital Objects. Ed. Janet Delve and David Anderson. London: Facet, 2014. 375 p. \$115.00 softcover (ISBN: 978-1-85604-958-0).

Digital preservation efforts share many of the goals, ethics, and priorities of analog preservation but incorporate distinctive vocabulary, technology, and methodology.¹ “Complex digital objects” are objects defined as simulations and visualizations, gaming environments, and software-based art (xii). By definition, these objects contribute additional layers of complication to preservation. These are the focus of *Preserving Complex Digital Objects*.

This compendium offers a print record of the papers presented during the POCOS (Preservation of Complex Objects Symposia) project (three symposia held, respectively, in London, Glasgow, and Cardiff in 2011 and 2012) and concludes with “pathfinder solutions” (a summary and analysis of symposia presentations leading up to proposals for future initiatives).

As they note in their introduction, editors Delve and Anderson strive to represent the many stakeholders having an interest in complex digital objects, i.e., game designers, artists, and historians. The multifaceted structure they develop successfully anchors these diverse groups and charts a course for an initial exploration of the advanced digital preservation issues such items pose.

The volume’s forward (by the head of digital scholarship at the British Library, Adam Farquhar), and preface (by the head of resource discovery at JISC (www.jisc.ac.uk), Neil Grindley), offer a rationale for the POCOS project in general and for this publication in particular. These are followed by an annotated list of contributors and a separate glossary of acronyms (helpful to all readers, but especially useful to those beginning to study digital preservation).

The introduction considers the nature and composition of “complex objects” discussed in the forward and the intricate processes their preservation requires. Delve and Anderson use these observations as an armature on which to build the book’s framework of six sections. The first section, “Why and What to Preserve: Creativity versus Preservation,” presents theoretical and historical considerations from the perspectives of game development, archival philosophy, and digital artwork construction. “The Memory Institution/Data Archival Perspective” offers the administrative perspective on complex digital object preservation through

two institutional illustrations: the Archaeology Data Service (ADS) and the National Video Game Archives, a museum/library partnership, and concludes with a reflection on the current and future “preservation landscape as it applies to digital objects” (91). The third section, “Digital Preservation Approaches, Practice and Tools,” gives practical solutions to current concerns. It is the largest category, with three subgroups: “A Good Place to Start: Software Preservation,” “Tools and Techniques,” and “Metadata, Para-data and Documentation,” each of which include several related articles. “Case Studies” presents four examples for the reader’s consideration: a “born-digital” project, an interdisciplinary reflection on needing change for growth, a discussion of the effects of archiving software and content in visual film, and a documentation of considering interactive artworks within the context of performance. “A Legal Perspective” identifies several issues involved with copyright and digital preservation, notes lessons learned from legal studies commissioned by the KEEP Project, and provides information-technology-industry observations on information digital security. The final section, titled “Pathfinder Conclusions,” provides the editors’ succinct yet thorough summary of topics addressed, articulates needs from a publisher’s standpoint, and makes recommendations regarding future JISC projects involving complex digital objects.

This structure, with the exception of the catch-all “Case Studies” section, renders the material accessible to newcomers and digital preservation veterans alike, and reflects a thoughtful consideration of the material and of the audience to whom it is being directed. Reformatting a group of presentations from three separate but related symposia offers editors the opportunity to provide readers with previously unavailable information, i.e., author biographies, references and notes, an acronym glossary, and the Pathfinder Solutions. However, it does pose several serious challenges. One potential problem is that publishing presentations from 2011–12 on a topic with rapidly evolving content may not provide up-to-date, useful information. Although recent

scholarship investigates new and developing topics regarding the preservation of complex digital objects, the issues presented in this volume represent significant benchmarks in the field’s history.²

Maintaining the visual and auditory effect of the original media can prove difficult. Happily in this case, videos of the presentations are available.³ Access to these videos greatly enriches this volume’s content. Finally, the translation of these lectures into print could have resulted in a mash-up of seemingly unrelated and unrelatable presentations. The editors’ thoughtful, nuanced organization—this volume’s most outstanding feature—easily manages this challenge.

Preserving Complex Digital Objects successfully achieves Grindley’s hoped-for outcomes of providing a context for understanding, managing, and addressing significant issues, as well as promoting further research (xii).—Ann Kearney (akearney@albany.edu), University at Albany, Albany, New York

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