

# Computers and Collection Development

George B. Viele

Collection development, book selection, the acquisition of materials—what is it all about? At the Greensboro Public Library we have been attempting to establish or maintain book collections that reflect actual use. Our endeavors are based on computerized circulation records for a four-year period.

Table I shows actual user demands as a per cent of the non-fiction circulation of selected individual Dewey Decimal categories. It should be noted that all non-fiction categories show one related consistency for the Greensboro Public Library and its branch system, that consistency being that demand for a given subject category changes very little from year to year. The computer-generated data we have gathered clearly support F.W. Lancaster's position that "there is considerable built-in inertia associated with larger communities" whose interests change, but very slowly.<sup>1</sup>

Table II presents usage of five of ten Dewey Decimal divisions. The data again show little fluctuation or change from year to year in the public's reading habits.

In 1983, when building the book collection for the new branch that was to be opened in Guilford College that fall, we developed the one hundred Dewey categories percentagewise based on the composite circulation records of three branches and the main library. A study of demographic census data indicated that the similar socio-economic data of that community warranted the approach taken. In other words, the amount of shelving space for each Dewey Decimal division and the per cent of non-fiction books in each of the one hundred categories were determined by our circulation-usage study.

The use of a computer in any facet of collection development or maintenance results in a constellation of considerations for the librarian. The basic consideration, however, is buying books that reflect the actual demands of borrowers. Usage data can easily be computer generated. It can also, of course, be done manually.

Raw data, regardless of how obtained, must be organized or compiled in some way that will facilitate usage. Consequently, we add the circulation for the one hundred non-fiction categories, compute the average or mean, and find the standard deviation for each category.

A balanced book collection is brought closer to reality when past usage data serve as a basis for allocating money for books. Believing this, the writer developed a book budget formula for determining how much book monies are to be spent for the various non-fiction areas at the Greensboro Public Library. The formula involves the use of the following:

1. The standard deviation of each of the non-fiction categories.
2. The sum of all the standard deviations of all one hundred categories.
3. A percentage of the total monies allocated for books at the Greensboro Public Library.
4. The average cost per hardback volume per subject category (source - *The Bowker Annual*).
5. The total number of hardback volumes published per subject category (source - *The Bowker Annual*).
6. The total value of all hardback volumes published (source - *The Bowker Annual*).

The book budget formula for categories of one standard deviation or more is:

$$\sqrt{\left[\left(\frac{\sigma_{DC}}{\Sigma_{ADC}}\right)\left(\frac{M}{M}\right)\right]\left[\left(\frac{(A)V}{TC}\right)\left(\frac{M}{M}\right)\right]}$$

where:

$\sigma$  = The standard deviation

DC = The Dewey Decimal category

$\Sigma$  = The sum of all Dewey Decimal categories

M = Money for non-fiction at the Greensboro Public Library

A = Average cost per volume in a subject category

V = Number of volumes published in a subject category

TC = Total cost of all volumes published

George B. Viele is Director of the Greensboro Public Library.

TABLE I  
Location - Benjamin Branch  
(In per cents)

Category	1980	1981	1982	1983
790-799	9.3	8.5	8.1	8.6
610-619	6.9	7.0	7.7	7.0
330-339	2.4	2.5	2.5	2.5
910-919	5.6	5.2	5.4	5.4
810-819	3.1	2.7	3.1	3.0

By taking the square root of the products found we are able to balance out any unusual variations that may exist in a given area, which, if not compensated for, would distort or unduly influence the allocation for a given subject category. Examples of possible variations include an unusually high average cost per volume, an exceedingly large number of titles published in a given subject category, or high actual circulation as compared to other categories.

Here is an example of the formula at work. In 1984 the Greensboro Public Library was allocated \$50,000 for the general book collection. In calendar year 1983, 84.3 per cent of the adult circulation at the library was non-fiction. Thus \$50,000 times .843 gave the amount to be spent for non-fiction, namely, \$42,150.

The top fifteen demand categories constituted 45.08 per cent of all non-fiction circulation. Multiplying .4508 times \$42,150 produced a product of \$19,000, which is the "M" in the formula.

The sum of the standard deviations for categories one standard deviation or more above the mean was 24.4. The sports/recreation category, 790-799, was 2.65 standard deviations above the mean. Plugging the 2.65 and the  $\Sigma 24.4$  into the formula, we have

$$\left[ \left( \frac{2.65}{24.4} \right) (\$19,000) \right]$$

The remaining data were obtained from a table on page 375 of *The Bowker Annual*, 23rd edition. The table showed the average per-volume prices of hardcover books for the years 1977-1982.

Looking under the sports/recreation category, we found that the total price for this category (average cost times number published) was in 1982 \$9,159.99. The grand total price for all non-fiction books in 1982 was \$738,724.98. Using these figures, we end up with the formula being completed.

$$\begin{aligned} & \sqrt{\left[ \left( \frac{2.65}{24.4} \right) (\$19,000) \right] \left[ \left( \frac{\$9,159.99}{\$738,724.98} \right) (\$19,000) \right]} \\ &= \sqrt{[(.1086)(\$19,000)] [(0.12)(\$19,000)]} \\ &= \sqrt{(2,025.4) (228)} \\ &= \sqrt{461,791.2} \\ &= \$679.55 \text{ or } \$680, \text{ the amount to be allotted} \end{aligned}$$

for sports/recreation in fiscal year 1985.

Using the Viele formula, we have an opportunity to spread the book budget in a manner that assures the eventual success of achieving a balanced book collection.

Does this writer recommend this formula to other librarians? The answer is an absolute *no!* The calculations are long (not hard) and time consuming unless the librarian uses either a calculator or a computer to do the computations. But, perhaps, once every ten years down the trail of book acquisitions would be worthwhile.

TABLE II  
Location - Benjamin Branch  
(In per cents)

Category	1980	1981	1982	1983
700's	23.8	22.1	21.0	22.3
600's	25.2	27.0	28.0	27.6
300's	14.2	13.5	13.8	13.8
900's	15.7	16.7	16.1	16.2
800's	7.4	6.7	6.8	6.9

You will never know until you take that first great step toward building better balanced book collections through computer-generated data and mathematical formulas applied to book budget allocations.

#### References

F.W. Lancaster, "Evaluating Collections by Their Use," *Collection Management* 4 (Spring/Summer 1982): 16.

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CFLA would like to extend special thanks to Barbara Beattie, Cape Fear Valley Medical Center, for her work in compiling this year's list. The list is available for \$7.00. Orders may be sent to

Cape Fear Library Association  
c/o Barbara Beattie  
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