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Understanding and Measuring E-Book Packages:
Print Purchasing Patterns and Book Usage

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Abstract

When libraries make the decision to transition from print to electronic books, it is often a zero-sum game; if the library is to license the electronic version of a title, it tends not to buy it in print. This study examines print purchase and usage patterns after a large e-book acquisition by the University of Toronto Libraries, when subject selectors had the option to continue to purchase the titles in print. Data on print purchasing patterns, print title circulation, and electronic book use was examined both at the aggregate and the subject level. The study adds evidence to the growing body of literature on the transition from print to e-books in academic libraries.

Introduction

Due to budgetary or space considerations, when libraries make the decision to transition from print to electronic books, it is often a zero-sum game; if the library is to license the electronic version of a title, it tends not to buy it in print. The luxury of "going concurrent" for a period of time—having the ability to buy print copies along with electronic—gives a library the opportunity to make a more gradual transition from print to digital and to gather evidence about how the library community, including users and collections librarians, will choose when both print and electronic books are on offer. This study shares the data from one such project at the University of Toronto. It looks at how librarians and users chose to purchase and use books, when librarians could choose whether or not to continue purchasing those books in print.

The University of Toronto is a large research-intensive university with more than 700 undergraduate and over 200 graduate programs. The University of Toronto Libraries (UTL) includes 44 libraries that serve the research and teaching needs of faculty and students on three campuses. UTL's extensive collection includes monograph holdings of 15 million volumes in both print and electronic formats. E-books are usually licensed by the central library and made available to all in the university community. To support the wide range of programs, the library often acquires full e-book collections directly from publishers and continues to purchase the same titles in print, particularly in the humanities and social sciences. This dual format approach is reflective of

the library's desire to make a gradual transition from print to electronic, while gathering data and understanding user needs along the way.

Scope and Methodology

In 2016 the University of Toronto Libraries purchased a collection of 45,000 backlist titles from Taylor & Francis (T&F), with a commitment to purchase frontlist titles in the coming years. Once the big e-book package was in place, the subject selectors had the option and responsibility to decide whether to continue to purchase print copies, depending on the needs of users in their respective subject areas.

This study focuses on 5,667 Routledge and Psychology Press titles with imprint years from 2014 to 2017. Data from the four-year period allows examination of print purchase and use patterns before, during, and after the e-book collection acquisition.

Since the T&F e-book package licensed by UTL was a comprehensive collection, the number of e-books purchased was used as a proxy for the publisher's total output. Print holdings were obtained from the library catalog and represented title counts of holdings in the entire library system. Given the size of the library system, often multiple print copies were purchased, but data used in this study did not account for copies. Print and electronic books were then matched using their ISBNs. Any print title for which a "match" was not found using the ISBN was searched manually by title in order to match it. The subject headings provided by T&F in its e-book list

were used for subject analysis. A master list containing title, subject, catalog key, and print and electronic ISBNs was then matched with circulation data from the library catalog and electronic usage data from COUNTER reports.

This study examined the following three questions:

1. How did the pattern of print purchases in the library change after acquiring a large frontlist and backlist e-book collection?

2. How were the e-book and print titles used and did that use vary by subject?

3. Based on usage data, which subject areas should the library continue to purchase in print? Does the existing print purchase pattern align with how the print collection is currently used?

How Did the Pattern of Print Purchases in the Library Change After Acquiring a Large Frontlist and Backlist E-Book Collection?

Figure 1 illustrates Routledge/Psychology Press titles that were purchased in print format as a percentage of those published in a given imprint year. It shows a clear decline over the four-year period, from 52% in 2014 to less than 20% in 2017, a drop of over 60%. In terms of numbers of print titles purchased, they declined from 2,198 titles in 2014, to 1,924 in 2015, 773 in 2016, and 772 in 2017. Again, these figures do not consider multiple-copy

purchases of the same title, only the number of titles purchased.

The data shows that the e-book collection purchase had an impact on print purchases in 2016, although the e-books weren't acquired until the end of that year. That was likely due to a couple of factors. A subject selector was on leave in 2016, resulting in reduced selection capacity during the year. In addition, in the months leading up to the e-book collection purchase, some selectors might have adjusted their purchases in anticipation of the e-books' arrival.

The patterns of print selection become more striking when broken down by subject. For the purposes of the study, only subject areas with more than 150 print titles purchased over the four-year period were included in the data analysis, to avoid drawing conclusions from smaller data sets. Most subject areas show a sharp reduction in the number of print books purchased. Since overall the publishing output of these areas did not change much over the years, the decrease was a result of librarians' decisions to purchase fewer print titles.

Figure 2 shows three subject areas, Law, Psychology, and Asian Studies, that had significant decreases in print title purchases over the four-year period. Selectors in these areas reduced their print purchases in ways that were far more drastic than their peers did in other subjects. For books in Law and Psychology, print purchases were reduced by about 85% in each
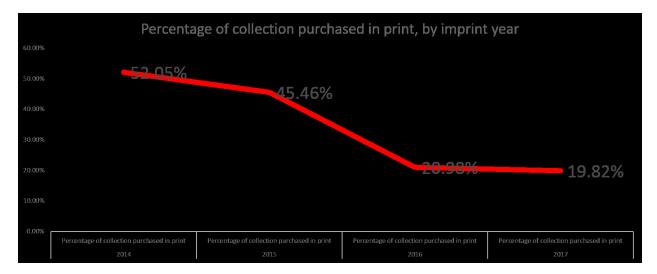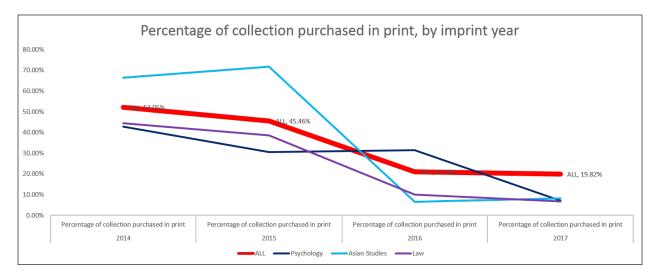

Percentage of collection purchased in print, by imprint year

52.05%
45.46%
20.98%
19.82%

60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%

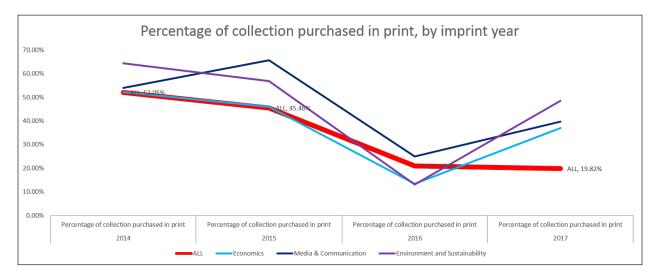| Percentage of collection purchased in print 2014 | Percentage of collection purchased in print 2015 | Percentage of collection purchased in print 2016 | Percentage of collection purchased in print 2017 |

Figure 1.

Figure 2.

subject and for Asian Studies, print purchases were reduced by almost 90%.

However, that sharp reduction in print purchases was not true across all subject areas, as is shown in Figure 3. Media and Communications print purchases were only reduced by 26%, meaning 40% of the collection was still being purchased in print in 2017. Economics purchases were reduced by 28%, with 37% of the collection still being purchased in print, and Environment and Sustainability purchases were reduced by 25%, meaning close to 50% of the collection is still being purchased in print. The dip in print purchases in 2016 was likely due to reduced selection capacity because of a staff leave. Without that staff leave, the 2016 purchases in these subject

areas likely would have been higher and more in line with 2017 purchases.

How Were the E-Book and Print Titles Used and Did That Use Vary by Subject?

Of the set of 5,667 books being considered, about 20% circulated in print in 2017 as shown in Figure 4.

When broken down by subject, some of the findings about print circulation are expected. Philosophy titles circulated well in print, with 32% of the titles circulating in 2017. It has long been argued that e-books are an inadequate format for immersive reading as is required by subjects like Philosophy. What is less widely discussed is the possibility that
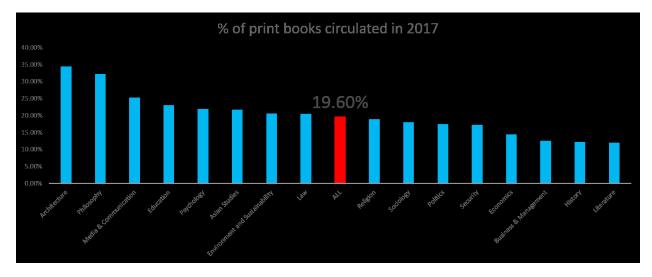

Figure 3.

Figure 4.

users will prefer print titles when relying on books for their visual components, as shown in the data that almost 35% of Architecture books circulated in 2017. A surprising result is what did not circulate. Economics, History, and Literature titles all saw less than 15% circulation in each of those subject collections.

To explore format preferences across the subject areas in more detail, data was further analyzed by a relative use factor as shown in Figure 5. The relative usage factor compares actual use to expected usage to determine whether books in a given subject are used or circulated more or less than an expected value. For example, a subject representing 25% of the overall collection is expected to generate 25% of the collection's total usage and results in a relative usage factor of 1. Where usage is lower or higher than expected, the amount a relative usage factor diverges from 1 indicates the percentage at which the subject is under- or overperforming.

When looking at the relative use factor of the print collection by subject, or how well a subject is circulating compared with expectation, it becomes clear how significant the circulation of the Philosophy and Architecture print books is, with Architecture circulating almost twice as much as would be expected. The data also highlights the underperformance of Economics, History, Business and Management, and Literature print titles, each of which circulated at less than three-quarters of what would be expected.
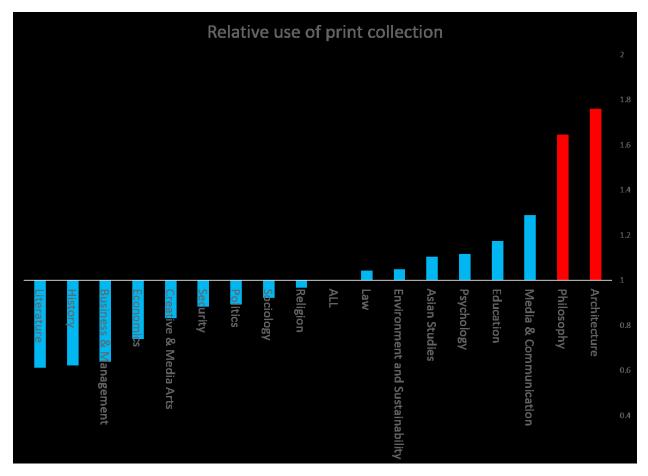
The modest use of the print collection should not suggest that the books were not well used by the university community. Figure 6 shows that over 41% of the e-book titles were used in 2017. A surprise in the e-book usage was which books were heavily used. In Philosophy, Religion, and History, more than 50% of the e-books were used, despite the fact that these subject areas tend to be associated with the type of immersive reading best suited for print books.

In addition, analysis was done to examine the use relationship between e-books and print titles, particularly to see if e-books were used for discovery before users determined whether they should use the titles in print. Of the 5,667 titles purchased in the four years, 715 books (12.6%) were used in both formats in 2017. The data showed very little correlation between the print books that circulated and the electronic books that were used. Overall, there was no evidence that the e-books were used for discovery of the print books.

Based on Usage Data, Which Subject Areas Should the Library Continue to Purchase in Print? Does the Existing Print Purchase Pattern Align with How the Print Collection Is Currently Used?

On the aggregate level, the library's print purchase patterns seem to align well with how the print collection is being used now that e-books are available. At the subject level, however, the data suggests that adjustments can be made to better align purchases with user behavior, as seen in the examples below. It should be noted that print purchase decisions are based on numerous factors and use is only one of
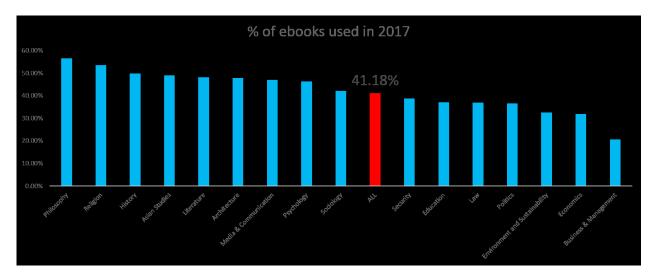
Figure 5.

Figure 6.

those factors, but it is a powerful piece of evidence for selectors to consider.

Architecture

In Architecture, the decision to stop purchasing print books may have been too swift. Before the e-book purchase, close to 60% of Routledge titles in this area were purchased in print, and that was reduced to only 14% after the e-book collection purchase. As a percentage of the collection, far fewer Architecture books were purchased than in most other subjects. In fact, Architecture titles were found to circulate in print at a rate almost twice that of the rest of the collection, suggesting that it may be beneficial to increase print purchases in this subject area.

Literature

In Literature, on the other hand, it appears selectors made only minor adjustments to the print purchasing practice and were still purchasing 34% of all titles the publisher produced in print format, duplicating the electronic copies already in the collection. This is much higher than the 20% of the overall collection that is purchased in print. In 2017, 12% of the Literature print titles circulated, a rate much lower than the 20% circulation rate of the overall collection. It is possible that an argument can still be made for why the Literature titles are needed in print, but at the very least, this subject area should be examined.

Law

The last example, the Law collection, seems to have struck a successful balance. The rate of print purchases has come down gradually, right in line with the full collection. In 2014, 45% of the collection was purchased in print and in 2017, only about 7% was purchased. The rate of print circulation for the Law titles is essentially in line with the full collection, with just under 20% of the titles circulating in 2017.

Limitations

While the data collected thus far has been useful, several limitations are worth noting:

- Print and electronic titles do not necessarily become available at the same time, and those timing differences may affect how well used a title is in a given format.

- Electronic usage measured by downloads or clicks is not directly comparable to a book's print circulation.

- UTL's ILS limits the circulation data that is available. It provides the number of times a book circulated and the date of the last circulation but not the dates of any previous circulations.

- The study looked only at titles purchased, but did not include the number of copies in the library holdings.

- At the time of data collection the e-book collection was only about a year old. The data will need to be reviewed over a longer period of time for UTL staff to be able to draw meaningful conclusions.

Discussion and Next Steps

Despite the limitations stated above, some patterns have begun to emerge from the data collected. Many subject selectors voluntarily reduced their print purchases when electronic editions became available. The scale of the reduction in print purchases varied greatly by subject, a reflection of subject selectors' understanding of user needs in their respective areas. Print purchase patterns and print use patterns did not always align. And usage data of print and e-books did not demonstrate a relationship between the two formats.

Moving forward, we will continue to monitor print purchase patterns, print circulation, and electronic usage data for the Taylor & Francis book collection to see what patterns may emerge over a longer time period. Data collected will be provided to subject selectors to help inform their print acquisition decisions, especially in areas where print purchase patterns and use patterns are quite far apart. Lastly, we plan to examine other e-book package purchases, including packages containing materials at a different reading level than the Taylor & Francis book collection, to see if there are similar patterns.