Cost-Effective Collection Development in the Digital Age:

Considerations for Academic Libraries

Are print or electronic books the most economical option for academic libraries? A major challenge for academic libraries in the digital age is how to conduct cost-effective collection development when the prices of information resources are high and rising, and the size of library budgets are flat and shrinking. *Merriam-Webster Dictionary* defines *cost-effective* as "producing good results without costing a lot of money."[1] The college or university librarian frequently encounters the question of cost-effectiveness when attempting to identify and purchase as many high-quality books as possible to adequately support the academic programs at his or her institution. Inevitably, the question dissolves into the practical dilemma of whether the library should acquire the print or electronic version of a certain book to satisfy the needs of students and faculty.

On one hand, a print book provides the reader with visual and tactile engagement with its content and often can be purchased at a discounted price through online retailers like Amazon. Nevertheless, the same print book must be physically ordered, prepared, and stored on a library bookshelf before a reader can use it. On the other hand, an electronic book provides the reader with visual and audible engagement with its content, and it can be remotely accessed by one or more readers simultaneously through online databases such as ProQuest. Moreover, the same electronic book can be digitally ordered and stored online and consequently made available to a reader in a relatively short time.[2]

Given the different qualities associated with print and electronic books and the varied processes involved in making them available to readers, it would appear that electronic books have an advantage over print books, and academic librarians would favor them in acquiring high-quality books to support academic programs at their institutions. However, as this article will demonstrate, there are two significant issues in collection development—price and availability—that continue to make print books the most cost-effective option for many academic libraries in the digital age.

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Defining Collection Development

Collection development is the process used by academic libraries to identify, select, and acquire information resources to support their institutions. These resources include books, journals, videos, music, and other content that are purchased, licensed, or otherwise obtained to support their academic programs.[3] The process involves reviewing and evaluating various information resources to consider whether they meet the teaching and research needs of the fields, degrees, majors, faculty, and students of a particular institution. In this sense, collection development is concerned with what *subjects* (e.g., art, sociology, biology) should be acquired by the library.[4]

However, collection development is also concerned with what *formats* (e.g., books, DVDs, databases) a library acquires. This process often involves considering several content mediums and determining which enable the library to best support the curriculum and ensure that information is readily accessible to students and faculty.[5] Typically, this requires the library to weigh many factors, including the following: [6]

Audience – Who at the educational institution are expected to use and be supported by the information resources? Are they students, teachers, administrators, others? For example, it would not be particularly helpful to subscribe to print nursing journals to support an exclusively online nursing program.

Preference – What kind of format is preferred by the audience? For instance, English majors may prefer to borrow and read print literature books and selections rather than accessing them online or reading them on their computers.

Features – Are special features available with one format that are not included with a companion or different format? For example, many online encyclopedias have citation tools that are not available with their printed versions.

Affordability – Which type of format will be most affordable for the library? For instance, it might be cheaper to purchase a print copy of a nonfiction book that is a *New York Times* bestseller than to purchase an electronic copy.

Availability – Are the information resources available in the preferred format? For example, some educational films may not be available for purchase through a library's streaming video service, but only as DVDs.

As suggested by the factors above, academic libraries in the digital age are frequently confronted with the critical and unavoidable question of

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whether they should acquire physical or digital information resources to effectively support their institution. For many, nowhere is this question more apparently and commonly manifested than in their dilemma about whether to acquire print books or electronic books.

Acquiring Print Books

Libraries in the United States have been buying and otherwise acquiring print books (hereafter called "p-books") for their patrons for nearly 200 years. During this time, the qual-ity and availability of p-books has improved substantially along with the development of modern printing and retail methods. However, the manner of acquisition has remained essentially the same. In most cases, the p-books were donated to or purchased by the libraries.[7] When p-books were purchased, libraries usually acquired them directly from book publishers, book retailers, or book jobbers—wholesalers who purchased p-books on behalf of many libraries for a fee while offering the libraries discounts and other incentives.

With the advent of the Internet and the development of online shopping within the past 25 years, libraries in the United States increasingly began to purchase p-books online. What incentivized them to do so besides the efficiency of e-commerce were the prices and availability offered by giant online bookstores such as Amazon. Budget-conscious libraries received competitive discounts on p-books, free shipping on minimal orders, and faster and more reliable order fulfillment, compared with traditional sources.[8] During this period, libraries continued to purchase p-books from publishers and jobbers, but a transformation occurred in the nature of these transactions. Due to the pervasive force of e-commerce, the publishers and jobbers were also compelled to sell their products and services online. And because of the market dominance and discounted pricing of Amazon, they were often required to reduce their p-book prices to satisfy the giant or compete and retain customers.[9] The result of these developments—"the Amazon effect"[10]—is that many academic libraries are acquiring p-books at significantly lower costs than in the past.

Acquiring Electronic Books

In contrast to p-books, libraries in the United States have been buying and otherwise acquiring electronic books (hereafter called "e-books") for only about 20 years. Although the concept of an e-book had been in exis-

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tence since the early 20th century and the first e-book was created by Project Gutenberg in 1971, libraries did not begin to provide access to this format until nearly the close of the century.[11] A pioneer in this effort was netLibrary, a private company that was eventually acquired by OCLC, the nonprofit library cooperative. netLibrary was an online database of full-text e-books that included works in the public domain and for sale by major publishers. With its content available to libraries by subscription and inclusion of special features like an integrated dictionary, netLibrary had many of the qualities that are now standard with e-book databases.[12]

Despite such efforts, the use of e-books by libraries, especially academic libraries, remained low or stagnant at the start of the 21st century.[13] A major factor that changed this circumstance was the rapid development of information technology that promoted and popularized e-books.

These included the Sony Reader, Amazon Kindle, and Barnes & Noble Nook, which enabled anyone to easily download e-books for free or for a fee.[14] Consequently, the demand for e-books at public, school, and academic libraries grew as these devices permeated society and were adopted for education and entertainment. This encouraged book publishers and retailers large and small to partner with online database vendors like Over-Drive and EBSCO to sell or license their content to libraries and enable e-book lending by libraries.[15] In recent years, many book publishers have also bypassed online retailers and database vendors and sold their e-books directly to libraries.

E-Book Acquisition Methods

For academic libraries, there are typically three ways to acquire e-books from vendors and publishers. The first is *á la carte.* As with p-books, this method simply involves selecting and buying one or more desired titles from the online catalog of e-books offered by the content provider. The e-books are then activated and made accessible to library patrons through the associated online database. An advantage of this approach is that libraries can purchase only the titles they need. A disadvantage is that often libraries have limited funds and need more than they can afford to support their institutions.[16]

The second method is bundled collections. With this approach, publishers and vendors package hundreds or thousands of titles into collections by subject, theme, or other categories and then provide libraries access to the e-books by subscription through an online database. The e-books are not actually owned by the libraries, but are essentially leased for a time, usually a year. One advantage of the bundled collection over the *á la carte* method is that a library can lease a much greater quantity of e-books for a set price than it could otherwise buy. However, a drawback is once the subscription ends, the library loses access to those e-books.[17]

Finally, the third way is demand or patron driven. With this approach, the publisher or vendor provides the library with complete access to a large pool of e-books, and the library is obligated to purchase only the titles that are in high demand by its patrons, based on their requests for or usage of the titles. Demand-driven acquisition is the newest of the three methods, and the jury is still out regarding its long-term effectiveness. It has appeal because libraries pay only for what their patrons use. The downside is this approach can transfer a degree of control over collection development decisions from librarians to patrons.[18]

E-Book Issues and Challenges

While the growth and development of e-book technology and markets has created a wealth of collection development options for libraries, the changes have brought their own unique issues and challenges. Those of particular note are e-book availability, terms, and prices.

Many titles that are available as p-books are simply not available as e-books. In some cases, the titles may be produced by small publishers that do not have the capacity to create e-book versions of their p-books. In other cases, the publication of an e-book version of a title might be embargoed or postponed by a publisher to encourage its p-book sales.[19] This is a strategy that some major publishers have used because they fear that enabling the public to have access to new releases through e-book databases at local libraries will undermine their p-book sales.[20]

A related issue is the terms that publishers and vendors often place on the use of e-books by libraries. Usually, an e-book—whether purchased or licensed—has restrictions regarding how many library patrons can simultaneously open and view it. The restrictions typically range from one to three to an unlimited number of users and are technologically enforced. If a library buys an e-book from a vendor, it can expect the price

to be tiered based on the number of concurrent or simultaneous users desired. In a more draconian twist, some major publishers limit the number of e-books a library can own, cap the number of times they can be used, and program them to expire when their usage limits have been reached.[21]

Price is one of the most significant issues that libraries must consider with regard to purchasing e-books. This is because as a rule they can expect to pay more to acquire titles as e-books than as p-books.[22] While there are many and complex factors involved in pricing books, the practice of pricing e-books higher is partly driven by publishers' fears of losing revenue due to cutthroat competition. Thus, they continue to exercise tight controls over what entities can sell their e-books and at what prices to prevent a repetition of the "Amazon effect" that forced them to lower their p-book prices.[23] This means the prices vendors set for e-books are often dictated by publishers.

Cost-Effective Collection Development

For an academic library in the digital age, decisions about whether to purchase p-books or e-books must consider the processes and concerns of collection development and the methods and issues associated with acquiring each format. However, for many budget-conscious libraries, it is a decision that all too often hinges more on what is practical than on what is preferred. In other words, they of necessity choose the format that is most cost-effective as defined above: "producing good results without costing a lot of money."[24] In terms of their goal of supporting the academic programs at their institutions, cost-effectiveness can mean purchasing as many high-quality books on a subject as possible while remaining within budget. In fact, this article will demonstrate that because of the price and availability issues associated with e-books, p-books continue to be the most cost-effective collection development option for many academic libraries.

Research Method and Findings

To illustrate this point, I compared the prices of the print and electronic versions of more than 300 English-language titles that were purchased as p-books for the Weis Library on the campus of Washington Adventist University (WAU) in Takoma Park, Maryland, U.S.A., from Fiscal Year 2018 to Fiscal Year 2020. Specifically, I selected 321 titles that were published between 2016 and 2018 and were actually purchased by the library—either as hardcover or paperback books. For each title, I recorded the price the library paid for the p-book version and the price the library would have paid had it purchased the e-book version. The p-book prices were obtained from Amazon, an online retailer, and Pacific Press, a publisher owned and operated by the Seventh-day Adventist Church. The e-book prices were obtained from EBSCOHost Collection Manager, the online store for the EBSCO e-book databases held by the library. For each e-book, the price recorded was for access by one user at a time.

The price comparisons revealed three important findings about cost-effectively acquiring books: First, there is a great disparity between the prices academic libraries can expect to pay for p-books and e-books. Second, a notable number of titles that are available as p-books are simply not available as e-books. And third, a library that purchases e-books exclusively can expect to pay substantially more money for significantly fewer titles than if it purchases p-books exclusively.
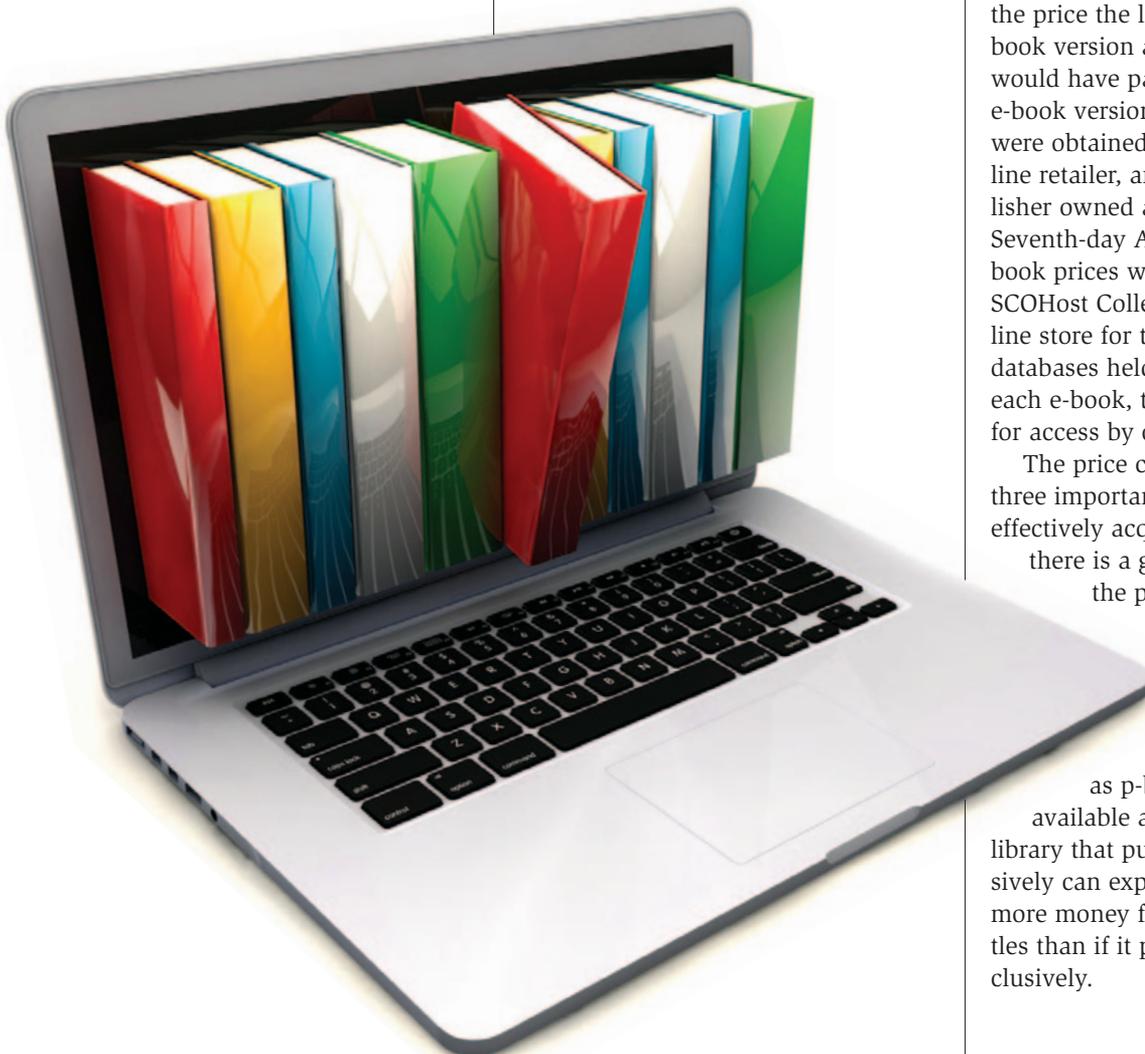
Book Prices and Availability

As Table 1 shows, the total amount the Weis Library administration paid for the 321 p-books was US$10,254.32. Of the 321 titles purchased as p-books, 205 titles were also available as e-books. In other words, 116 titles were *not* available as e-books. Nevertheless, the total amount needed to purchase the 205 e-books was US$17,138.80—which is US$6,884.48 or 67 percent more than the cost of the 321 p-books. Thus, the library would have paid 67 percent more money for 36 percent fewer titles had it exclusively acquired e-books rather p-books.

Moreover, of the 205 titles available in both formats, the e-book was more expensive than the p-book 193 times. The p-book was more expensive than the e-book only five times. And the price for both formats was identical only seven times. On average, the price of the e-book was US$54.01 more expensive than the price of the p-book for the 193 titles. Meanwhile, the price of the p-book was US$11.40 more expensive than the price of the e-book on average for the seven titles.

The above findings apply not merely to the total quantity of titles analyzed by the author. They also apply to subsets of the 321 titles that were classified and analyzed by academic discipline. As also shown in Table 1, these include English, healthcare administration, history, nursing,

Table 1. Weis Library FY2018-FY2020: P-book and E-book Prices and Availability

Book and E-Book Prices and Availability	TOTAL	ENGL	HCAD	HIST	NURS	PSYC	RELG	SDAV
Number of titles that were available as p-books	321	65	17	75	30	45	55	34
Number of titles that were available as e-books	205	45	13	52	16	35	43	1
Number of titles that were not available as e-books	116	20	4	23	14	10	12	33
Total cost of titles that were available as p-books	$10,254.32	$1,446.09	$896.37	$1,808.39	$2,191.86	$1,909.33	$1,307.84	$694.44
Total cost of titles that were available as e-books	$17,138.80	$3,301.40	$1,425.79	$3,796.22	$2,194.56	$3,751.82	$2,584.01	$85.00
Difference in total cost of e-book and p-book titles	$6,884.48	$1,855.31	$529.42	$1,987.83	$2.70	$1,842.49	$1,276.17	-$609.44
Greater cost incurred when purchasing only e-books	67%	128%	59%	101%	0%	96%	98%	0%
Fewer titles available when purchasing only e-books	36%	31%	23%	31%	47%	22%	22%	97%
Number of e-books more expensive than p-books	193	43	11	50	16	29	43	1
Number of p-books more expensive than e-books	5	1	1	2	0	1	0	0
Number of p-books and e-books with identical prices	7	1	1	0	0	5	0	0
Average higher cost of e-book titles over p-book titles	$54.01	$52.98	$58.07	$51.21	$66.22	$77.83	$36.45	$63.03
Average higher cost of p-book titles over e-book titles	$11.40	$1.00	$5.00	$20.49	$0.00	$10.01	$0.00	$0.00

Key:

English (ENGL), Healthcare Administration (HCAD), History (HIST), Nursing (NURS), Psychology (PSYC), Religion (RELG), Adventist (SDAV)

psychology, religion, and Adventist books.

Washington Adventist University library administration purchased 65 p-books to support the English department between FY2018 and FY2020, including both fiction and nonfiction titles. Those p-books cost the library US$1,446.09. Of the 65 English titles purchased, 45 were available as e-books, while 20 were not available as e-books. However, the total amount that was needed to purchase the 45 e-books was US$3,301.40—which is US$1,855.31 or 128 percent more than was needed to purchase the 65 p-books. In other words, had the library chose to exclusively acquire e-books, it would have paid 128 percent more money for 31 percent fewer titles.

Further, of the 45 English titles available in both formats, the e-book was more expensive than the p-book 43 times. The p-book was more expensive than the e-book only once. Likewise, the price of both formats was identical only once. On average, the price of the e-book was US$52.98 more expensive than the p-book for the 43 titles. By contrast, the average price of the print book was US$1.00 more than its e-book counterpart. The single more expensive print book cost US$1.00 more than its e-book version.

Adventist Books and Availability

While Weis Library's administration could choose between acquiring the p-book or e-book version of nearly two-thirds of the 321 titles that were eventually purchased, there was one subset of titles that was overwhelming available only as p-books. That category is Adventist books. Adventist books are publications by and about Seventh-day Adventists and include works published by entities of the church itself as well as other religious and secular publishers.

Of the 321 titles acquired by the library between FY2018 and FY2020, 34 were Adventist books. However, 33 of these titles were available exclusively as p-books, and only one of the Adventist titles was available in both

COVID-19 and Collection Development

The COVID-19 pandemic has compelled educational institutions to prioritize the well-being of their students and employees by adhering to official guidance and orders that require social distancing, closing businesses, and staying home. Therefore, most academic libraries have completely closed or drastically reduced in-person services like loaning books to patrons. In response to these circumstances, they also have had to promote and depend on electronic information resources like e-books rather than p-books to support the academic programs at their institutions. What impact are these developments having on collection development?

First, it is helpful to remember that the pandemic is a transitory phenomenon and that eventually college campuses and their libraries will reopen. Thus, it would not be advisable for a library to totally jettison its long-term collection development strategy in response to a short-term crisis by, for example, purchasing exclusively e-books. While some short-term adjustment to the strategy may be warranted, it is important to weigh the educational and financial impacts of any sudden change of course before acting.

Second, the decision whether to acquire a p-book, e-book, or any other information resource should be guided ultimately by the factors (i.e. audience, preference, affordability, availability) and values (i.e. quality, quantity, accessibility) described in this article rather than dogmatic adherence to an aspiration such as purchasing the cheapest format or going completely electronic.

Third, some factors in collection development are simply beyond the control of the library. No matter how advantageous it might be for students or faculty to have remote access to certain works of literature or scholarship during the pandemic, a library cannot provide access to those works if their publishers have not made them available as e-books.

formats. Interestingly, the 33 titles that were available exclusively as p-books were published by entities of the Seventh-day Adventist Church. The one title that was available in both formats was published by Pantheon Books, an imprint of Knopf Doubleday. For this title, the p-book price was US$21.97 and the e-book price was US$85.00.

Discussion and Conclusion

The data presented in the foregoing section demonstrates that exclusively purchasing e-books is not a cost-effective collection development option for many academic libraries. As defined by this article, cost-effective means "producing good results without costing a lot of money."[25] But an analysis of the comparative price

and availability data for p-books and e-books reveals that any academic library that exclusively purchases the electronic versions of book titles to support its institution will pay "a lot of money." Further, it will acquire far less content for much greater cost by exclusively purchasing e-books.

However, as important as they are, price and availability are not the only factors that academic librarians must consider when deciding whether to acquire p-books or e-books. They must also consider factors such as quantity, quality, accessibility, and usage, and in practice any of these alone or combined with the others could constitute a rationale for purchasing either format. For an academic institution that places value on the *quantity* of books its students and faculty can access, the library might

naturally prefer to license e-books through subscription packages and not purchase either p-books or e-books individually. This choice would represent a trade-off of *quality* for *quantity* since e-book packages usually do not include newly released, best-selling, or award-winning titles. Whereas at an institution that values *quality* and *affordability*, the library might prefer to purchase p-books because it can thus obtain high-quality content at a discount.

Weis Library has adopted a collection-development strategy that balances quantity, quality, and affordability. On the one hand, the library licenses several e-book packages that contain thousands of multidisciplinary titles to adequately support the broad array of academic disciplines and research characteristic of higher-education institutions. On the other hand, the library purchases select p-books that are both highly recommended and support the specific academic programs of the university but are not available in its e-book databases. Regardless of what strategy an academic library ultimately decides to use, the author of this article has concluded that the issues of price and availability continue to make p-books the most cost-effective collection development option for many academic libraries in the digital age. ✎

This article has been peer reviewed.

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