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Norman Desmarais

Providence College, normd@providence.edu

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Against the Grain

"Linking Publishers, Vendors and Librarians"

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In Search of Equitable Fund Allocations

by **Norman Desmarais** (Acquisitions Librarian, Phillips Memorial Library, Providence College, Providence, RI 02918; Phone: 401-865-2241; Fax: 401-865-2823)
<normd@postoffice.providence.edu>

The arrival of a new library director for academic year 2000-2001 brought **Providence College** an opportunity to analyze its collections and to re-examine its operations and budgetary allocations for library materials. The Acquisitions, Periodicals, and Government Documents departments reviewed their collections to determine the appropriateness of what they were acquiring and to identify items that had outlived their usefulness. The library also examined its circulation statistics to determine whether it was overspending in areas of little use. This analysis was expected to result in a re-allocation of the budgets for library materials.

Institutional Background

Providence College is a liberal arts college with approximately 3800 undergraduates and a total student body of about 5000 full time equivalents. The monographic budget is apportioned among thirty-five fund accounts according to historical spending patterns. The academic departments and programs represented by these fund accounts generally receive allocations totaling between 50% and 60% of the monographic budget, excluding monographic standing orders. Prior to 1996, these allocations were made by the Vice President for Academic Administration. When the vice presidency changed in 1996 and the library implemented the Innovative Interfaces, Inc. acquisitions module, the library director and the acquisitions librarian began taking part in the allocation process. Within a few years and another change in the office of the Vice President for Academic Administration, the allocation responsibility had shifted entirely to the library.

The academic departments exercised total control over the funds allocated to them. As some departments failed to spend their allocations by the end of a fiscal year, the library often had substantial unspent funds — sometimes as much as \$20,000 — that returned to the general fund.

This situation was brought to the attention of the Faculty Senate Library Committee which proposed legislation, endorsed by the Faculty Senate in 1992, that any unencumbered funds would revert to the library after March 31. Beginning in fiscal 1997, the library received the total fund allotment and began to apportion the monies to the academic departments, again based on historical spending patterns. This time, the acquisitions librarian calculated the average expenditures for each fund account over the previous three years and recommended those figures as the basis for the departmental allocations for fiscal 1997. This action effectively decreased departmental allocations and increased the library's portion of the budget. It also raised some protests from a few departments that received budget cuts. The library responded to the complaints by agreeing to supplement those departmental allocations with library funds or unexpended departmental funds, provided that the aggrieved de-

partments expended their funds prior to February 1.

Are Historical Allocations Unfair?

The decision to decrease funding for those who waited until the end of a fiscal year to make their purchase decisions should have encouraged faculty to place requests early in the academic year. While some departments took advantage of (but did not abuse) this situation, most pursued their customary ordering patterns. It may be that allocating funds on the basis of prior expenditures eventually creates uneven collections by rewarding those who spend their money quickly.

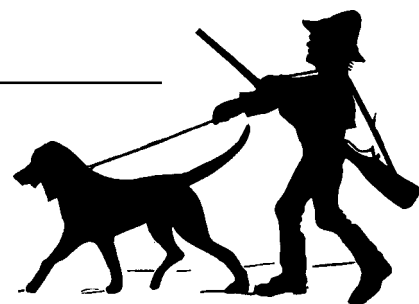
Some who wait until late in the fiscal year to spend their allocations want to wait for the Spring publisher catalogs before making their selections. They argue that their allocations are so small that they want to make every dollar count. However, there is the likelihood that publication delays will cause several requests made from these Spring catalogs to carry over into the next fiscal year, thereby threatening the following year's allocation.

Hypothesis and Methodology

If we consider a library's holdings according to the laws of supply and demand, recent acquisitions (supply) should be in proportion to circulation (demand). However, if we assume that allocations based on historical spending patterns unfairly favor those who spend the most, at the expense of their less affluent counterparts, then circulation figures (demand) should have an inverse relationship to expenditures. In other words, high expenditures should have a corresponding lower circulation rate because the more affluent departments can afford to purchase more peripheral and esoteric materials that are likely to get little or no use. Conversely, less affluent departments should have higher circulation rates, expressed as a percentage of expenditures, because their purchases should be more focused, concentrating on core materials that satisfy a greater demand and provide greater support for the curriculum.

In the Autumn of 2000, **Providence College** library staff challenged and disproved the assumption that higher allocations result in the purchase of more esoteric and lesser-used material. All the titles acquired in FYE (fiscal year ending) 1997 were examined, providing a circulation history of about three years. These titles were grouped by fund account (i.e. academic department or program) and calculated accordingly. For example, if political science ordered a book on sociology or education, it was considered a purchase for political science. We considered only cir-

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culating titles, excluding titles held in reference for which we would not have any circulation data. We tallied titles that did not circulate at all and those that circulated once, twice, three, and four or more times. As previous studies¹ determined that recent past use is a good predictor of future use, we could also make some projections for future demand.

Study Results

English, history, and political science together accounted for 61.71% of the departmental expenditures and 40% of total expenditures for firm-order monographs in FYE 1997. They were prime targets for budget cuts. We assumed that, on average, only 50% of library books circulate.² We expected that the larger funds would have a lower circulation rate as they could afford to purchase more peripheral and esoteric material that are likely to get little or no use.

We found that **Providence College** fared better than expected, as only 41.48% of departmental purchases did not circulate (see table 1). Subject groupings were more revealing in that humanities, which accounted for 38.38% of expenditures, had a circulation rate of 54.53% of their purchases — almost identical to the sciences' 55.58% (2.97% of expenditures and significantly higher material costs). The social sciences, on the other hand, accounted for 19.12% of expenditures and averaged

64.57% circulation of their acquisitions. The three most affluent departments fell well within the normal range for all categories. The five departments that exceeded one standard deviation (17.75%) above the mean in non-circulating materials accounted for only 2.52% of the monographic budget.

As expected, the average number of titles decreases as the number of circulations increases (see table 1). Titles that circulated once averaged 23.62% (median: 24.66%, standard deviation: 11.05%). Those that circulated twice averaged 14.72% (median: 14.29%, standard deviation: 9.53%) and those that circulated three times averaged 8.84% (median: 7.36%, standard deviation: 9.21%). However, at the four or more level, the numbers climb slightly to an average of 11.6% (median: 10.0%, standard deviation: 8.87%) because this category comprises all the titles not previously counted. Titles included in this category all have the same weight regardless of whether they circulated four times or forty times.

Unusual Situations

Four accounts (Asian studies, marketing, women's studies, and linguistics) exceeded one standard deviation below the mean. Eighty percent or more of their purchases in 1997 circulated at least once, yet together they accounted for only 0.71% of expenditures. In addition, each of these accounts exceeded one standard deviation above the mean in other categories, indicating that they should receive higher allocations based on the demand for and use of their materials. **Richard Naylor's** study³ would seem to support that conclusion. By correlating the book

budget, population, and collection size of libraries in New York, he found that "circulation increases more erratically as book budgets increase. There is also a better average in the small to mid-size libraries..." and "circulation increases most erratically with size of the population." (p. 119).

One anomaly emerged in our study in that the education department had the highest percentage circulation at the 4 or more level, with several titles circulating as many as thirty or more times. Yet, none of the titles ordered on the graduate education account circulated. Upon closer examination of the titles, we learned that the high circulation books were children's titles which students most likely used in their student teaching assignments for story times and for reading to their students in class. The titles ordered for graduate education consisted of education theory, philosophy, methodology, etc.

We found that several departments had no materials that circulated more than once or twice. On the other hand, seven departments (biology, education, psychology, American studies, pre-law, women's studies, and graduate business) exceeded one standard deviation above the mean at the level of four or more circulations. However, with the exception of education and psychol-

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TABLE 1: Departmental Circulation Statistics for Titles Purchased in FYE 1997

	<u>Expenditures</u>	<u>0 Circulation</u>	<u>1 Circulation</u>	<u>2 Circulation</u>	<u>3 Circulation</u>	<u>4 Circulation</u>
Accountancy	0.43%	41.67%	0.00%	25.00%	16.67%	16.67%
Art	3.05%	24.69%	25.93%	22.22%	7.41%	19.75%
Asian Studies	0.41%	22.22%	27.78%	16.67%	11.11%	22.22%
Biology	1.66%	36.11%	27.78%	8.33%	13.89%	13.89%
Management	0.20%	66.67%	33.33%			
Finance	0.13%	16.67%	16.67%	16.67%	50.00%	0.00%
Marketing	0.37%	20.00%	30.00%	30.00%	10.00%	10.00%
Chemistry	0.25%	57.14%	42.86%	0.00%	0.00%	0.00%
Economics	7.52%	39.41%	35.29%	12.94%	4.12%	8.24%
Education	1.48%	54.34%	5.78%	8.67%	3.47%	27.75%
Engineering/Physics	1.23%	59.46%	24.32%	13.51%	2.70%	0.00%
English	29.86%	52.72%	25.75%	11.28%	4.93%	5.32%
History	14.40%	31.30%	23.66%	19.47%	7.63%	17.94%
Languages	2.47%	72.80%	13.60%	6.40%	4.80%	2.40%
Mathematics	1.36%	30.51%	45.76%	16.95%	3.39%	3.39%
Music	1.51%	58.49%	22.64%	9.43%	5.66%	3.77%
Philosophy	0.82%	30.30%	18.18%	27.27%	12.12%	12.12%
Political Science	17.45%	34.03%	26.57%	19.24%	8.77%	11.39%
Psychology	1.73%	25.86%	18.97%	3.00%	5.17%	20.69%
Social Work	0.49%	38.10%	19.05%	14.29%	9.52%	19.05%
Sociology	2.17%	37.50%	19.23%	16.35%	8.65%	18.27%
Theatre Arts	0.52%	46.67%	30.00%	10.00%	6.67%	6.67%
Theology	2.49%	37.86%	28.57%	13.57%	10.71%	9.29%
American Studies	0.06%	25.00%	0.00%	50.00%	0.00%	25.00%
Environmental Studies	0.41%	38.89%	22.22%	16.67%	16.67%	5.56%
Health Policy Mgmt.	0.19%	60.00%	40.00%	0.00%	0.00%	0.00%
Latin Amer. Studies	0.23%	54.55%	27.27%	18.18%	0.00%	0.00%
Pre-Law	0.21%	25.00%	25.00%	12.50%	12.50%	25.00%
Women's Studies	0.32%	17.65%	17.65%	17.65%	23.53%	23.53%
Business-Graduate	0.40%	38.10%	9.52%	14.29%	14.29%	23.81%
Education-Graduate	0.07%	100.00%	0.00%	0.00%	0.00%	0.00%
History-Graduate	4.69%	44.79%	30.06%	10.43%	7.36%	7.36%
Rel. Studies - Graduate	1.11%	50.79%	22.22%	14.29%	4.76%	7.94%
Linguistics	0.29%	21.05%	47.37%	10.53%	5.26%	15.79%
Mean		41.48%	23.62%	14.72%	8.84%	11.60%
Median		38.10%	24.66%	14.29%	7.36%	10.00%
Standard Deviation		17.75%	11.05%	9.53%	9.21%	8.87%
Humanities	63.47%	45.47%				
Social Sciences	31.63%	35.43%				
Sciences	4.91%	44.42%				

ogy, the small numbers of titles in these disciplines are probably not statistically significant enough to draw valid conclusions.

Projected Changes

Providence College is considering changing the method of allocating funds for fiscal year 2002 – probably to a formula approach, despite several studies that show that the use of allocation formulas at U.S. college libraries has decreased from 73% to 40% in the fifty year period from 1940 to 1994-95.⁴ “The basic premise of using an allocation formula is that objectivity and equity may be achieved by the quantification of a variety of numerical data. As in any system there are benefits and drawbacks. The benefits of the formula approach are: 1) an array of variables is considered, 2) it is more objective and equitable, 3) it minimizes favoritism and politics, and 4) it can incorporate and reflect changing trends in the parent institution and the external environment. The drawbacks of an allocation formula are: 1) it is time consuming to implement, and 2) some areas of study cannot be quantified (programs, concentrations, etc.)”⁵

Do Librarians Make Better Selectors?

The library will also implement a liaison program before the next fiscal year. This approach may effectively place most of the selection responsibility and fund management in the hands of the librarians, although the reason for implementation is to create a better partnership in the collection development process. Faculty have the subject expertise, knowledge of the curriculum, and regular contact with students. They also control the number of papers and research assignments; so they should have the greatest knowledge of user needs and be most successful in meeting those needs. “However, not all faculty participate in ordering so there are likely to be gaps in subject coverage. Librarians may have more time for selection; they have more contact with students of all disciplines and are likely to be more aware of a variety of reviewing tools. On the other hand, they are less likely to be subject experts.”⁶ Librarians also have a responsibility to the collection as a whole and therefore can fill gaps in narrow discipline areas.


Tschera Harkness Connell’s study² attempted to determine whether librarians were at a disadvantage when compared to faculty in the selection of materials. Using circulation as the measure of success, the study found, though not conclusively, that materials selected by librarians will circulate more than those selected by faculty. It also suggests “allocating a larger portion of the general book budget to librarian-orders, based on the observation that the circulation of librarian-ordered materials is more consistently distributed among all the materials which librarians ordered than is the circulation of materials ordered by faculty.”⁷

Providence College found that almost 75% (74.24%) (see table 2) of the titles selected by librarians in fiscal 1997 circulated at least once. Although librarian-selected materials accounted for 39.53% of expenditures (including 333 reference titles), they comprised 37% of the total circulation for the period of the study. This compares to a total circulation of 17% and 14% respectively for English and political science which together account for 28.6% of expenditures. (These are the only two subject areas that exceed 10% of total circulation.)

TABLE 2: Circulation Statistics for Librarian-selected Titles Purchased in FYE 1997

Expenditures	0 Circulation	1 Circulation	2 Circulation	3 Circulation	4 Circulation
39.53%	25.76%	27.31%	17.73%	10.99%	18.21%

The study did not attempt to analyze the factors that drive circulation, such as assignments, class projects, and research papers. However, it appears that the disciplines that have higher circulation rates also require more assignments, class projects, and research papers than disciplines that do not require them.

Circulation figures will not be the only component of **Providence College’s** allocation formula; but they will be an important factor. The importance given to these figures may vary from year to year and may depend on input from the departmental liaisons as to the nature of the assignments and projects undertaken in the various disciplines. It will also be interesting to observe whether publicity from the library liaisons or enriching bibliographic records with tables of contents, liner notes, reviews, etc. will promote book use. It will also be interesting to note, in coming years, whether changing from allocations based on historical spending patterns to formula-based budgeting will produce significant changes in collection development patterns and whether increased spending in currently underused areas will result in increased circulation figures. 

Endnotes

1. Fussler, Herman and Julian Simon. *Patterns in the Use of Books in Large Research Libraries*. Chicago. University of Chicago Press, 1969. Britten and Webster (Britten, William A. and Judith D. Webster. Comparing characteristics of highly circulated titles for demand-driven collection development. *College & Research Libraries* v. 53 (May, 1992) pp. 239-48) came to the same conclusions as Fussler and Simon’s landmark study when they examined the collection of the University of Tennessee, Knoxville about twenty years later.

Richard W. Trueswell (User circulation satisfaction vs. size of holdings at three academic libraries. *College & Research Libraries*. 30:3 (May, 1969) pp. 204-13) determined that “50 per cent of the holdings satisfy approximately 90 percent of the circulation requirements.” p. 205.

Allen Kent et al. , in a landmark study of library operations at the University of Pittsburgh (Use of Library Materials: The University of Pittsburgh Study. New York, Basel: Marcel Dekker, 1979), examined the circulation of materials acquired in 1969 over the period 1969-1975. They determined that “only 56% to 60% of the books and monographs added to the collection in any one year ever circulate (p. 200).” “Further, the study shows that for books and monographs added to the collection during a one-year period, approximately forty percent are never used; fourteen percent are used only once; eight percent are used twice; six percent are used three times... These data indicate that should a library find it fiscally attractive to acquire only those items that will be used twice, then fifty-four percent would not be acquired. The problem, of course, is that the techniques for predicting which books and monographs are likely to circulate 0, 1, or 2 times do not currently exist (p. 201).”

Charles A. Hamaker (Some measures of cost effectiveness in library collections; circulation patterns at Louisiana State University. *Journal of Library Administration*. 16:3 (Nov. 1992) pp. 57-69) found that 54.13% of titles cataloged in the month of September, 1990 had not circulated by February, 1991 (p. 60). He also found that 31.44% of those titles circulated once and only 11.77% had circulated two or more times.

2. In an earlier study (Connell, Tschera Harkness. Comparing the circulation of library materials ordered by faculty and librarians. *Collection Management* 14:2 (1991) pp. 73-84), Tschera Harkness Connell found (p. 81) that only 30% of materials ordered by Millikin University in 1984-85 had not circulated. That figure increased to 33% for 1985-86.

Mike Day and Don Revill came to the same conclusion at Liverpool John Moores University (Towards the active collection: the use of circulation analyses in collection evaluation. *Journal of Librarianship and Information Science* 27:3 (September, 1995 pp. 149-157): “In most of our subject areas between 60 per cent and 70 per cent of new items circulate in their first full year of shelf life (p. 152).” They also determined that “heavy reliance on the use reports to reallocate funds to high-performing subject areas could result in the sacrifice of material that is attracting little use. Consequently balance of coverage would be lost and we would abandon the information-rich environment in favour of the textbook warehouse... Given that we cannot buy widely in all subject areas it is important that the balance of coverage is tilted to those subject areas where demand is highest in order to give our students optimum access to the materials that they require. This does not mean that we do not buy at all in low performing-areas, but that we buy carefully and avoid the purchase of items which, potentially, may receive little use. It cannot be denied that in linking our acquisition policy to current demand we may fail to provide for future research needs. However, given our funding constraints and youthful collection we could not hope to provide for unspecified future needs (p. 156).”

3. Naylor, Richard J. “The efficient mid-size library: comparing book budget to collection size.” *Library Journal*. February 15, 1987 pp. 119-120.

4. Bandelin, Janis M. and John K. Payne. “Collaboration and reallocation: implementing a new collection development model.” *Against the Grain*. 12:5 Nov. 2000 p. 40.

5. Ibid.

6. Connell. op. cit. pp. 73-4.

7. Connell. op. cit. p. 83.