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An old horse revived? In-house use of print books at Seton Hall University.

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An old horse revived? In-house use of print books at Seton Hall University.

Abstract

With limited library budgets and declining circulation of print books, it is important to demonstrate library value to multiple stakeholders and to make informed collection development choices. The aim of this one-year study was to gain a complete picture of print book circulation by identifying titles that were used in the library ('in-house') but not checked out. We found that almost 30% of circulation transactions were books that were used in-house. Medical and nursing books showed the highest rate of in-house use in both the reference and main (circulating) collection. A close examination of these subject areas indicated that 46% of potentially circulating medical books used in-house were checked out, and 19% of science books used in house were checked out. This suggests that libraries should not assume that titles used in-house are subsequently checked out, or that check out statistics represent the totality of book use. We recommend including in-house use statistics to obtain an accurate picture of total circulation and library value, and to inform collection development.

Keywords: circulation, in-house use, collection development, library value

Introduction

Declining circulation of print books at academic libraries over the past decade has led many librarians to question the value of maintaining large print collections in the hopes that they will someday be used. The prospect of removing dusty unused books and reclaiming space for computers and student-friendly work areas is enticing. However, the evidence for declining use

of print books is typically based on circulation statistics that only capture books checked out of the library. Most librarians appreciate that print books may be used in the library without being checked out, and some libraries collect statistics on such use, but these statistics are rarely analyzed or published. If the use of print books and the physical library is underestimated, an important aspect of academic library value may be overlooked. In this era of declining library budgets, heightened scrutiny of library services and usage and increased reliance on electronic resources, it can be difficult to convince multiple stakeholders, particularly those responsible for library budget allocation, that the physical library and print books still have value for patrons. Physical book circulation is a traditional but still important aspect of library value, and may be positively correlated with academic success (Çetin & Howard, 2015). Declining checkout rates are “alarming to library managers, who fear reduced support for library buildings and print collections” (Allison, 2015, p.30). Including in-house use of books can enhance traditional circulation statistics and demonstrate an often-overlooked use of the physical library.

In this paper, we examine in-house use of our print book collections with the aim of informing decisions about collection development, deaccessioning and space reclamation, and future book budget allocations.

Seton Hall University (SHU) is a private, Catholic diocesan university located in South Orange, New Jersey. It is the oldest diocesan university in the United States, and is classified as a doctoral research university with balanced arts and sciences/professions. As of fall 2014, SHU had an enrollment of 9,627, including 5,817 undergraduates and 3,810 graduate students. SHU’s Walsh library houses various special collections as well as extensive collections of print books and journals. For the past five years we also have been investing heavily in eBooks, including two large leased collections, a patron driven acquisition collection and several small specialized

collections. Currently eBooks account for 56% of the nearly 1,185,000 books listed in our catalog.

Circulation data for the period 2005-9 demonstrated low and decreasing use of print books (Rose-Wiles, 2013). There was variation among broad subject areas, but on average less than one quarter of print book holdings circulated in the five year period. However, the analysis did not include books that had been used within the library but not checked out.

Literature Review

Several early studies of in-house book use examined the correlation between traditional circulation statistics (books checked out) and books used in-house. McGrath (1971), Harris (1977) and Hindle & Buckland (1979) found that broad subject areas with high rates of book circulation also had high rates of in-house book use, and concluded circulation statistics could be considered reliable indicators of in-house use. However, these authors did not indicate that in-house book use should be overlooked, but rather that it could be estimated from circulation data and added to that figure to provide an estimate of total book use. McGrath (1971) found that in-house use accounted for about 34% of total use at the University of Southwestern Louisiana, with considerable variation by subject area. He proposed two methods to estimate total use: extrapolate from the ratio of books checked out to books used in house, or use a regression equation. Extrapolating from Table 1 data in Harris's (1977) study at Newcastle Polytechnic suggests that in-house accounted for almost 40% of total use, although the author notes that in-house use was probably under-estimated. Hindle and Buckland (1979) agreed that circulation data could be used to predict total use, but noted the data do not show whether books that circulate are the same volumes that are used in-house, and thus may not give adequate information to make decisions about weeding collections.

A comprehensive and widely cited study of the use of library materials was conducted at the University of Pittsburgh in the late 1970's. Bulick *et al.* (1979) reported that almost 40% of nearly 37,000 books acquired by the library in 1969 had not circulated during the subsequent six years. About half of the entire collection (552,674 items) circulated externally during the seven year study, with an average of about 205,000 transactions annually. The study included data for 30 "sample days" of in-house book use, based on recording the number of books "left on tables and other designated areas" on a randomly selected week day during Fall semester 1975 and Winter semester 1976 (Bulick *et al.* 1979, p. 26). During the 30 sample days, 29,098 books were used a total of 32,373 times, representing 5.3% of the entire collection and an average of about a thousand uses a day. The authors extrapolated from their sample data to estimate in-house use at about 363,000 transactions. Adding this to external circulation would increase total use by a factor of 2.75, to about 550,000 transactions a year (Bulick *et al.* 1979, p.30).

The authors did not elaborate on the suggestion that in-house book exceeded external circulation, a possibility also suggested by Harris (1977). Possibly they were uncomfortable drawing this conclusion from a 30-day sample, but they also noted that "collecting in-house use data is more difficult and expensive [than collecting circulation data]; we would like not to have to do it" (Bulick *et al.* 1979, p. 27). Noting that at least three quarters of the books used in-house also circulated externally and that the overlap increased over time, they concluded that "in terms of whether or not a book or monograph is used, it is sufficient to examine the external patron circulation data" (Bulick *et al.* 1979, p. 29). Perhaps the need to estimate in-house use and add it to external circulation was assumed, but this was not made explicit in the Pittsburgh study.

To have more than half of a library's books circulate seems enviable to twenty-first century librarians, but in the 1970's many librarians and administrators feared that publicizing

such “low use” of library books would lead to reductions in library budgets, and the Pittsburgh study was frequently criticized and rarely replicated (Hardesty, 1988). Voigt (1979) was particularly scathing in his comment that circulation primarily reflects book use by undergraduates and is not an indication of research use by faculty, graduate students and other researchers. However, in retrospect it seems surprising that so little attention was paid to the potentially high rate of in-house book use, particularly when the findings of the Pittsburgh Study corroborated those of earlier studies.

Hardesty (1981, 1988) conducted partial replications of the Pittsburgh study at two small liberal arts colleges, DePauw University and Eckerd College. At DePauw, 37% of 1,904 books purchased for the circulating collection in 1972-73 had not circulated in the subsequent five years (Hardesty, 1981). At Eckerd, 33% of 1,398 books purchased for the circulating collection in 1982-1983 had not circulated by late 1985 (Hardesty, 1988). Both studies also found that a relatively small number of titles accounted for a high proportion of use, following the “80/20 law” that 80% of usage can be attributed to 20% of the collection (Trueswell, 1969). In the Eckerd College study, Hardesty (1988) also examined in-house book use, based on a sample taken between December 1983 and January 1984. External circulation during that period accounted for about 60% of 1,934 circulation transactions and in-house use accounted for almost 40%. The in-house use rate was lower than that suggested by the Pittsburgh study, but similar to that found in earlier studies (McGrath 1971; Harris 1977). Hardesty also found a strong positive correlation between in-house use and external circulation, with 77% of the books used in-house also being checked out, leading him to support the conclusion of Bulick *et al* (1979) that external circulation data were sufficient and it was unnecessary to look at in-house book use.

Eldredge (1998) analyzed monograph circulation at the University of New Mexico Health Sciences Center Library. He systematically examined records for almost 1,700 books acquired in during 1983 that reflected “each time an item had been checked out, used at a copy machine, or left in a study space such as table or carrel” (p. 497). Eldredge found that 84% of titles had circulated at least once in the four years after acquisition. He added that “an additional 9.34% (n = 91) of those items never checked out still experienced internal use” (p.498). However, he does not note whether any books that were checked out were used internally or provide a total value for in-house use. Eldredge’s finding that 36% of titles accounted for 80% of circulation is also a deviation from Trueswell’s (1969) “80/20 law”. The author concludes that the high circulation and reduced dependence on a small number of titles compared with previous studies may reflect institutional anomalies, or a well-selected collection that meets user needs.

Ridley and Weber (2000) estimated browsing behavior – a form of in-house use – at Ferris State University and Christopher Newport University libraries. They presented “browsing opportunities” by placing small slips of paper (“telltale”) in selected volumes. Based on the proportion of telltales displaced, the authors concluded that browsing rates were low, ranging from 2-4% in Management monographs to 7-8% in Social work. However, it is unclear how accurately browsing a sample of titles selected for the study represented in-house use overall.

More recent circulation analyses confirm that many books purchased by academic libraries are not checked out, although many reported variation among subject areas (e.g. Blecic, 2000; Dinkins, 2003; Ochola, 2003; Knievel *et al.*, 2006; Grigg *et al.*, 2010; Cheung *et al.* 2011; Wiley *et al.*, 2011; Rose-Wiles, 2013; but see Ladwig & Miller, 2013). However, none of these more recent studies included statistics for in-house use.

Martell (2008) collated data from the Association of Research Libraries (ARL) supplementary statistics reports from 1995-2006. The data included some statistics for in-house use as well as external book circulation. He noted that “statistics for in-house use of library materials are not widely available [but they] offer valuable assistance in monitoring the utility of a library’s collection” (Martell, 2008, p. 402). Circulation declined substantially during the decade long study period. In addition, median in-house use declined by 57%, and in-house declined by about 75% at the University of Maryland and California State University system. However, examining the data provided for the University of Maryland (Table 5) and California State (Table 6) shows that in-house use in 2005 respectively accounted for 36% and 45% of all reported circulation, proportions that are remarkably consistent with those reported by McGrath (1971) and Harris (1977).

Stewart (2011) analyzed data from two ACRL surveys (2000 and 2009) and concluded that monograph circulation was generally declining, although some large libraries that spent heavily on monographs showed increases in circulation. Anderson (2011) observed that the declining use of print books was especially marked when the data were based on the average number books checked out per student, although he noted that decreased circulation does not mean that libraries are offering less to patrons. Zweibel and Lane’s (2013) analysis of circulation activity at Columbia University showed a decline of 18.6% between 2003-4 and 2009-10. A previous study at Seton Hall University showed a 23% decline in circulation between 2005 and 2009, and a similar decrease in the average number of books checked out per full-time student (Rose-Wiles, 2013). The OCLC-OhioLINK Study analyzed circulation data from more than 100 academic libraries (O’Neill & Gammon, 2014). Annual circulation rates ranged from 0.40 for “genre and unclassified” to 0.181 for medical books, and 80% of the

collections did not circulate at all during the year. With a growing body of evidence that many library books do not circulate and that circulation is declining, it is surprising that so few circulation studies report in-house use.

Print book use and eBook use

A significant issue that may impact in-house use and traditional circulation of print books is the growth of eBook formats in many academic libraries. A few early studies comparing use of eBooks with print books (e.g. Christianson & Aucoin, 2005; Slater, 2009) found that the new eBook format showed promise, but noted that eBooks were different from print books, and also that use patterns varied among disciplines. Shelburne (2009) reported growing acceptance of eBooks, but Slater's (2010) review noted they had not gained ground as quickly as anticipated. The authors cited user discomfort with the format and librarians' problems with acquisition and digital rights management as the major barriers to wider acceptance. Subsequent studies, including the large-scale Ithaka S+R faculty survey (Housewright *et al.* 2013), confirm slow acceptance of eBooks in academic libraries. Cassidy *et al.*, 2012 reported that only 38% of respondents at San Houston State University had used eBooks, and 54% reported disliking them. In a survey of science and technology faculty and graduate students at the University of Kansas, Waters *et al.* (2014) reported that 61% of the 357 respondents preferred print while only 39% preferred eBooks. Studies of eBooks at SHU also suggest that many users continue to prefer print books, especially for sustained reading and studying (Rose-Wiles, 2014; Rose-Wiles & Kalyan, 2015).

Zeoli (2015) reports that demand driven acquisition models for eBooks have led to growth in eBook acquisitions, but 48% of YBP Library Services sales during June 2014-2015 were print books, suggesting that print is still the primary mode of book and monograph

acquisition for many libraries. Downey *et al.* (2014) compared use of print with use eBooks offered through a demand drive acquisition program at Kent State University. Their results were more positive in regard to use of eBooks. Higher proportions of recently acquired eBooks were used compared with print books, but there was variation among subject areas, including under-use of print books in LC class Q (sciences) and under-use of eBooks in class R (medicine). At SHU, purchases of triggered patron driven acquisition books were comparable to print book circulation but the reverse pattern was shown: a higher proportion of eBooks were used in class R compared with class Q (Rose-Wiles, 2014).

A recent comparison of eBook and print book use at Duke University (Goodwin, 2014) is particularly relevant for our study because the measure of print book use included internal use as well as checkouts and renewals. The 29-month study compared 283 eBooks that were used and that were also available in print format. A higher proportion of the eBooks were used: 75% compared with 29% of the same sample in print format. However, 64% of the eBooks had one or two page views and only 12% had ‘substantive use’, defined as 11 or more page views. By comparison, 67 of the 80 print books used were checked out or renewed an average of 1.5 times. The print and eBook figures are not directly comparable because ‘pages used’ could not be determined for print books, but the author estimated substantive use for print books at 24%, indicating a preference for the print format. Extrapolating from Goodwin’s (2014) figures, 13 of 80 print book uses (16%) were in-house.

Methodology

In April 2013, Seton Hall University Walsh Library’s Head of Access Services began to gather information on the in-house use of library books. Library staff and librarians traditionally use the term “circulation” to refer to books that are checked out of the library and returned at a

later date. This study also considers books that are used within the library without being checked out. To start the process the Access Services Librarian asked the Electronic Resources Librarian to create a patron type in Voyager, the Integrated Library System (ILS) at that time, and name it 'non-circ' as a proxy category for in-house use. The Access Services librarian then requested that the Library Technology Coordinator set up a laptop with the Voyager software on a mobile book cart. The stacks management department, circulation department and stacks student workers were trained on the checking out and checking in process of the non-circ books. For the circulation staff the process was easily mastered, but stacks staff and students required multiple training sessions and a step-by-step procedure document was created and attached to the book cart.

Walsh library is a four-story building that uses floors 2, 3 and 4 for housing books. At the beginning of each day a stacks staff person would collect all books on the 3rd and 4th floors that were lying about the library and in the drop boxes on each floor that are provided for depositing books that have been used and require re-shelving. There is the chance that students or faculty may use these internal drop boxes to return a book that they had checked out. In those instances the system would not allow a 'non circ' to be recorded but would require the book to be checked in. Circulation staff and circulation students checked the circulation and outside drop box books in with the normal check-in settings. The stacks staff and students had separate carts for the books considered 'non-circ'. In the evenings when the stacks staff were gone for the day the evening circulation supervisor would have the evening circulation students make a sweep of all floors of the library and checks those books in as 'non-circ' as well, which helped in lightening the work load of the day shift and keeps books circulating.

Our analysis was restricted to books. Some print newspapers, magazines and UN Documents are available to the patrons but they do not have barcodes so they are not part of this exercise; nor are our course reserve books. We do not know how much use a book assigned to a class and not placed on reserve would get, but based on observation of student behavior it would be very low because the first student to find it would check it out for the allowable period of 45 days, and likely renew it for a further 45 days.

The mobile laptop was used to scan books on the third and fourth floors, which include the general circulating (“main”) collection. A sweep of the floors would allow for stacks staff to collect books on a cart and then scan the barcodes using the non-circ patron account. They would then arrange the books in LC order in preparation for shelving. The second floor is the main point of entry to the library and where the circulation desk, reference desk and reference collection are located. The mobile laptop is not needed on the second floor because the stack personnel can use the circulation desk computers to check the books out and then in and arrange in the books in LC order in preparation for shelving.

During the sweeps that took place throughout the day and evening shifts, books would be found in the book drops, on chairs, tables, carrels, window sills, in bathrooms, in group study rooms, on the floor, hidden and away from their proper LC area, and in many cases laying on top of the books in their respective area. This process has been done every day since April 2013 except on the few holidays (Christmas, New Year’s Day and Easter) when the library is closed. The non-circ statistics do not include books that are checked out, missing, or in scholar study rooms or library offices. It also does not allow for books that patrons may have re-shelved themselves or for books that stack staff may have missed scanning before re-shelving. Notices requesting that patrons refrain from re-shelving books themselves are prominently displayed in

the stacks and drop boxes on each floor, but some patrons may ignore them and decide to re-shelve the book themselves. It is therefore possible that our statistics actually under-estimate in-house book use by some unknown degree.

The science librarian reviewed in-house use for reference books and books in the main circulating collection between May 21, 2013 and May 20, 2014 as well as traditional circulation data (books checked out of the library) for main collection books during the same period. For the purposes of this study the analyses were restricted to format “book”, thus excluding DVD’s, CDs, journals, eBooks and other electronic formats. Books in special or restricted collections such as the University Archives and books placed on course reserve were not included in the analysis. The raw data were downloaded into Microsoft Office Excel. Records were tagged with LC primary (initial letter) subject areas in preparation for analysis of our holdings, checkouts and ‘non-circs’. We collapsed the LC subjects into broad single letter categories for ease of analysis. Excel’s pivot table function was used to summarize holdings of unique title by location and broad subject area, unique titles used in house and checked out by subject area, and total circulation transactions by patron group. Following the methodology of Knievel *et al.* (2006) and Rose-Wiles (2013), we calculated the percentage of the collections circulated and used in-house by broad LC subject as well as the average number of transactions per book by broad LC subject. Pearson’s correlations between holdings, checkouts and in-house use by broad LC subject were also performed on Excel. The highlight duplicates function was used to aid a manual examination of overlap between titles that were used in house and titles that were checked out. Lists of titles used in-house, along with frequency of use, were generated for reference used in-house in the Q and R call number ranges, and those titles were manually

inspected to determine whether they were present on the shelf, should be retained, moved to the circulating collection or deaccessioned, and whether there were any patterns in their use.

Results

A total of 25,947 book circulation transactions were recorded during the one-year study. Of these, 18,437 (71%) were books checked out of the library and 7,510 (29%) were category ‘non-circ’, indicating in-house use (Table 1). This was the largest single category of use. The next largest were undergraduate checkouts (20% of circulation transactions) and graduate students (15% of transactions). However, it is important to note that in contrast to the data for other patron groups, we do not know who is using the books in the library.

Table 1: All circulation transactions for print books by patron group, May 2013-2014.		
Patron Group	# transactions	% of total
Undergraduate checkouts	5,236	20%
Graduate student checkouts	3,909	15%
Faculty checkouts	2,291	9%
Other SHU user checkouts	1,470	6%
Interlibrary Loan	4,508	17%
Alumni & others with borrowing privileges	1,023	4%
In House Use (patron group unknown)	7,510	29%
Total circulation transactions	25,947	100%

We examined in-house use of the Walsh Library Reference collection, which is located on the second floor of the library, by broad LC subject area. A total of 309 (2.3%) of the 13,237 titles were recorded as used, with an average of 2.3 uses per unique title (Table 2). There was no significant correlation between the size of a broad subject area collection and the number of books used ($r = 0.246$) or the percentage of the collection that was used ($r = 0.069$). The most

heavily used subject area was medicine (LC class R), with 32% of the collection used an average of 3.4 times, followed by science (LC class Q) with 9.3% of the collection used an average of 1.6 times. Traditional reference materials (LC classes A and Z) were not heavily used. There was no significant correlation between the percentage of a collection held in reference and the percentage of the reference collection that was used ($r = -0.127$).

Table 2: In-house use of Walsh Library Reference Collection, May 2013-14.

LC letter	Broad LC Subject	Books held	% of collection used	Average uses per book
A	General Works	254	1.6%	1.3
B	Philosophy, Psychology, Religion	223	8.1%	1.2
C	Auxiliary Sciences of History	462	1.1%	1.0
D	World History	659	2.1%	1.0
E	History of the Americas E	308	0.6%	1.0
F	History of the Americas F	29	0.0%	0.0
G	Geography, Anthropology, Recreation	715	0.8%	1.0
H	Social Sciences	1,004	1.2%	1.3
J	Political Science	121	1.7%	1.0
K	Law	189	4.2%	1.1
L	Education	364	0.5%	1.0
M	Music and Books on Music	559	0.9%	1.0
N	Fine Arts	499	1.2%	1.0
P	Language and Literature	5,209	0.9%	1.5
Q	Science	257	9.3%	1.6
R	Medicine	462	32.0%	3.4
S	Agriculture	2	0.0%	0.0
T	Technology	63	0.0%	0.0
U	Military Science	17	0.0%	0.0
V	Naval Science	2	0.0%	0.0
Z	Bibliography, Library Science, Information Resources	1,839	0.3%	1.0
All Reference Books		13,237	2.3%	2.3

We next examined use of the Walsh Library main collection (books available for check out) by broad LC subject area. Call numbers A-PZ are located on the fourth floor, and Q-Z are located on the third floor. Because main collection books may be either checked out or used in-house (although not both at the same time) we were able to compare in-house use with books checked out to give a picture of total circulation. During the one year reporting period, 5,090

titles, approximately 1.3% of the Main collection, were used in-house, and 15,121 titles or 3.7% of the collection were checked out (Table 3). Medicine (LC class R) again had the highest use, with 4.7% of the collection used in house and 8.9% checked out.

Table 3: In-house use vs. books checked at, Walsh Library Main collection, May 2013-14.

LC Letter	Broad LC Subject	Books held	% used in house	% checked
A	General Works	1,433	3.2%	8.3%
B	Philosophy, Psychology, Religion	54,682	1.8%	4.2%
C	Auxiliary Sciences of History	2,666	0.8%	3.0%
D	World History	42,986	2.0%	5.0%
E	History of the Americas E	18,533	1.2%	4.5%
F	History of the Americas F	6,081	0.9%	4.3%
G	Geography, Anthropology,	5,314	0.8%	5.2%
H	Social Sciences	51,058	0.8%	2.7%
J	Political Science	15,179	1.5%	3.7%
K	Law	5,457	0.9%	2.0%
L	Education	15,788	0.6%	2.5%
M	Music and Books on Music	6,518	0.8%	2.0%
N	Fine Arts	14,569	1.0%	4.3%
P	Language and Literature	104,547	0.9%	3.6%
Q	Science	29,550	0.7%	2.2%
R	Medicine	14,257	4.7%	8.9%
S	Agriculture	747	0.5%	1.3%
T	Technology	5,352	1.1%	2.3%
U	Military Science	1,817	1.0%	4.9%
V	Naval Science	258	0.8%	0.0%
Z	Bibliography, Library Science, Information Resources	5,791	0.7%	0.7%
	Other	977	0.2%	0.1%
TOTAL		403,560	1.3%	3.7%

significant positive correlation between in-house use and books checked out ($r = 0.831, p < 0.001$)

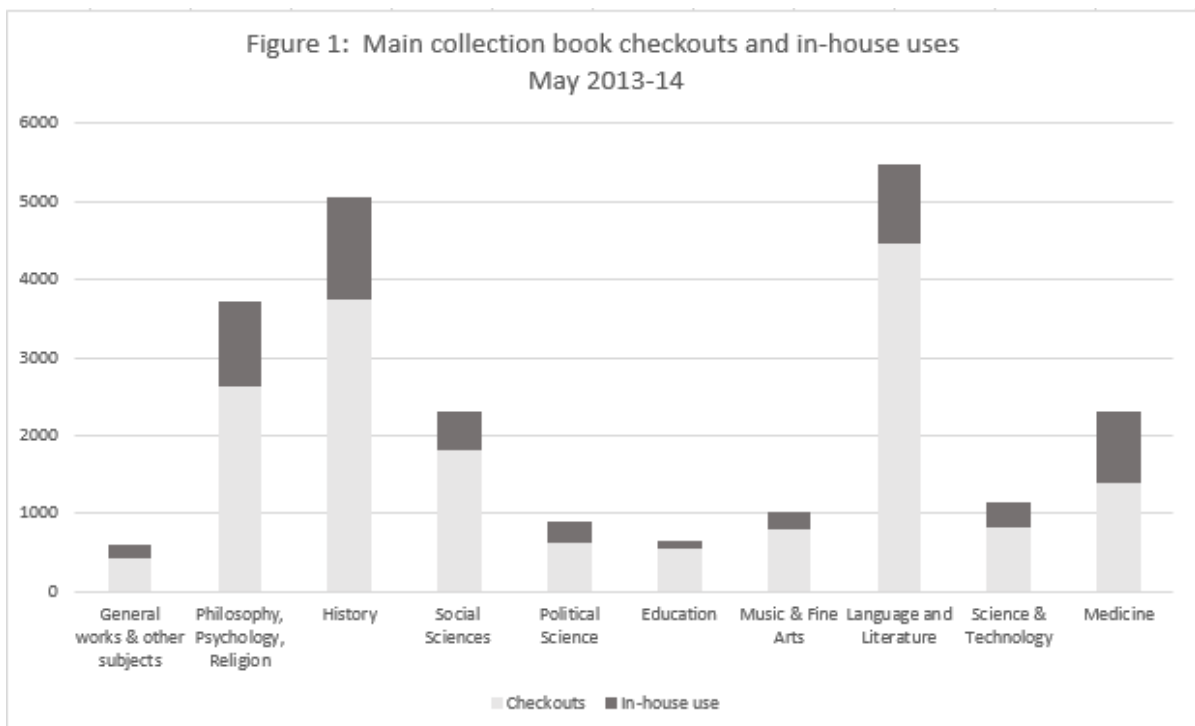
In contrast to the pattern in the reference collection, General Works (Class A) had relatively high use, with 3.2% used in house and 8.3% checked out. Also in contrast to the reference collection there were significant positive correlations ($p < 0.001$) between the number of titles held in a broad subject area and the number used in house ($r=0.841$) and the number checked out ($r = 0.959$). This indicates a general trend among potentially circulating books that larger subject collections tended to have higher use than smaller collections. There was also a significant

positive correlation between the number of books in a broad subject area that were checked out and the number of books used in house ($r = 0.939$) and between the percentage of books checked out and the percentage of books used in house ($r = 0.831$). This indicates that subject collections that had high circulation also had high in-house use. As a generalization, some broad subject areas attract high use of print books, whether they are checked out or used in house. These areas include humanities subjects such as history, philosophy, and fine arts, but also medicine.

A total of 23,147 circulation transactions recorded for Main collection books (Table 4). About 74% (17,238) were checkouts and the remaining 26% (5,909) were in-house uses. Figure 1 illustrates the increase in circulation transactions when in-house use is included (the LC subject areas are consolidated for ease of illustration). There was a significant positive correlation between total checkouts and total recorded in-house uses ($r = 0.910$, $DF = 21$, $p < 0.001$). Books were checked out an average of 1.14 times and used in-house an average of 1.16 times.

We analyzed a subset of data, LC call numbers Q (science) and R (medicine), to estimate the overlap between books checked out and books used in house. In the Main collection, only 39 titles with Q call numbers were used both in house and checked out. Only 19% of the main collection books used in house were checked out; the remaining 81% were uniquely used in-house. If we include reference books, 83% of science books included in the study were used in house but not checked out. In the Main collection, 173 titles with R call numbers were used both in house and checked out. The overlap between book used in-house and checked out was higher than the Q's at 46%, but still 54% of the titles used in-house were not checked out. If we include reference, 70% of books with R call numbers used in house were not checked out. These data indicate that books used in-house are not necessarily checked out, supporting the need to examine check-out and in-house use statistics to generate an accurate picture of total use.

LC Lett	Broad LC Subject	in-house transactions	Average in-house use per book	checkouts	Average checkouts per book
A	General Works	53	1.15	145	1.22
B	Philosophy, Psychology, Religion	1,088	1.14	2,626	1.16
C	Auxiliary Sciences of History	20	1.00	88	1.10
D	World History	966	1.15	2,430	1.13
E	History of the Americas E	253	1.10	962	1.15
F	History of the Americas F	57	1.08	274	1.06
G	Geography, Anthropology, Recreation	46	1.15	306	1.11
H	Social Sciences	452	1.06	1,512	1.10
J	Political Science	266	1.14	620	1.10
K	Law	50	1.04	113	1.03
L	Education	113	1.13	538	1.36
M	Music and Books on Music	62	1.17	140	1.09
N	Fine Arts	167	1.10	655	1.06
P	Language and Literature	1,016	1.13	4,458	1.18
Q	Science	248	1.22	684	1.07
R	Medicine	911	1.37	1,388	1.10
S	Agriculture	4	1.00	12	1.20
T	Technology	65	1.10	136	1.10
U	Military Science	19	1.06	96	1.08
V	Naval Science	2	1.00	0	0.00
Z	Bibliography, Library Science, Informat	47	1.15	54	1.32
	Other	2	1.00	1	1.00
TOTAL		5,909	1.16	17,238	1.14



Application of in-house data to Reference Collection Development

An immediate practical application of the in-house use data was to inform collection development in the Walsh Library Reference collection. This was timely as the library dean had recently requested a substantial reduction in the reference collection in order to create additional space for tables and seating to accommodate group work. The science librarian used the in-house use data for reference books with call numbers Q through T to help reshape those sections of the reference collection. Apart from some recent dictionaries, classic sets such as *Encyclopedia of Science and Technology* and essential handbooks such as the “Scope and Standards” for nursing specialties, the only books retained in reference were those that had been used at least once. Newer editions of these books were purchased if available. Over 40% of the Q-T reference titles were moved to the Main collection, where we hoped they would have a greater chance of being used if patrons had the choice of checking them out. About 14% were deaccessioned and sent to Better World Books for resale or donation, and 5% were donated to the science departments or individual faculty members. Many of the discards and donations included multi-volume sets of old encyclopedias. After adding updated editions where applicable, the reference collection for Q-T has reduced its footprint by over 50%, to 68 linear feet. In addition to complying with the directive to reduce the reference collection, we hoped that this would result in a tighter, more current and ultimately more heavily used collection.

The review of the Q-T reference section revealed that more than 16% of titles shown in the catalog were not on the shelves, leading to an intensive search for these missing books. The most common missing titles were current or recent nursing books. Almost half of the missing titles were subsequently found and returned to reference or transferred to the main collection. Many of the reclaimed books were found tucked among old print journals, book in other subject

areas or in the Curriculum Resource Center, where they appeared to have been hidden. Records for some old titles were removed on the assumption that the volumes had been previously discarded or were no longer required. A total of 32 titles (about 5% of the Q-T reference collection) remained unaccounted for, and the records were noted as “missing” in the catalog and replaced where judged necessary.

Discussion

This one-year study of in-house book use indicates that despite declining book circulation, SHU patrons are using books within the library to quite a significant extent. In-house use accounted for almost 30% of all circulation transactions. This is lower than the 40% reported by Harris (1977) and Hardesty (1988) or the 36% and 45% extrapolated from Martell’s (2008) data for University of Maryland and California State University, but it is a significant amount of use that was not previously recorded. Adding in-house use statistics to traditional circulation statistics increased the percentage of the Main collection used during the study from 3.7% to 4.8%, and increased the number of circulation transactions by 34%, from 17,238 to 23,147. Circulation is only one small measure of library value, but can be significant in this age of constant pressure for assessment and budget justification, accompanied by a trend to reduce print collections in favor of online resources. We concur with Anderson (2011) and Kolowich (2011) that low circulation does not mean a library does not have value, but why overlook an opportunity to give a more accurate representation of book use, and demonstrate that it is not restricted to books checked out of the library?

The finding that broad LC subjects with high book circulation also experienced high in-house use (in the main collection) is consistent with early studies (McGrath 1971; Harris 1977; Hindle & Buckland, 1979). However, our study did not support the contention that most books

used in house are also checked out. This assumption seems to have been perpetuated since the Pittsburgh study (Bulick *et al.*, 1979) and used as a rationale for not collecting in-house use statistics. Most recently, directions for completing reports for the Integrated Postsecondary Education Data System (IPEDS 2015-16) explicitly note not to include in-house use with circulation data. Librarians might choose to question the wisdom of a directive that is likely to significantly under-estimate book usage and discourage the collection of in-house use data that can usefully inform collection development.

A detailed analysis of use by subject area is beyond the scope of our study, but it appears that humanities disciplines such as History, Fine Arts, Philosophy and Anthropology have relatively high rates of book use, both within and beyond the library. This is not surprising given the tradition that monographs remain central sources for humanities scholars. However, this pattern was less apparent in the reference collection, where science and medical books had the highest use.

Why do science and medical, health science and nursing books experience such high use, particularly in the reference collection? One possible explanation is that many of these books, particularly text books and manuals, tend to be large and heavy. Grigg *et al.*, (2010) found that contrary to prior assumptions, heavy books had high circulation, but this does not negate the likelihood that large, heavy books are likely to be used within the library rather than be carried out. Walsh Library offers free scanning (subject to copyright restrictions) as well as a group-work friendly information commons on the main floor, so there are many opportunities to use heavy books without checking them out. However, a review of the Q and R reference books

used in the library indicates a range of sizes, including both large, heavy books and smaller books, so this seems only a partial explanation.

Another possible factor is that in fall 2012, the SHU School of Nursing negotiated a contract for an online package of text books which all nursing students are required to purchase. Although the online package is more economical and convenient than the print book equivalents, in our experience many nursing students dislike the online format and want their books in print. It is also our experience that nursing students are among those least inclined to purchase books and frequently expect the library to provide them. Walsh library typically does not purchase required text books, but to date the science and health science librarian has accommodated nursing students by providing the print equivalent of the eBook package, as well as many standard reference works and handbooks, in the reference collection. These books were among those most heavily used, and the most frequently missing. In addition we saw heavy use of “how to books” such as practice manuals for professional examinations (especially NCLEX exams) and the “made easy” and “de-mystified” series. This might reflect the importance of practice in the health and medical fields, which offer primarily professional degrees. The high use of the medical, nursing and science reference books may also reflect the fact that these subject collections are relatively small, up to date and curriculum focused. A detailed examination of use by publication date is beyond the scope of the present study, but a previous study of book use at SHU (Rose-Wiles, 2014) indicated that recent books in these in subject areas were more likely to circulate than older books. This is understandable given the importance of currency in the sciences and health and medical sciences.

A practical aspect of our study was to inform collection development. Traditional circulation statistics do not provide information regarding use of the reference collection because

the books do not circulate. We have used in-house use data to review and reduce the R-T sections of reference, and similar efforts are planned in other subject areas. We are also using the in-house use data in conjunction with traditional circulation data to inform de-accession and purchasing in the Main collection. As Hindle & Buckland (1979) observed, simply inferring in house use from external circulation data is not particularly informative for weeding collections because “one does not know whether or not the volumes used in library are the same volumes as those borrowed” (p. 266). We are using our in-house data as well as traditional circulation data to refine profiles for a new approval plan and an updated patron driven eBook acquisition plan. These are examples of using circulation statistics for evidence-based decision making, as advocated by Knievel *et al.* (2006). Another practical application was to identify and investigate missing reference books. As a result, some books were located, some records were deleted and others were marked as missing. This activity contributed to more accurate and up to date representation in the library catalog.

Limitations of the study and future work

An obvious limitation of our study is that it represents only one year of data. We have no reason to believe 2013-2014 was atypical, but additional data will be needed to confirm our finding of significant in-house use and patterns of use. For example, if the high use of nursing books is partly due to the forced adoption of electronic textbook packages and students come to accept the online format, we would expect the use of print nursing books to decline. Broader scale acceptance and use of eBooks may increase as our investment in and promotion of eBooks continues, and this will likely affect patterns of print book use.

We need to devise an efficient way to analyze the overlap (or lack of overlap) between titles checked out and titles used in house in all subject areas; the manual methodology we used

for our sample was very time consuming and prone to error. Also, our study did not include books left in scholar studies or library offices, or capture books that patrons had re-shelved themselves or books that stacks staff may have failed to scan before re-shelving them. Our statistics for in-house book use may therefore be underestimated. Finally, there are many more variables that potentially affect both in-house use and circulation, including publication date, whether books have been placed on reserve or are required reading for specific courses, and the purchase price and wider availability of books that the library holds. Many studies acknowledge the reduced purchasing power and shelving space affecting an academic library's ability to meet user need, but few address the declining purchase power of our students, who may increasingly turn to the library to meet their needs for text books and required or recommended readings.

We are continuing to collect in-house use data with the expectation of analysis and publication three to five years in the future. In 2014 SHU Libraries migrated our book holdings from Voyager to OCLC's World Management System, so there may be some discrepancies in the data. For example, Rose-Wiles (2013) found a 2.5% discrepancy between OCLC and Voyager holdings of science books, only some of which could be identified and rectified prior to our study.

While the finding that in-house use accounts for almost 30% of circulation transactions, we do not know who is using books within the library. Walsh Library is open to the public, and our extended hours, inviting and recently refurbished information commons on the main floor, and extensive book collections attract many visitors, including students from other colleges. Visitors may use books within the library, but they cannot necessarily check books out. All SHU alumni and most visiting scholars have borrowing privileges, and many members of the local community and students from other colleges in the area are eligible to borrow books through

reciprocal library agreements. However, these patrons also may be using books in the library rather than checking them out, and not all of those eligible for borrowing privileges complete the simple paperwork required to utilize them. Following the model of an earlier Library-Anthropology collaboration (Rose-Wiles & Kalyan, 2015) we plan to develop an ethnographic study of in-house book use.

An important area that this study did not address is interlibrary loan transactions. Our statistics for the past few years indicate that we are lending fewer books than in the past, but our collections are likely still important to a wider community. The number of books we borrow has increased, suggesting gaps in our collections that need to be addressed. The predominance of text books among loan requests suggests that students are increasingly unwilling or unable to purchase their books, a finding that is consistent with the heavy in-house use of nursing books and the high proportion of nursing books that are missing from the shelves. The issue of missing (or hidden) books is difficult to address, and recalls Hindle & Buckland's (1979) discussion of the tension between usage and demand for particular books. SHU Main collection can be checked out for periods ranging from 28 days for visitors with borrowing privileges, 45 days for undergraduates to one year for faculty. The library typically does not purchase multiple copies, so if a title has been checked out it cannot be used in-house, and the degree of demand for it may not be apparent. In such cases annual circulation statistics will capture at least one use, but if books are missing or hidden they are not available for either check out or in-house use and the demand will not be apparent unless the book is reported missing.

Conclusion and broader implications of this study

Our study suggests that it may be time to revive an old practice - collecting and reporting data on in-house use of books. Studies of in-house book use are sparse, and likely to become

more so if librarians follow the directive of the recent IPEDS release to exclude in-house book use data from circulation statistics. In-house use of books accounted for almost 30% of our circulation transactions during 2013-14. A number of early studies concluded that because in-house use was correlated with external circulation, it was unnecessary to collect in-house use data. However, it is necessary to determine the relationship between the two uses in order to estimate total use, which provides a more accurate picture of library value. In addition, simply estimating the extent of in-house use does not inform collection development because this does not indicate which titles are being used. From our study sample of the Q and R call numbers it appeared that many books are used in-house and not checked out.

A weakness of our study is that it includes only one year of data. We will continue to collect and analyze both check out and in-house use circulation data, and urge other librarians to contribute their own statistics, with additional variables such as publication date and how books align with curricular requirements or recommendations. While many may feel that because use of print books is declining, libraries should reduce investment in this area and focus on online sources, we point to recent studies that reported a positive correlation between the use of library books and academic success (Allison, 2015, Çetin & Howard, 2015). Borrowing physical books also seems to foster a long-term pattern of behavior in that “students who check out materials in one year will return to check out materials in the next year, but there was less evidence that database use correlated with return sessions” (Allison, 2015 p. 38). We suggest that physical use of the library, including in-house use of books as well as traditional check outs, remain important indicators of library value for both multiple stakeholders and our users, especially our students. We encourage other librarians to consider and report and expand on these measures and use the relevant statistics to help revitalize physical collections.

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