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Articles in this issue address persistent issues in bibliographic instruction and standards. With respect to the former, librarians, like their faculty colleagues, have long been aware of the need to evaluate instruction, i.e., teaching and learning. Three articles offer different perspectives on evaluation of bibliographic instruction. King compares use of library materials by instructed and noninstructed students. Nagy and Thomas use an experimental design to evaluate mediated bibliographic instruction. Person reports on a longitudinal study of the effects of bibliographic instruction over the four years of a baccalaureate education. What is clear from these and similar articles is that we, again like our faculty brethren, have a long way to go; but evaluate we must, particularly if librarians, who are more lately coming to the teaching fraternity, are to justify, solidify, and improve our position on campus and, not incidentally, the education of our students.

With respect to standards, one observes with interest that the college library standards originally adopted in 1959, and revised and readopted by ACRL in 1975, are now being subjected to scrutiny and perhaps further revision. In the development of standards there is an intrinsic tension between what ought to be and what is. On the one hand, to limit our vision to what is or is likely to soon be is to institutionalize the status quo. On the other hand, “ought to be” may be so far above the “is” or “can be” as to make a standard so improbable of achievement as to be worthless. Carpenter’s article is a secondary analysis of 1977 NCES data on college libraries, as reported on the HEGIS instrument, which compares the reality as reported with various quantitative formulae in the college library standards. His analysis illustrates dramatically the difference between the formulae in the standards and the 1977 realities. While it is essential to know where we are relative to where we want to be, a difference in and of itself need not argue for reducing our goals. However, the quantitative goals in the standards must be defensible, that is, there must be some reasonably objective argument for using some percentage instead of some other, this ratio and not that, this number of volumes and not that.

C.J.S.
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College Libraries: A Comparative Analysis in Terms of the ACRL Standards

A quantitative analysis of 1977 HEGIS data bearing on college libraries in terms of the ACRL Standards for College Libraries (1975) concludes that most of the libraries do not meet the Standards' criteria for collection size and development, staff, and budget. Variables in the Standards not included in the HEGIS data are not analyzed here. More detailed surveys of library characteristics and fuller financial support for library operations are needed to enhance both this kind of analysis and libraries and their standards in the future.

INTRODUCTION

The 1975 Standards for College Libraries by the Association of College and Research Libraries (ACRL, American Library Association) is the focal point for this study. It is a systematic and quantitative assessment of college libraries in terms of the Standards. The data for the study are derived from national survey information collected by the National Center for Educational Statistics (NCES), U.S. Office of Education, Fall 1977. The four Higher Education General Information (HEGIS) surveys of academic libraries, faculty, enrollment, and finance were produced in machine-readable form by NCES; they comprise the most recent information available at this time. Financial support for computing services to generate the statistics for this report was provided primarily by ACRL. Additional aid was provided by the Computation Center, the School of Library Science, and the Institute for Research in Social Science—all of the University of North Carolina at Chapel Hill. Members of the ACRL Committee on College Library Standards Revision—Pat Sacks, Jasper Schad, and Arthur Monke, chair—made valuable contributions to the design of this study.

The libraries to which the standards apply are those classified by the Carnegie Commission on Higher Education as Liberal Arts Colleges I and II and Comprehensive Universities and Colleges I and II. The usable data gathered by NCES included responses from 95 percent of the relevant institutions. While the aggregate of institutions fits the Carnegie Commission's and the ACRL Standards' intended audience, the classification of types of institutions in this study does not correspond precisely with those of the Carnegie Commission. In this study, tables present summary information for all institutions (libraries) and, with few exceptions, for those schools classed as private graduate, private undergraduate, public graduate, and public undergraduate. The number of each of these types appears in each table. In most of the cross-tabulations the four types of institutions constitute, respectively, 23 percent, 45 percent, 25 percent, and 7 percent of the total number of libraries analyzed (1,146).
All private and public institutions have programs for the baccalaureate degree: the undergraduate institutions, comprising 52 percent of the total, prepare only for the baccalaureate and one or a very few first professional degrees, typically a M.Ed. Graduate institutions are defined as those that grant master's degrees, have programs beyond the master's not leading to the doctorate, and some doctorate degrees (fewer than ten per year). Thus, large doctorate-granting or research universities, two-year institutions, and a large number of specialized institutions such as theological seminaries are not included in this study. The standards are not intended to apply to them.

The four major topical categories in this analysis deal with collections, staff, budget, and service. Only the statistics available from NCES were analyzed, and as NCES did not collect data about characteristics of building space in 1977, no report related to this major standard is included here. More important, many of the major factors in the Standards, for example those which deal with administration policy, are qualitative. There are no data about these qualitative factors, and no attempt is made here to examine libraries directly in these terms. Often, of course, the statistical information does lend a perspective or insight about some of these qualitative standards.

In the tables of this report the numbers in parentheses identify the number of libraries. Percentages do not always sum up to 100 percent due to rounding. Further, the summarizing measures of many variables have been rounded to the nearest 10 or 100 in order to avoid spurious precision and enhance readability. In nearly all of the tabulations, skewed distributions are common; they are frequently indicated by the contrasts between the means and medians. Consequently, the median more often represents a more valid average than does the mean.

In sum, the study is intended to tell us how well the more than 1,100 college and university libraries meet the ACRL standards, given the limitations of missing variables, the ever-present possibility of errors due to reporting, and the original data processing. All the probable sources of error typical of secondary analysis were eliminated by systematic screening of the data, school by school and variable by variable, by the author and other members of the ACRL Committee on Revision of College Library Standards. Careful use of this study can assist in the improvement of the understanding of the Standards and possibly their revision. Moreover, it is possible that by seeing the kinds and extent of libraries' shortcomings, tactics for improvement may be determined.

In comparing the characteristics of these libraries with the statements in the Standards, recall that the Standards are for adequate, not ideal, programs. The relevant statement from the Standards document is as follows:

The Standards . . . do not present [an] unattainable ideal. They rather describe a realistic set of conditions which, if fulfilled, will provide an adequate library program in a college.

**COLLECTIONS**

The Basic Collection, defined in Formula A of the Standards, should consist of 85,000 volumes of books, plus fifteen volumes for each FTE student, 100 volumes for each faculty member, and various allowances for each field of study. The HEGIS data bases provide no information about the number of fields of study, majors or minors, but the basic collection size and holdings per student and faculty are known as shown in several tables below. Presumably in order to meet the standards of Formula A, no library can operate "adequately" with fewer than 100,000 volumes: hence the lowest row class for table 1.

To illustrate more fully the implications for Formula A on collection size, consider the following hypothetical "model":

<table>
<thead>
<tr>
<th>Basic collection</th>
<th>85,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assume 100 faculty @ 100 volumes</td>
<td>10,000</td>
</tr>
<tr>
<td>Assume 1,500 students @ 15 volumes</td>
<td>22,500</td>
</tr>
<tr>
<td>Assume 16 undergraduate major or minor fields @ 350 volumes</td>
<td>5,600</td>
</tr>
<tr>
<td>Assume no other special or graduate fields</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>123,100</strong></td>
</tr>
</tbody>
</table>
TABLE 1
BOOK COLLECTION SIZE

<table>
<thead>
<tr>
<th>No. of Volumes</th>
<th>TOTAL (N = 1134)</th>
<th>Private Grad. (N = 261)</th>
<th>Private Undergrad. (N = 511)</th>
<th>Public Grad. (N = 287)</th>
<th>Public Undergrad. (N = 75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100,000</td>
<td>43%</td>
<td>33%</td>
<td>68%</td>
<td>7%</td>
<td>52%</td>
</tr>
<tr>
<td>&lt;200,000</td>
<td>34</td>
<td>43</td>
<td>26</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>&lt;300,000</td>
<td>13</td>
<td>16</td>
<td>4</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>300,000 or more</td>
<td>10</td>
<td>9</td>
<td>2</td>
<td>29</td>
<td>1</td>
</tr>
</tbody>
</table>

Median Vols.: 112,800  
Mean Vols.: 151,700

Conclusions: (1) The majority of all undergraduate institutions, comprising 52 percent of these colleges and universities, have fewer than 100,000 volumes of books. Indeed, 55 percent of the private undergraduate institutions have fewer than 85,000 volumes, the standard for the Basic Collection in Formula A.

2. Given the hypothetical model above, the mean and median collection sizes of both public and private undergraduate institutions fall below the hypothetical 123,100 volume “requirement.”

Another perspective of libraries and the formula for book-collection size appears when book stock is analyzed in terms of student enrollment (FTE students). Roughly speaking, the larger the student body the fewer the volumes per capita. More precise comprehension of table 2 may be facilitated by the following: Among all (1,134) schools,

- 30 percent have fewer than 1,000 FTE students
- 27 percent have 1,000–1,999 FTE students
- 23 percent have 2,000–4,999 FTE students
- 20 percent have 5,000 or more FTE students.

Book holdings in volumes per faculty member are shown in table 3. Inasmuch as most of the libraries in this study have fewer than 2,000 students, small faculties are to be expected. Among all schools,

- 28 percent have fewer than 50 full-time faculty
- 32 percent have 50–99 full-time faculty
- 22 percent have 100–199 full-time faculty
- 18 percent have 200 or more full-time faculty.

The variations by type of institution are particularly great in comparing the private undergraduate institutions with others. The Standards state that “... it is good practice for a library to own any title that is needed more than six times a year.”

The number of periodical subscriptions by type and size of college is shown in table 4. There are no available data to assess either the frequency of need for periodicals or the extent by which the periodical titles in

TABLE 2
BOOK HOLDINGS: VOLUMES PER STUDENT

<table>
<thead>
<tr>
<th>Vols./Student</th>
<th>FTE&lt;1,000</th>
<th>FTE&lt;2,000</th>
<th>FTE&lt;5,000</th>
<th>FTE 5,000 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50 vols.</td>
<td>5%</td>
<td>16%</td>
<td>57%</td>
<td>91%</td>
</tr>
<tr>
<td>50&lt;150</td>
<td>72</td>
<td>75</td>
<td>40</td>
<td>9</td>
</tr>
<tr>
<td>150 or more</td>
<td>23</td>
<td>9</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

All libraries Median number of volumes per FTE student = 63  
(N = 1134) Mean number of volumes per FTE student = 85

TABLE 3
BOOK HOLDINGS: VOLUMES PER FACULTY

<table>
<thead>
<tr>
<th>Vols./Faculty</th>
<th>All Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1,000</td>
<td>27%</td>
</tr>
<tr>
<td>&lt;2,000</td>
<td>50</td>
</tr>
<tr>
<td>&lt;3,000</td>
<td>17</td>
</tr>
<tr>
<td>3,000 or more</td>
<td>5</td>
</tr>
</tbody>
</table>

Median number of volumes per faculty = 1,410  
Mean number of volumes per faculty = 1,670

The variations by type of institution are particularly great in comparing the private undergraduate institutions with others. The Standards state that “... it is good practice for a library to own any title that is needed more than six times a year.”

The number of periodical subscriptions by type and size of college is shown in table 4. There are no available data to assess either the frequency of need for periodicals or the extent by which the periodical titles in
TABLE 4
NUMBER OF PERIODICAL SUBSCRIPTIONS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500</td>
<td>25%</td>
<td>17%</td>
<td>49%</td>
<td>2%</td>
</tr>
<tr>
<td>&lt;750</td>
<td>22</td>
<td>25</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>&lt;1,500</td>
<td>27</td>
<td>39</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>1,500 or more</td>
<td>23</td>
<td>19</td>
<td>4</td>
<td>66</td>
</tr>
</tbody>
</table>

Median No. 755
Mean No. 1,170

these libraries are included in the “several good handlists... of periodicals appropriate for college collections” as generally cited in the Standards document.5

Measures of book collection development appear in tables 5 and 6. Nearly half of the modal type of libraries, those serving private undergraduate schools, acquired fewer than 3,000 volumes in 1977. By contrast, 58 percent of the public graduate schools’ libraries acquired between 10,000 and 25,000 volumes. If we consider the number of titles published in the U.S. in 1977, the distribution in table 5 is afforded another interpretation. Excluding all new editions, books classed as juvenile, fiction, and medicine, the total U.S. titles for 1977 was approximately 26,000.6 The median number of acquisitions, 4,770 volumes, presumably includes some retrospective materials, some multiple copies, and some works of foreign origin, allowing for a possible 10–15 percent selection of the titles appearing new that year.

An exact measure of library book acquisitions in terms of the Standards appears in table 6. The public-controlled institutions, on average, meet or exceed the standard.

TABLE 5
BOOK VOLUMES ADDED PER YEAR

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3,000</td>
<td>29%</td>
<td>22%</td>
<td>49%</td>
<td>4%</td>
<td>19%</td>
</tr>
<tr>
<td>&lt;5,000</td>
<td>23</td>
<td>27</td>
<td>31</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>&lt;10,000</td>
<td>24</td>
<td>34</td>
<td>15</td>
<td>26</td>
<td>40</td>
</tr>
<tr>
<td>&lt;25,000</td>
<td>21</td>
<td>15</td>
<td>6</td>
<td>53</td>
<td>17</td>
</tr>
<tr>
<td>25,000 or more</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

Median No. 4,770
Mean No. 7,490

TABLE 6
PERCENT OF BOOKSTOCK ADDED
(STANDARD: 5% OF THE COLLECTION SHOULD BE AUGMENTED YEARLY)

<table>
<thead>
<tr>
<th>% Added</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undgrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3</td>
<td>22%</td>
<td>27%</td>
<td>30%</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>&lt;4</td>
<td>22</td>
<td>28</td>
<td>27</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>&lt;5</td>
<td>19</td>
<td>22</td>
<td>18</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

Cumulative %
Under 5% (63%)

<table>
<thead>
<tr>
<th>Under 5%</th>
<th>(77%)</th>
<th>(75%)</th>
<th>(37%)</th>
<th>(42%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6</td>
<td>13</td>
<td>13</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>6–7.9</td>
<td>14</td>
<td>3</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>8 or more</td>
<td>10</td>
<td>7</td>
<td>8</td>
<td>14</td>
</tr>
</tbody>
</table>

Median % 4.3
Mean % 5.3
However, they comprise only 32 percent of all schools and the overall median falls below the standard.

**STAFF**

Formula B of the *Standards* determines the adequate number of professional librarians needed by taking into account the number of students, book collection size, and annual book acquisitions. Such a procedure would seem to be a better indicator of staffing requirements than the percentage distribution in table 7, and a more precise understanding of college library professional staffing in terms of Formula B is to be found in tables 8 and 9. However, table 7 documents the relatively small size of professional staff, especially staffs in private undergraduate institutions, and complements the foregoing discussions of book stock and periodical subscriptions.

The Formula B procedures for calculating individual library professional staff needs are as follows:

one: For each 500 (or fraction) FTE students up to 10,000

<table>
<thead>
<tr>
<th>Prof. Staff</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undigrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undigrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>19%</td>
<td>11%</td>
<td>34%</td>
<td>2%</td>
<td>11%</td>
</tr>
<tr>
<td>3-5</td>
<td>37</td>
<td>41</td>
<td>49</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td>6-8</td>
<td>18</td>
<td>25</td>
<td>13</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td>9-14</td>
<td>14</td>
<td>16</td>
<td>5</td>
<td>29</td>
<td>13</td>
</tr>
<tr>
<td>15 or more</td>
<td>11</td>
<td>6</td>
<td>0</td>
<td>38</td>
<td>4</td>
</tr>
</tbody>
</table>

Median No. 5.0 5.5 3.5 12.1 5.7
Mean No. 7.2 6.6 3.9 14.1 6.5

**TABLE 8**

<table>
<thead>
<tr>
<th>Prof. Staff</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undigrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undigrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need 4 or more</td>
<td>34%</td>
<td>37%</td>
<td>10%</td>
<td>73%</td>
<td>40%</td>
</tr>
<tr>
<td>Need 3</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Need 2</td>
<td>16</td>
<td>11</td>
<td>25</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Need 1</td>
<td>17</td>
<td>16</td>
<td>26</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Need 0</td>
<td>8</td>
<td>7</td>
<td>13</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Exceed by 1-2</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Exceed by 3 or more</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Median Minus 2 Minus 3 Minus 1 Minus 5 Minus 3
Mean Minus 2 Minus 2 Minus 1 Minus 4 Minus 2

Table 8 shows us the number of staff needed for the large majority of libraries to meet the terms of Formula B.

The information about professional staff needs in table 8 is quite provocative—one-third of the libraries need four or more additional staff, and 81 percent fall below the standard. However, Formula B also has a grading system for professional staffing as follows:

When supported by sufficient other staff members

libraries that provide 100 percent of requirements are at level A;
libraries that provide 75-99 percent ... are at level B;
libraries that provide 55-74 percent ... are at level C;
libraries that provide 40-54 percent ... are at level D.
Table 9 reports the grade levels of libraries in these terms. Fifty-one percent of public graduate institutions meet the B or better level, the best score by type of institution.

Table 10 shows the percentage distribution of support staff. The data in table 10 do not include any weighted factor for student assistance. Evidence for the qualification that professional staff be supported by sufficient other staff members is provided in table 11. The distribution of hours of student assistance appears in table 12.

The standards call for 25–35 percent professionals as percent of staff. This would yield a ratio of about 1:3 (25 percent) to 1:1.9 (35 percent). On average, well over half of all libraries fall below the lower part of the range, 35 percent. The largest group of libraries by type, private undergraduate libraries, fares the worst with averages of fewer than one support staff member for each professional librarian.

The use of student assistants in libraries is generally considered to be a necessary, important, and efficient factor in library staffing. Table 12 displays the considerable variations in the employment of student assistants not only in the percentage distributions but also in the means and medians. As is the case with many other variables in this study, there is a contrast between public graduate and private undergraduate institutions.

Interpreting hours of student assistance as a staffing function is problematic; translating the hours into some kind of FTE staff equivalent invites a variety of procedures. For instance, if one staff position were to be defined as equal to 40 hours a week, 50

---

### Table 9

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undgrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A or higher</td>
<td>18%</td>
<td>20%</td>
<td>24%</td>
<td>7%</td>
<td>19%</td>
</tr>
<tr>
<td>B</td>
<td>27</td>
<td>23</td>
<td>22</td>
<td>44</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>29</td>
<td>34</td>
<td>23</td>
<td>37</td>
<td>27</td>
</tr>
<tr>
<td>D</td>
<td>16</td>
<td>13</td>
<td>20</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Below D</td>
<td>9</td>
<td>10</td>
<td>12</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Median % and Grade: 71% (C) 68% (C) 70% (C) 75% (B) 61% (C)

---

### Table 10

<table>
<thead>
<tr>
<th>No. of Support Staff</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undgrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6%</td>
<td>5%</td>
<td>10%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>1–2</td>
<td>27</td>
<td>21</td>
<td>45</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>3–5</td>
<td>22</td>
<td>26</td>
<td>29</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>6–8</td>
<td>13</td>
<td>15</td>
<td>10</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>9–14</td>
<td>14</td>
<td>19</td>
<td>5</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>15 or more</td>
<td>18</td>
<td>14</td>
<td>2</td>
<td>54</td>
<td>8</td>
</tr>
</tbody>
</table>

Median No.: 4.8
Mean No.: 8.9

---

### Table 11

<table>
<thead>
<tr>
<th>Total (1,134)</th>
<th>Private Grad. (254)</th>
<th>Private Undgrad. (501)</th>
<th>Public Grad. (296)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>1:1.0</td>
<td>1:1.0</td>
<td>1:0.8</td>
<td>1:1.4</td>
</tr>
<tr>
<td>Mean</td>
<td>1:1.1</td>
<td>1:1.9</td>
<td>1:0.9</td>
<td>1:1.4</td>
</tr>
<tr>
<td>Maximum</td>
<td>1:9.0</td>
<td>1:9.0</td>
<td>1:5.2</td>
<td>1:4.6</td>
</tr>
<tr>
<td>Minimum</td>
<td>1:0.0</td>
<td>1:0.0</td>
<td>1:0.0</td>
<td>1:0.0</td>
</tr>
</tbody>
</table>
weeks a year, 2,000 hours of student assistance are required to "equal" a support staff position. Given the median and mean figures in table 12, libraries in aggregate gain from student assistance the equivalence of from two to five support positions. This is, of course, at best a crude estimate of the value of the flexibility in this kind of staffing, its cost, and its quality.

Other dimensions useful for approximating staff and collection development are presented in the following tables which relate professional staff size to the size of book collections and annual book acquisitions. Previous tables have shown that college libraries have rather modest collections and professional staff. The median book stock of these libraries is just above 110,000 volumes, annual additions are fewer than 5,000 volumes, and the median professional staff is 5.0 (one-third of private undergraduate institutions having two or fewer staff).

Tables 13 and 14 provide an additional perspective: about 75 percent of libraries have one professional to "service" as many as 30,000 volumes and over 40 percent of the libraries have one staff member for the selection, processing, and dissemination of as many as 1,000-2,000 volumes per year.

**CORRELATIONS: STAFF, ENROLLMENT, COLLECTIONS**

During the examination of the tables on staffing, enrollment, the size of the book collection, and the number of book volumes added, several interesting relationships among these variables came to mind. Among them, hypotheses evolved that correlations existed between the size of staff and other variables—correlations that were high. Systematic analysis produced confirming results, producing moderate to moderately high positive correlations as shown in table 15.

Namely, the larger the staff, professional or professional plus support staff, the larger the number of volumes in the collection and the larger the number of students. However, recall that libraries with larger enrollments have fewer volumes per capita student (table 2). Nearly as strong a relationship is reflected in the correlation be-

---

**TABLE 12**

**HOURS OF STUDENT ASSISTANCE, ANNUAL**

<table>
<thead>
<tr>
<th>Hours/Year</th>
<th>Total</th>
<th>Private</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3,000</td>
<td>26%</td>
<td>21%</td>
<td>34%</td>
</tr>
<tr>
<td>&lt;7,000</td>
<td>28</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>&lt;11,000</td>
<td>15</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>&lt;15,000</td>
<td>18</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>15,000 or more</td>
<td>13</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

Median No.

<table>
<thead>
<tr>
<th></th>
<th>6,400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean No.</td>
<td>10,600</td>
</tr>
</tbody>
</table>

---

**TABLE 13**

**BOOKSTOCK VOLUMES PER PROFESSIONAL LIBRARIAN**

<table>
<thead>
<tr>
<th>Ratio of Prof. Libs. to Book Collection</th>
<th>Percent of Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:&lt;10,000 vols.</td>
<td>4%</td>
</tr>
<tr>
<td>1:10,000-19,999</td>
<td>39%</td>
</tr>
<tr>
<td>1:20,000-29,999</td>
<td>31%</td>
</tr>
<tr>
<td>1:30,000-39,999</td>
<td>16%</td>
</tr>
<tr>
<td>1:40,000 or more</td>
<td>10%</td>
</tr>
</tbody>
</table>

**TABLE 14**

**BOOKS ADDED PER PROFESSIONAL LIBRARIAN**

<table>
<thead>
<tr>
<th>Ratio of Prof. Libs. to Books Added</th>
<th>Percent of Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:&lt;1,000</td>
<td>53%</td>
</tr>
<tr>
<td>1:1,000-1,999</td>
<td>39%</td>
</tr>
<tr>
<td>1:2,000 or more</td>
<td>8%</td>
</tr>
</tbody>
</table>

**TABLE 15**

**CORRELATIONS**

<table>
<thead>
<tr>
<th></th>
<th>Book Vols. Held</th>
<th>FTE Students</th>
<th>Books Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Staff</td>
<td>r = .81</td>
<td>r = .84</td>
<td>r = .71</td>
</tr>
<tr>
<td>Probability</td>
<td>.0001</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>No. of Libs.</td>
<td>1134</td>
<td>1134</td>
<td>1134</td>
</tr>
<tr>
<td>Professional &amp; Support Staff</td>
<td>r = .85</td>
<td>r = .87</td>
<td>r = .75</td>
</tr>
<tr>
<td>Probability</td>
<td>.0001</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>No. of Libs.</td>
<td>1134</td>
<td>1134</td>
<td>1134</td>
</tr>
</tbody>
</table>
between staff size and collection development as measured by "books added." On the other hand, these relationships exist within quite strict parameters: staff size, collection size, enrollment, and book acquisitions are in the aggregate quite small, especially in terms of the Standards.

**BUDGET**

The standards call for a minimum of 6 percent of the institution's budget, exclusive of capital and physical maintenance expenditures, to be allocated to the library. Following are tables of library operating expenditures, including a table showing how well libraries are faring with the 6 percent "rule" (table 16).

Summarizing for all libraries, 84 percent are allocated less than 6 percent of their institutional budgets, and more than one-third receive less than 4 percent. Institutions with 3,000-5,000 student enrollments fare the best, but even these and the largest institutions fail by four or more to one to meet the 6 percent standard. This critical budgetary standard is simply not met by the great majority of libraries.

As enrollment size and size of faculty should tend to correlate, the results in table 17 are similar to those in the preceding table with distribution by FTE students. Larger faculties do not accompany larger percentage allocations of budgets to the library.

While specific dollar amounts for library operations are not specified in the Standards, the following tables provide some additional sensitivity about library budgets by showing total operating dollar expenditures, expenditures for salaries and wages, and for materials.

As shown in table 18, public graduate institutions have far larger budgets than the other types; more than two-thirds of these 287 schools have more than one-half-million dollars for library operating expenditures. The contrast among the median budgets highlights the differences among the institutional types.

Table 19 reports $100,000 as an approximation for salaries and wages. Assuming the medians of five each professional and support staff (tables 7 and 9) and discounting any allocation for student wages, the

---

**TABLE 16**

LIBRARY EXPENDITURE AS A PERCENT OF INSTITUTIONAL EXPENDITURE, BY FTE STUDENTS

<table>
<thead>
<tr>
<th>Lib. % of Budget</th>
<th>Total (1,132)</th>
<th>&lt;1,000 (345)</th>
<th>&lt;2,000 (306)</th>
<th>&lt;5,000 (283)</th>
<th>5,000 or More (218)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3</td>
<td>12%</td>
<td>15%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>&lt;4</td>
<td>26</td>
<td>27</td>
<td>30</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>&lt;5</td>
<td>29</td>
<td>26</td>
<td>29</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>&lt;6</td>
<td>17</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Cumulative %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 6%</td>
<td>(84)</td>
<td>(86)</td>
<td>(86)</td>
<td>(80)</td>
<td>(86)</td>
</tr>
<tr>
<td>6-6.9</td>
<td>8</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>7 or more</td>
<td>8</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

Median, all institutions, 4.3%
Mean, all institutions, 4.5%

**TABLE 17**

LIBRARY EXPENDITURE AS A PERCENT OF INSTITUTIONAL EXPENDITURE, BY SIZE OF FACULTY

<table>
<thead>
<tr>
<th>Lib. % of Budget</th>
<th>Total (1,128)</th>
<th>&lt;50 (319)</th>
<th>&lt;100 (360)</th>
<th>&lt;200 (246)</th>
<th>200 or More (203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3</td>
<td>12%</td>
<td>15%</td>
<td>14%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>&lt;4</td>
<td>26</td>
<td>24</td>
<td>31</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>&lt;5</td>
<td>29</td>
<td>27</td>
<td>28</td>
<td>28</td>
<td>37</td>
</tr>
<tr>
<td>&lt;6</td>
<td>17</td>
<td>15</td>
<td>16</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>&lt;7</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>7 or more</td>
<td>8</td>
<td>12</td>
<td>6</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
TABLE 18
TOTAL OPERATING EXPENDITURES FOR LIBRARIES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$&lt;75,000</td>
<td>12%</td>
<td>6%</td>
<td>23%</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>$&lt;100,000</td>
<td>10</td>
<td>9</td>
<td>17</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>$&lt;200,000</td>
<td>28</td>
<td>26</td>
<td>41</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>$&lt;500,000</td>
<td>28</td>
<td>44</td>
<td>16</td>
<td>27</td>
<td>53</td>
</tr>
<tr>
<td>$&lt;1 million</td>
<td>14</td>
<td>12</td>
<td>2</td>
<td>37</td>
<td>12</td>
</tr>
<tr>
<td>1 million or more</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>30</td>
<td>3</td>
</tr>
</tbody>
</table>

Median: $200,000, $232,000, $113,000, $717,000, $294,000
Mean: $364,000, $297,000, $146,000, $825,000, $326,000

TABLE 19
SALARIES AND WAGES BUDGETS

<table>
<thead>
<tr>
<th>Salaries &amp; Wages ($)</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undgrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$&lt;50,000</td>
<td>20%</td>
<td>13%</td>
<td>37%</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>$&lt;100,000</td>
<td>28</td>
<td>26</td>
<td>43</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>$&lt;300,000</td>
<td>33</td>
<td>51</td>
<td>20</td>
<td>34</td>
<td>61</td>
</tr>
<tr>
<td>$300,000 or more</td>
<td>18</td>
<td>10</td>
<td>1</td>
<td>60</td>
<td>9</td>
</tr>
</tbody>
</table>

Median: $103,000, $124,000, $62,000, $358,000, $143,000
Mean: $188,000, $153,000, $74,000, $426,000, $169,000

Salaries of college library staffs are presumably quite low. Five professionals with a median salary of $11,000 and five support staff with a median of $9,000—1977 dollars—would require $100,000. The quality of service so long sought for and strongly emphasized in the standards may depend in no small part on financial compensation adequate to attract staff appropriate in quality to the level of services in libraries' objectives.

The materials budget figures in Table 20 are hardly remarkable considering the median purchase of fewer than 5,000 book volumes per year. The average price (1977) per volume of hardcover books, excluding those costing $81.00 or more, was $17.32.10 The overall median materials budget would permit purchase of about 4,100 volumes assuming a 10 percent discount from the average price cited. (This does not allow for purchase of periodicals, audiovisuals, etc.) Libraries, of course, must acquire titles costing $81.00 or more; such titles added to the total publications, raise 1977's mean cost to $19.22, reducing the number of volumes even further for all libraries, and clearly having considerable effect on the 50 percent of all libraries having less than $64,000 for materials and the 50 percent of private undergraduate schools with less than $36,000 for all materials.

TABLE 20
MATERIALS BUDGETS

<table>
<thead>
<tr>
<th>Materials ($)</th>
<th>Total (1,134)</th>
<th>Private Grad. (261)</th>
<th>Private Undgrad. (511)</th>
<th>Public Grad. (287)</th>
<th>Public Undgrad. (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$&lt;25,000</td>
<td>16%</td>
<td>10%</td>
<td>30%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>$&lt;50,000</td>
<td>24</td>
<td>23</td>
<td>36</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>$&lt;100,000</td>
<td>23</td>
<td>31</td>
<td>25</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>$&lt;300,000</td>
<td>26</td>
<td>32</td>
<td>9</td>
<td>47</td>
<td>36</td>
</tr>
<tr>
<td>$300,000 or more</td>
<td>11</td>
<td>5</td>
<td>0</td>
<td>40</td>
<td>1</td>
</tr>
</tbody>
</table>

Median: $64,000, $70,000, $36,000, $337,000, $89,000
Mean: $124,000, $100,000, $49,000, $255,000, $109,000
Depending upon local factors, between 35 and 45 percent of the library's budget is normally allocated to the purchase of materials and between 50 and 60 percent is expended for personnel.11

The fact that the proportions allocated for personnel and materials from the total operating budget of libraries collectively are up to standard (table 21) may be of small comfort when we recall that 80 percent or more of all types of libraries receive less than 6 percent of the institutional budget and that median total operating budgets are about $200,000 with $113,000 for private undergraduate institutions. From a policy point of view, however, the proportions cited in the Standards are satisfactorily met with exceptional uniformity.

**SERVICE**

Among the following tables are four indicators of service. Data available for this study provide far less insight into the “output” than the “input” of libraries. Of the four indicators presented below, only one reflects directly on the standards for service: that “the public’s need for access to libraries may range upward to 100 hours per week . . .”12 The availability of library services elsewhere and conjointly provided by library cooperation is in no way measurable with the NCES data base; each library stands alone in this respect as in others. Nonetheless, as table 22 shows, the 100 hours per week “standard” seems to be approximately met, with considerable range as indicated by the minimum and maximum hours.

The ratio of professional library staff to students is more favorable in private than in public-controlled schools (table 23). Nonetheless, if library staffs are to provide “adequate” services, including the wider adoption of on-line bibliographic searches and bibliographic instruction, these staffing ratios suggest the need for more professionals. Also, the data base reinforces the

<p>| TABLE 21 |</p>
<table>
<thead>
<tr>
<th>Aggregated Mean Percent of Total Budget for Materials and Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>Personnel</td>
</tr>
</tbody>
</table>

<p>| TABLE 22 |</p>
<table>
<thead>
<tr>
<th>Hours Open per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
</tbody>
</table>

<p>| TABLE 23 |</p>
<table>
<thead>
<tr>
<th>Professional Librarians per FTE Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratio of Prof. Lbrs. to Students</strong></td>
</tr>
<tr>
<td>1:200 or more</td>
</tr>
<tr>
<td>1:200-299</td>
</tr>
<tr>
<td>1:300-399</td>
</tr>
<tr>
<td>1:400-699</td>
</tr>
<tr>
<td>1:700 or more</td>
</tr>
<tr>
<td>Median Ratio</td>
</tr>
<tr>
<td>Mean Ratio</td>
</tr>
</tbody>
</table>
findings in table 9, that professional staff size is quite rarely up to Standard B.

The range of loans per FTE student (table 24) is very large—from less than one per student in nine libraries to 302 in one library. The tenth and ninetieth percentiles provide a more compact basis for comparison but nonetheless suggest great disparities in this measure of service (use).

The use of reference services as reported by about 90 percent of the college libraries is potential evidence for the need to develop bibliographic instruction and related programs. Only 5 percent of libraries fractionally report more than one reference (or directional) transaction per student per week (table 25). Private undergraduate libraries are more active in this respect than are the other types of libraries; their weekly .25 median may support the deduction that students at such schools, on average, ask more questions a month regarding library resources and services.

SUMMARY AND CONCLUSION

The analysis of the 1977 HEGIS data yielded many conclusions about college libraries that may be briefly summarized as follows:

A.1. Libraries serving institutions with no or very few post-baccalaureate programs fail on average to meet the Standards for the basic book collection; further, nearly half have fewer than 500 periodical title subscriptions.

A.2. Three-fourths of privately controlled schools, including those with graduate programs, added less than 5 percent to their book stock in 1977. The majority of all institutions acquired fewer than 5,000 volumes each that year.

A.3. From 77-91 percent of those libraries serving enrollments of fewer than 2,000 students (a majority of the schools) hold fewer than 150 volumes per student.

B.1. The number of staff members in college libraries is characteristically modest; the 511 private undergraduate schools have two or fewer professional librarians. Application of the Standards' formula for professional staff indicates that all types of libraries fall far short of the standard. Private undergraduate schools rate better than the other three classes in terms of the raw numbers needed; however, when classed by the formula's grading system they rank quite similarly with others as about 39-51 percent of all libraries rank B or higher.

B.2. The ratio of professional to support staff is on average about 1:1, a fact not likely to appear cost- or service-effective.

C. The Standards' expectation that institutions allocate 6 percent of their operating budgets to the library is met by only 16 percent of these schools. The median (4.3 percent) allocation is 30 percent below the

---

**TABLE 24**

ANNUAL LOANS PER FTE STUDENT

<table>
<thead>
<tr>
<th></th>
<th>Total (1,132)</th>
<th>Private Grad (260)</th>
<th>Private Undgrad (510)</th>
<th>Public Grad (257)</th>
<th>Public Undgrad (75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>19</td>
<td>20</td>
<td>23</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Mean</td>
<td>24</td>
<td>25</td>
<td>27</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>10th percentile</td>
<td>8</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>90th percentile</td>
<td>42</td>
<td>46</td>
<td>47</td>
<td>31</td>
<td>36</td>
</tr>
</tbody>
</table>

**TABLE 25**

DIRECTIONAL AND REFERENCE TRANSACTIONS PER FTE STUDENT PER WEEK

<table>
<thead>
<tr>
<th></th>
<th>Total (997)</th>
<th>Private Grad (233)</th>
<th>Private Undgrad (443)</th>
<th>Public Grad (254)</th>
<th>Public Undgrad (67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>.17</td>
<td>.18</td>
<td>.25</td>
<td>.10</td>
<td>.14</td>
</tr>
<tr>
<td>Mean</td>
<td>.33</td>
<td>.26</td>
<td>.45</td>
<td>.18</td>
<td>.24</td>
</tr>
<tr>
<td>10th Percentile</td>
<td>.05</td>
<td>.05</td>
<td>.07</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>.66</td>
<td>.57</td>
<td>.91</td>
<td>.36</td>
<td>.47</td>
</tr>
<tr>
<td>95th Percentile</td>
<td>1.08</td>
<td>.74</td>
<td>1.47</td>
<td>.47</td>
<td>1.14</td>
</tr>
</tbody>
</table>
standard 6 percent. The expenditures for materials and personnel reflect clearly the very modest sums appropriated for library expenditures in all four classes of institutions.

D. Access to and use of libraries, as measured here, is equally moderate.

In sum, for most libraries it seems fair to say that they are underdeveloped, understaffed, and underused.

Assuming that the Standards are reasonable, far greater support for all library functions is required for the great majority of libraries. While the particulars of each formula for collection size and staff as well as other parts of the Standards may well be open to revision, the data presented here on these basic indicators of library behavior suggest that any serious reduction in the quantitative aspects of the Standards may mean concession to inferior quality. After all, a collection of fewer than 100,000 volumes and a professional staff member to serve each 350–400 students (plus faculty and other patrons) are presumably not adequate much less "ideal" goals—yet these are the median measures of these characteristics for most libraries.

This analysis is intended to clarify the status of libraries in as many respects as possible, given the available data, in order to facilitate understanding of the Standards' implications. In the future perhaps the clarification will be fuller, for many factors cannot now be measured because there are no relevant data systematically collected. As data collection and analysis increase, the perspective of empirical conditions in contrast with those of the Standards may not only itself improve, but also the conditions of the libraries may improve. This occurs often when surveillance and analysis of an organization imply more intense interest in and heightened valuation of the organization as well as sensitivity to its needs.

REFERENCES

4. Ibid., p.290.
5. Ibid., p.290.
8. Ibid., p.291
9. Ibid., p.292
12. Ibid., p.293
Long-Term Evaluation of Bibliographic Instruction: Lasting Encouragement

There is a recognized need for evaluation of bibliographic instruction, particularly the long-term effects. This study of a semester-long credit course over a six-year period shows that student appreciation of such bibliographic instruction not only is high at the time of instruction but also frequently increases during the years after the course has been taken. Regardless of their initial reasons for taking the course, students find the instruction valuable and also recommend such a course to their friends.

Library instruction programs have a long history in this country, going back even to the nineteenth century, and the increasingly lengthy series of annual bibliographies produced by Hannelore Rader indicates that the field continues to expand in the attention devoted to it. The concern for means of evaluating these programs, however, is much more recent and, when it does appear, is noteworthy more for the lament at its lack than for the details of its success. As late as 1976, Brewer and Hills could observe that "there are few references to evaluation in the literature of reader instruction and until very recently they have been virtually non-existent." In a similar vein, J. Martyn calls evaluation that area "rich in speculation but uncommonly poor in demonstrable fact." In recent years, what attempts there have been to develop effective evaluation methods have generally focused on quantitative measurement of brief periods of instruction, i.e., one or more course-related lectures, or pre- and posttesting surrounding a few hours of instruction. There also have been attempts to compare the quality of various formats for presenting library information, e.g., lectures, hands-on experience, team-taught classes, etc. In all of these cases evaluation of the instruction is done at the time, and the question of the long-term effects on student awareness and performance has not been considered.

A number of librarians have noted the need for drawing upon the literature and experiences of others in education for assistance and guidance in instructional problems, including evaluation and the theory of learning. This would seem especially helpful in the type of library-use instruction that most resembles other instruction, namely, the full-term course in bibliographic instruction, particularly when offered as an elective and for credit. Yet here it seems the literature on evaluation is virtually non-existent. Perhaps this is because many agree with the opinions of one instructor of such a library course who says "the assessment and evaluation of this is exactly the same as in any other academic course," without providing further details.

On the other hand, a number of librarians argue that user education is not like other courses, that it is "a skill to be developed, not a subject to be taught"; that

Roland Person is assistant undergraduate librarian, Southern Illinois University, Carbondale.
the student "must learn how to learn in the future rather than aim at acquiring a body of fact-information"; and that "learning to use the library is a continuing process." Such a philosophy holds that what is taught (and learned) is a philosophy, an attitude, a strategy or method of seeking information, and thus a quantitative time-of-use evaluation would be inadequate or even inappropriate. What is needed is an evaluation of the long-term effects of courses in bibliographic instruction and their effects on students' later academic attitudes and achievements. If a freshman takes such a course, how does he or she, as a senior, or even a graduate student, look back at its effects on subsequent work? Although subjective, such an evaluation would be more interested in identifying attitudes than in measuring fact retention. With these considerations in mind, the author began a study to ascertain the long-term effects and the attitudes of students who had taken a full-term credit course in bibliographic instruction at one university.

In the fall semester of 1974, Morris Library at Southern Illinois University, Carbondale, began offering GSD 199A, "The Library as an Information Source." This one-hour, one-credit course was listed in the catalog under the general studies core and satisfied part of those requirements. Three sections, taught by librarians, were offered that first semester, each limited to an enrollment of twenty students. Since that beginning, the course has grown to the point that each semester the library now offers twelve or thirteen sections of the course; through spring of 1978, some 1,374 students have received a grade in the course. Although one department (the Center for Basic Skills) did for a few semesters require its students to take the course, most students enroll voluntarily for a variety of reasons. Most are freshmen at the time of enrollment, but there have been some students from all grade levels, including Ph.D. candidates. Instructors have been drawn from all areas of the library: public services, technical services, and administration. There is a brief, basic syllabus, but each instructor is free to develop the course as desired. The undergraduate librarian coordinates all scheduling and meets several times each semester with the teachers as a group.

In the spring 1979 semester, with the support of the library administration, the author set out to test some hypotheses about the course that had gradually developed, and to try to ascertain how the course might be improved, in the opinion of its graduates. The first hypothesis was that the higher the class level of the respondents, the more likely they would be to appreciate the course. This seemed probable because a senior, for example, who had taken the course as a freshman would have had more opportunities to apply the library knowledge in a variety of other classes and information problems than a sophomore would. Put another way, we believed that over time, students' appreciation of the course would continue to increase.

A second hypothesis was that regardless of their reason for taking the class, most graduates would come to a similar appreciation of its value. Even if some students took the class merely for the credit, we believed they would ultimately value it as much as someone with seemingly better motives at the beginning.

Finally, we wanted to see if distance from the course would provide any different, or more objective, suggestions for ways of improving the course compared to those we received during the course evaluation at the end of each semester.

The author prepared a four-part questionnaire containing twenty-six items. Part I dealt with biographic and enrollment data; part II concerned specific reactions to the course, using a four-part scale ranging from "strongly agree" to "strongly disagree"; part III consisted of three open-ended questions about strengths and weaknesses of the course; part IV asked for suggestions. A summary of part II is displayed in figure 1, and of part III in figures 2 and 3.

Using computer-generated enrollment lists, we were able to determine the number of students currently enrolled who had ever taken GSD 199A. A total of 730 questionnaires was sent out, to both on-campus and off-campus addresses, of which 71 were not deliverable. Thus 659 one-time mailings were sent. No coding of response sheets was done, also to preserve anonymity. A
Long-Term Evaluation of Bibliographic Instruction

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GSD 199A has not helped me in other classes.</td>
<td>21.9</td>
<td>78.1</td>
</tr>
<tr>
<td>2. As a result of this course I am a more confident library user.</td>
<td>88.8</td>
<td>11.2</td>
</tr>
<tr>
<td>3. I would recommend this course to a friend.</td>
<td>85.0</td>
<td>15.0</td>
</tr>
<tr>
<td>4. When I need assistance in the library now, I specifically ask for a <strong>librarian</strong> to help me.</td>
<td>66.7</td>
<td>33.3</td>
</tr>
<tr>
<td>5. I believe my friends who have not had this course are less skilled at using the library than I am.</td>
<td>63.0</td>
<td>37.0</td>
</tr>
<tr>
<td>6. The course helped me feel more comfortable in asking a librarian for help.</td>
<td>78.9</td>
<td>21.1</td>
</tr>
<tr>
<td>7. As a result of what I learned in the course, I have helped other students use the library.</td>
<td>75.7</td>
<td>24.3</td>
</tr>
<tr>
<td>8. I use the library more now than I would have if I had not taken the course.</td>
<td>45.7</td>
<td>54.3</td>
</tr>
<tr>
<td>9. I would not like further training in using the library.</td>
<td>40.4</td>
<td>59.6</td>
</tr>
<tr>
<td>10. I have recommended the course to someone else.</td>
<td>69.5</td>
<td>30.5</td>
</tr>
<tr>
<td>11. I would be interested in an advanced library course if it were offered.</td>
<td>48.8</td>
<td>51.2</td>
</tr>
<tr>
<td>12. The course should meet more often than once a week.</td>
<td>33.1</td>
<td>66.9</td>
</tr>
<tr>
<td>13. The course should be worth more than one credit.</td>
<td>61.3</td>
<td>38.7</td>
</tr>
</tbody>
</table>

Cumulative Percentage for easier display, respondents’ choices of “strongly agree” and “agree” have been combined, as have “disagree” and “strongly disagree.”

Total of 169 questionnaires was returned, for a 25.64 percent response rate.*

Students' ages at the time of response ranged from 18 to 35, with a mean of 21.4; most were between 19 and 23. Seventy-four respondents were male, ninety-five female; 92 percent were enrolled full time; seventy-six lived off campus.

Most of the respondents had taken the course as freshmen and were now upperclassmen (table 1). Majors and departmental affiliations were widely spread across the colleges, with no more than 20 percent of the total coming from any one area; thus a good cross section of the university population had been represented by the enrollment in this course.

Although it is obvious that students in a class taught by a librarian will then recognize at least one librarian, one of the emphases of the course is that librarians themselves are a major source of information for students. Thus, it is gratifying to note that some two-thirds of the respondents now specifically ask for a librarian when they need help. In addition, they acknowledge a need to distinguish between librarians and nonprofessional library staff when seeking assistance. Closely related to this distinction is the often-recognized reluctance to admit ignorance by asking for help. Again, more than three-fourths of the students from the course acknowledge that they now feel more comfortable in asking for assistance from a librarian (table 2).

In addition to being more willing to ask for help, students who have taken the course clearly have used their knowledge of library skills to help other students. Three-fourths of the respondents spoke of helping other students use the library and directly tied this confidence to their having taken the library course. Moreover, some 85 percent said they would recommend the course to a friend (table 3). Putting thought to action, nearly 70 percent actually had recommended the course to at least one other person (table 4). Perhaps because of such word-of-mouth advertising, there have been more students wanting to enroll than could be accommodated in the course each semester it has been offered.

Although the most common complaint about the course is the amount of work re-
Please list up to three things you feel were major advantages, strengths, and desirable features of the course. [Note: this is an open-response question. For easier display the author has summarized the responses by grouping them into categories.]

**Percentage of Respondents**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Taught how to find material</th>
<th>Learned how much was available in library</th>
<th>Physical layout and location of material</th>
<th>Hands-on experience</th>
<th>Index to periodicals</th>
<th>Classification schemes</th>
<th>Card catalogs</th>
<th>Handouts</th>
<th>Audio-visual materials</th>
<th>Other (didn't fit categories devised above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>27.8</td>
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<td>30.8</td>
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<td>15.4</td>
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<td>7.7</td>
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<td>29.6</td>
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</tr>
</tbody>
</table>

*Total is more than 100 percent because respondents could indicate more than one item.

![Fig. 2](part III A)

Please list below up to three things which you felt were disadvantages, weaknesses, or undesirable features of the course. [Note: this is an open-ended question. For easier display, the author has summarized the responses by grouping them into categories.]

**Percentage of Respondents**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Time; class should meet longer or more often</th>
<th>Too much work for one hour</th>
<th>Not enough credit hours</th>
<th>Too general; not specialized enough</th>
<th>Teacher</th>
<th>Not stimulating</th>
<th>Classroom crowded</th>
<th>Classmates hindered learning</th>
<th>Tours</th>
<th>Readings</th>
<th>Other (didn't fit categories devised above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.8</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td>13.0</td>
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<tr>
<td>8.3</td>
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<td>18.9</td>
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<td>2.4</td>
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<td>16.0</td>
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</tr>
</tbody>
</table>

*Total is more than 100 percent because respondents could indicate more than one item.

![Fig. 3](part III B)

Required for just one credit, many recognize the quantity and value of the knowledge and skills involved in information searching. Nearly half would be interested in a more advanced course, and some 40 percent would like further bibliographic training. These results, combined with some of the comments appended to responses, indicate a considerable appreciation of the need for increased emphasis on major- or course-related instruction in which more advanced bibliographic techniques could be related closely to the individual's particular needs. The various divisions of the graduate library at SIU already offer much course-related instruction through lectures to classes. And,

**TABLE 1**

<table>
<thead>
<tr>
<th>Class in school</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
<th>Grad.</th>
<th>Unclassified</th>
</tr>
</thead>
<tbody>
<tr>
<td>when enrolled in GSD 199A</td>
<td>74%</td>
<td>17%</td>
<td>7%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class in school now</td>
<td>2%</td>
<td>34%</td>
<td>26%</td>
<td>34%</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Long-Term Evaluation of Bibliographic Instruction / 23

TABLE 2
RESPONSE TO: "THE COURSE HELPED ME FEEL MORE COMFORTABLE IN ASKING A LIBRARIAN FOR HELP" (N = 156)*

<table>
<thead>
<tr>
<th></th>
<th>Number Agree</th>
<th>Number Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomores</td>
<td>38</td>
<td>18</td>
</tr>
<tr>
<td>Juniors</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>Seniors</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>Percentage of respondents</td>
<td>77.6%</td>
<td>22.4%</td>
</tr>
</tbody>
</table>

*Not every respondent answered each question. Although there were 169 questionnaires returned the N (number) on each table is the total response for that item only.

TABLE 3
RESPONSE TO: "I WOULD RECOMMEND THIS COURSE TO A FRIEND." (N = 157)

<table>
<thead>
<tr>
<th></th>
<th>Number Agree</th>
<th>Number Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomores</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>Juniors</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>Seniors</td>
<td>51</td>
<td>6</td>
</tr>
<tr>
<td>Percentage of respondents</td>
<td>84.7%</td>
<td>15.3%</td>
</tr>
</tbody>
</table>

TABLE 4
RESPONSE TO: "I HAVE RECOMMENDED THE COURSE TO SOMEONE ELSE." (N = 154)

<table>
<thead>
<tr>
<th></th>
<th>Number Agree</th>
<th>Number Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomores</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Juniors</td>
<td>32</td>
<td>11</td>
</tr>
<tr>
<td>Seniors</td>
<td>46</td>
<td>11</td>
</tr>
<tr>
<td>Percentage of respondents</td>
<td>68.2%</td>
<td>31.8%</td>
</tr>
</tbody>
</table>

However, an unexpected reaction was that of the 19 percent who thought the course was too simple, or too general and not thorough enough. Perhaps we have misjudged the students' abilities here. At any rate, we may need to reexamine the syllabus to consider broadening rather than simplifying the content.

The last class period of each section of the course includes an evaluation on an optical-scanner form designed for use in all university courses. Twenty-six percent of the questionnaire respondents indicated in some way that they have become more appreciative of the value of the course than they were at the time of the in-class evaluation. This response is in addition to the 20 percent whose opinion of the course hadn't changed over this time (and may have been quite favorable in the first place).

Overall, some 89 percent of the respondents agreed that they had become more confident users of the library as a result of this course. Breaking the response down by class level at time of response, we see that 84.2 percent of the sophomores, 93.2 percent of the juniors, and 87.9 percent of the seniors agreed with this judgment. These students clearly felt that they had gained a skill that was lacking in their friends who had not had this instruction (table 5). In responding to the question of whether the course had helped them in other classes, 68.4 percent of the sophomores agreed, 84.1 percent of the juniors agreed, and 82.8 percent of the seniors agreed. When asked whether, as a result of this course, respondents had helped other students use the library, 64.9 percent of the sophomores, 75 percent of the juniors, and 86.2 percent of the seniors agreed (table 6). Lastly, 50 percent of the sophomores, 74.4 percent of the juniors, and 80.7 percent of the seniors indicated that they had recommended the course to someone else.

In general, statistical manipulation of the data shows significant support for the first hypothesis, namely, that appreciation of the course would increase over time. In cases in which there was no significant difference between class responses (as in the confidence in library skill as a result of the course), the reason is that satisfaction was high at the time of the course and has remained

In listing the three greatest strengths of the course, with no cues provided on the questionnaire (figure 2), students more often mentioned not only the knowledge of physical location of material (55 percent) but also the realization of just how much a library has to offer (28 percent). They also frequently referred with pride to their newly learned ability to find material on their own, knowing the assistance of librarians was readily available when they needed it.

Too little time and too much work were the expected responses mentioned as undesirable features of the course (figure 3). Of course, some university departments offer bibliographic courses in their own literature. Nevertheless, the survey indicates a definite interest in more bibliographic instruction and should provide impetus for both librarians and other faculty to investigate other ways to help meet these needs.

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high even as much as three years later when seniors look back at their freshman experience. This indeed is welcome and encouraging news for library-use instructors.

The second hypothesis turned out to be nearly impossible to test statistically. By allowing students to indicate more than one reason for taking the course, the questionnaire made it impossible to use statistical tests of correlation. However, the results noted above tend to support the conclusion that, regardless of the reason for taking the course, most students came to a similarly strong appreciation of its value. This is borne out by the consistently high figures cited in the preceding paragraphs.

Perhaps ironically, this strong satisfaction with the course made it difficult to ascertain any clear weaknesses in the content or method of the course. Less than one-fifth of the respondents agreed on any one identified weakness (remember that the question was open-ended; no suggested responses were presented). As noted earlier, the most frequent complaints had to do with the time allowed (one hour for one credit).

Although the results of this survey do not specifically support all the initial hypotheses, they do in fact support the goals and objectives of the course. They indicate that the great majority of students appreciate the value of bibliographic instruction as a formal course, that this appreciation remains high for years after the course was taken, and that this appreciation is evidenced by students recommending the course to other students.

Librarians who are involved in formal bibliographic instruction programs might take heart in these results and consider similar long-term testing of their own programs as one means of further justifying their value. Though this study is hardly definitive, it is a beginning in an area that needs more and better research.

If we believe students know a valuable course when they see one, we may conclude that courses in bibliographic instruction are appreciated by those for whom they are designed. We need to document that appreciation, and the reasons for it, in order to improve such instruction.*

*The author will gladly furnish details of the questionnaire and statistical tests used to anyone wishing further information.

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An Evaluation of the Teaching Effectiveness of Two Library Instructional Videotapes

Two library instructional videotapes, developed by the University of California, Irvine, General Library, were evaluated for their teaching effectiveness. An experimental design was utilized. Results indicated that after viewing the two videotapes, students in the experimental group performed significantly better on a posttest of library skills than students in the control group. The implication of these findings is discussed with special reference to the future use of "mechanical" media in library instruction.

INTRODUCTION

As the financial constraints upon universities and university libraries tighten, attempts to increase the efficient use of currently available library resources have been initiated. Consequently, a variety of library utilization classes have emerged over the past decade to promote effective use of libraries. Although some library instruction programs have been evaluated, especially infrequent are evaluations using pre- and posttest experimental designs. This study reports such an evaluation of a library instruction program at the University of California, Irvine, General Library. The program consisted of two videotapes explaining library research procedures for successful computer data base searching and research-paper writing. A brief description of the two videotapes is provided in a subsequent section. The tapes are relatively important because, on their own, they form a mini-library-instruction program that can be administered at a comparatively low cost. Both videotapes were written and produced by one of the authors (Thomas) with funding from the UC Irvine Committee for Instructional Development and UC Irvine Library Administration in response to the growing need for bibliographic instruction at a time when library staff and financial resources were becoming increasingly more limited. Formulated with the idea of broad audience appeal and the possibility of utilization in a variety of instructional settings, the videotapes are used by the UC Irvine Library during student orientation, public relations functions, and in the instruction of bibliostategy classes. In response to appeals in the literature, it was decided to evaluate the teaching effectiveness of the two videotapes by using an experimental design (with an experimental and a control group) and statistical tests for the analysis of results.

METHODS

Description of Videotapes

The first videotape, titled Searching Computer Data Bases to Meet Your In-
Formation Needs centers around a mime and his search for information in the library. The essentially humorous character of the mime is counterbalanced by an invisible narrator who helps the mime in his search. The narrator explains the importance of appropriate subject headings and the use of the multiple search term strategy, which is the simultaneous use of several appropriate keywords during a literature search. The narrator also explains the use of citations and abstracts. The information presented is utilized by the mime in his preparation of a computer data base search. The tape is thirteen minutes long, with the narrator and mime interacting to produce a humorous yet potentially enlightening atmosphere.

The second videotape, The Romance of Writing a Research Paper, focuses on two young lovers who need to write research papers. Once again the humorous element is offset by the narrator, who explains approaches to research-paper writing, use of library catalog cards, citations, search terms, and the multiple search term strategy. During the production's eighteen minutes, the couple makes use of the presented information in attempts to write competent research papers.

Description of Questionnaire

Two twenty-question multiple-choice questionnaires were formulated with the aim of assessing students' library utilization skills, with special emphasis on their knowledge of library card catalog use, citations and their meaning, and the multiple search term strategy. These three components of library utilization skills were also the ones most emphasized in the content of the videotapes. From approximately eighty possible questions, forty were randomly selected and divided between the two questionnaires. The order of the questions within each questionnaire was then randomly determined. In this way, two different questionnaires of potentially equal difficulty were produced. (Copies of these questionnaires are available from the authors.)

A randomly selected group of librarians from the UC Irvine Library was then asked to rate the questionnaires as a test of library skills on a scale from one to seven, with one being very unsatisfactory and seven being very satisfactory. The librarians were also asked to complete the questionnaires and to indicate the answers they regarded as suitable. The librarians' answers were used to determine the "correct" responses to the questions asked. These correct responses were then used in the scoring of students' answers to the questionnaires.

Description of Subjects and Testing Procedure

Students in an undergraduate class (with a majority of third- and fourth-year students) at the University of California, Irvine, were selected for the study and were randomly assigned to the experimental or the control group. The first questionnaire, referred to as the pretest, was completed in class at the same time by both experimental and control groups. Attached to this questionnaire were questions asking students their status at the university and the frequency of their library borrowings.

Students in the experimental group were then encouraged to view the two videotapes at predetermined early evening hours during three days immediately following the pretest. Unlike the experimental group, students in the control group were not exposed to the videotapes. The week following the pretest, both groups were once again tested for their library utilization skills, this time by the second questionnaire. This questionnaire, referred to as the posttest, was potentially similar in difficulty to the first questionnaire. After the completion of the posttest, the control group was encouraged to view the videotapes. This particular procedure (indicated in figure 1) was followed because it would have been unethical to withhold the videotapes, which most likely had some educational benefit, from the students in the control group.

Students were asked to write their names on the questionnaires, and only those students who completed both pretest and posttest and who were (1) initially assigned to the experimental group and actually observed the videotapes and (2) initially assigned to the control group and did not observe the videotapes were included in the analysis of the results. The experimental group was composed of twenty-four subjects, whereas the control group contained
Subjects randomly assigned into Experimental group 0₁ X 0₂
into Control group 0₁ ₀₂ X

₀₁ = pretest (i.e., questionnaire 1)
₀₂ = posttest (i.e., questionnaire 2)
X = two videotapes

Fig. 1
A Summary Diagram of The Experimental Design Utilized in the Study

twenty-six. The main statistical analysis was a t-test which compared the performance of the experimental and the control group on the pretest and then on the posttest.¹⁶

FINDINGS

Of the eleven randomly selected librarians, six completed the questionnaires. Their average evaluation (on a scale from one to seven) was five, indicating that the questionnaires were generally a satisfactory operationalization of library skills.

The average scores of the experimental and the control group on the pretest and the posttest are indicated in table 1. Students in both groups answered, on the average, twelve to thirteen questions correctly out of a possible twenty. The difference of 0.81 units between the two means was not statistically significant (at \( p < 0.05 \)). This indicated that statistically the experimental and control groups performed equally well on the pretest.

However on the posttest, students in the experimental group answered, on the average, fifteen questions correctly, whereas those in the control group still only answered, on the average, twelve to thirteen questions correctly. The observed difference of 2.08 units between the two means was statistically significant (at \( p < 0.05 \)).

An analysis of results of individual improvement in the experimental group indicated that students in their third, or junior, year improved their score considerably more than students in their fourth, or senior, year. As indicated in table 2, third-year students showed a statistically significant improvement of 3.43 units, whereas fourth-year students showed no significant change in their score.

| TABLE 1 |
| AVERAGE SCORES OF THE EXPERIMENTAL AND CONTROL GROUPS ON THE PRETEST AND THE POSTTEST (MAXIMUM POSSIBLE SCORE = 20) STANDARD DEVIATIONS ARE IN PARENTHESES |

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Mean (s.d.)</th>
<th>Posttest Mean (s.d.)</th>
<th>Number of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>13.00 (2.1)</td>
<td>15.04 (3.0)*</td>
<td>24</td>
</tr>
<tr>
<td>Control</td>
<td>12.19 (2.7)</td>
<td>12.96 (2.9)</td>
<td>26</td>
</tr>
</tbody>
</table>

*Difference between experimental and control groups at posttest is significant at \( p \) less than 0.05.

| TABLE 2 |
| AVERAGE SCORES OF THIRD- AND FOURTH-YEAR STUDENTS IN THE EXPERIMENTAL GROUP ON THE PRETEST AND THE POSTTEST (MAXIMUM POSSIBLE SCORE = 20) STANDARD DEVIATIONS ARE IN PARENTHESES |

<table>
<thead>
<tr>
<th>Students</th>
<th>Pretest Mean (s.d.)</th>
<th>Posttest Mean (s.d.)</th>
<th>Number of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third-year</td>
<td>12.71 (1.9)</td>
<td>16.14 (2.1)*</td>
<td>14</td>
</tr>
<tr>
<td>Fourth-year</td>
<td>13.38 (2.6)</td>
<td>12.50 (3.0)</td>
<td>8</td>
</tr>
</tbody>
</table>

*Difference between pretest and posttest scores is significant at \( p \) less than 0.001.
Attached to the pretest were questions requesting the student's status at the university and his or her frequency of library borrowings. Although it was hoped that this information would correlate with their score on the pretest, no relationship was found between either of the above two parameters (i.e., student status and frequency of library borrowings) and students' score on the pretest.

**DISCUSSION**

An attempt was made in this study to evaluate, using an experimental design and statistics, two library instructional videotapes produced at the University of California, Irvine. The results of the experiment appear to indicate that viewing the two videotapes significantly improved students' knowledge of library utilization skills. Although these results were not unexpected, the actual magnitude of the improvement was. It would seem that a short, thirty-one-minute presentation was enough to produce, on the average, a sixteen percent increase in the library utilization skills of university students. If one assumes that students' library utilization skills are accumulated throughout many years of high school and university work, the possibility of a 16 percent increase produced by a single half-hour presentation was unexpected. Also unexpected was the observation that although both third- and fourth-year students are approximately equal in terms of library utilization skills (table 2), third-year students were far more likely to benefit from the presentation than fourth-year students. This finding is somewhat difficult to explain, although it may be possible that fourth-year students, close to graduation, are less motivated or interested in learning new library research skills than students who still have several quarters of university study to complete.

Although the comparative effectiveness of mechanical (i.e., slide shows) over more traditional (i.e., library tours) methods of library instruction has been questioned, it appears that the videotapes performed relatively well. One possible reason for this is the potentially greater attractiveness of the TV-videotape medium over other mechanical media such as slide/tape shows. Most members of our society are accustomed to viewing TV screens and probably find any material presented through this medium intrinsically attractive.

Libraries in the future will have to look increasingly toward the more mechanical forms of library instruction, and as indicated by some studies, these forms of instruction can be just as efficient as traditional methods, and in some cases more so. These mechanical media can be high-quality, relatively attractive, educationally valuable, yet economically inexpensive methods of providing library instructional services. The systematic evaluation of these instructional services will become increasingly more important as the financial constraints upon universities and university libraries tighten. Only through systematic evaluation of library services will it be possible to increase the efficiency of currently available library resources.

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Effects of Library Instruction on Student Research: A Case Study

The proliferation of library-instruction programs in academic libraries has reemphasized the importance of and need for the evaluation of program effectiveness. To date, evaluation efforts have not addressed the problem of determining the behavioral effects of instruction on student use of the library. An evaluation methodology comparing student use of resources, services, libraries, and catalogs was developed as a means of evaluating the instruction program of the Undergraduate Library at the University of Illinois, Urbana-Champaign. The findings indicated significant differences between instructed and uninstructed students in their library research efforts.

Although many instruction librarians might disagree on matters of content and presentation, most would agree upon two ultimate goals that function as the raison d'être of library user-education programs. The first goal is to improve students' ability to use library resources and services effectively to meet their information needs. The second goal, often unstated in formal documentation, is to instill realistic attitudes and expectations concerning the library and its accessibility. Given adequate program support, it is within the context of these two ultimate goals that almost every decision concerning content and form of presentation of user-education programs is made.

Evaluating the extent to which an instruction program achieves these goals has been a particularly difficult problem for librarians, but in the early 1970s several significant steps were taken in providing a foundation for effective evaluation. The work of Thomas Kirk, John Lubans, Jr., and the ACRL Task Force on Bibliographic Instruction, among others, was indicative of the effort to identify meaningful objectives and methods of evaluation for instruction programs. The terminology adopted at that time reflected the research in other fields. "Behavioral" objectives detailed the desirable outcome of instruction concerning what students should know how to do in order to meet their information needs. Evaluations based on behavioral objectives, it was hoped, would measure the extent to which students' knowledge of emphasized methods and resources had improved. Other efforts involved the study of students' opinions, attitudes, and perceptions, both as a means of assessing instructional needs for students and as a method for evaluating the "affective" or "attitudinal" changes brought about by instruction.

The methodologies employed for evaluation illustrate the influence of these developments. Most of the evaluation techniques in use today were designed to determine students' knowledge, skills, and opinions. A brief look at the importance and limitations of these approaches to evaluation provides background for the present study.
DETERMINING KNOWLEDGE AND SKILLS

Testing has a long history in the evaluation of library-instruction programs. Achieving testing by means of standardized or locally developed tests, often enhanced by pre- and posttest comparisons, serves as a means of assessing students' knowledge of the cognitive or objective content of instruction. The assessment of students' library skills by means of workbook assignments and library exercises is representative of performance testing as an evaluative technique.

Serious limitations exist concerning the value of paper-and-pencil examinations of any type. The most important limitation of tests is their "artificiality as devices for ascertaining a user's ability to negotiate the complex bibliographic structure of a library." Questions have arisen concerning the link, if any, between students' ability to perform well on such tests and their ability to use effective information-gathering techniques in the library. Finally, testing offers no indication of how instruction influences patterns of library use in unsupervised situations.

DETERMINING OPINIONS

The most prevalent of the methodologies currently in use for evaluation of instruction programs is the questionnaire designed to elicit the opinions and perceptions of students and/or faculty concerning the value of instruction, the quality of presentation, the relevance of content, and attitudes toward the library. These studies may be relatively sophisticated, such as the attempts of John Lubans, Jr., to identify user needs and satisfaction. More commonly seen are short questionnaires of the "Did-you-like-it?" variety. Questionnaires often request another sort of opinion as well. Students are commonly asked to assess their own abilities and the extent to which they think they have learned from instruction. Evaluation of instruction programs by means of questionnaires soliciting opinions, attitudes, and self-assessment might be conveniently termed perceptual evaluation.

The importance of perceptual evaluation must not be minimized. Instilling positive attitudes toward the library and building confidence in library skills are major objectives for most instruction programs. If it is true, as James Benson has asserted, that the affective message of instruction is as critical as its cognitive content, perceptual evaluation is a necessary indicator of the consequences of any instruction program.

Unfortunately, the lack of objective observational data and the self-assessment nature of perceptual evaluation present interpretational difficulties when program evaluation is based solely upon this method. There may be a great deal of difference between students' perceptions of their own abilities and their actual capabilities. There may be substantial difference between what a student has learned through library instruction, and what that student may think has been learned. A similar gulf may exist between opinions expressed concerning the value of instructional content and the extent to which the content is of real use to the student.

DETERMINING USE

Testing and perceptual evaluation provide a wealth of information concerning students' knowledge, skills, opinions, and attitudes—all of which is necessary for the development of an effective library-instruction program. But critics have not hesitated to point out that the value of library instruction can be proved only by demonstrating that instruction actually makes a difference in the way students use the library.

Given the number of studies of the use of libraries and materials in the recent past, it is remarkable that studies of student use of library services and resources as an evaluation methodology for instruction programs have not appeared in the literature. Certainly the design possibilities are numerous, ranging from the study of particular resources and services to the use of the research strategy employed. A variety of techniques are available, including interviews, unobtrusive observation, and questionnaires.

The primary concern in the design of an evaluation methodology based on library use is that students not be influenced or directed in their choice of materials by the evaluation. The study should attempt to discover how students actually use the library.
in order to meet their information needs, not how well they can follow library assign­
ments or perform tasks under the critical eye of the evaluator. Only in that way
might the results indicate what portion of the instruction content students adopt for
use in an uncontrolled situation.

Faced with the need for an evaluation of its library instruction program, an evaluation
methodology was designed to yield data concerning the effects of instruction on stu­
dent use of the library. Following is a report of the conduct and findings of that
study.

CASE STUDY21

Undergraduate Library Instruction Program

Students in sixty-five rhetoric classes were among those who received Research Skills Instruction from one of a staff of four librarians and six half-time graduate assis­
tants in the University of Illinois Under­
graduate Library. Each class was scheduled to attend an instruction session in the Undergraduate Library at a time during which students were selecting topics for their required term papers, but before they had begun their library research. The Research Skills Instruction sessions, which reached more than 1,300 freshmen during the spring 1979 semester and averaged seventy minutes in duration, were designed with two major objectives in mind.

The first objective was to introduce stu­
dents to the variety of information sources available to them for research. Complete reliance upon monographs and popular periodical literature was discouraged and the use of more scholarly periodical literature emphasized, along with media sources and government publications when appropriate. As a facet of this objective, be­
cause of the vast holdings of the library, students were encouraged to be highly selective in their choice of materials.

The instruction session detailed a coher­
ent research methodology by which a system­
tatic manual search of the literature could be accomplished. One notable depart­
ture from the traditional approach to teaching search strategy was that the role of bibliographies was de-emphasized. The universal types of research tools and proper

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struction program. Each student was assigned an index title or reference source upon which the student was to report in class. Many of these students obtained assistance from Undergraduate Library reference personnel in the use(s) of their assigned items.

Finally, the teaching assistant did not include a discussion of the Library Computer System. (LCS serves all the functions of the main card catalog, serial record, and shelf-list except that subject searching and full bibliographic record are not yet available. As a result, location and retrieval of items from any of the thirty-five-plus libraries scattered across campus and the main library are greatly simplified by this on-line circulation system. Public terminals are available, and the search procedures easily learned.) Research Skills Instruction stressed the value of LCS and basic search commands.

**EVALUATION METHODOLOGY**

In an effort to assure that the content of instruction and the instructional techniques employed were meeting student needs, an evaluation was planned for the 1978/1979 academic year. The goal of the evaluation was to assess the value of library instruction as conducted for students enrolled in rhetoric writing courses. Objectives for the evaluation required that it should:

1. indicate the impact of instruction on student term-paper research behavior;
2. be objectively valid and reliable;
3. be ethically within the province of librarianship;
4. be cost and time efficient; and,
5. be easy to implement and capable of repetition for comparison of results.

The goals and objectives dictated the necessity of a behavioral approach to evaluation. The final instrument incorporated a perceptual evaluation section to enhance the thoroughness of the results. The criteria governing the study required that the information-gathering techniques of students not be influenced by the evaluation methodology.

**Instrumentation**

Since the Undergraduate Library instruction program was based upon behavioral objectives, the evaluation was designed to reveal the manner and extent of student use of the library system and its resources during term-paper research, and to reveal their perception of the library and of their ability to use the library effectively. A questionnaire was designed to determine the effects of instruction on the following:

1. Use of reference sources, including encyclopedias, bibliographies, and, of greatest emphasis, periodical indexes and abstracts;
2. Use of information sources, including monographs, periodical articles (which received greatest emphasis), government publications, and microform and media materials;
3. Catalog use, including the Undergraduate Library card catalog, the main card catalog in the main library, the serial record in the main library, Library of Congress Subject Headings, and the Library Computer System;
4. Use of libraries and services, including the Undergraduate Library reference service, the main library reference service, the term-paper counseling service, departmental libraries, and the Undergraduate Library media center; and,
5. Student perceptions of the value of library instruction, their opinions about the library, and confidence in their ability to use the libraries effectively.

**Data Collection**

During the last two weeks of the spring 1979 semester, when student term papers were due, the evaluation questionnaire was administered unannounced to three groups of freshman students enrolled in rhetoric courses. The three groups included: three randomly selected rhetoric classes that received no library-related instruction (46 students); two classes that received instruction concerning library research from the rhetoric teaching assistant (28 students); and six randomly selected classes that received Research Skills Instruction, four of which also received a work session, from Undergraduate Library staff (106 students).

Since term-paper assignments might have had an effect on student selection of sources and patterns of library use, a question form
was sent to each of the rhetoric instructors whose classes were included in the evaluation. This question form was intended to determine:

1. the nature and requirements for term-paper assignments;
2. the importance of the quality of sources selected by students for term-paper research; and,
3. for the classes that received instruction from the teaching assistant and the classes that had received no instruction, comments about the content of any library-related discussions in the classes and opinions about the Undergraduate Library instruction program; and for classes that had received instruction from the Undergraduate Library, opinions of the quality and content of the instruction sessions.

Instructor responses indicated a consistent attempt to encourage student use of a variety of sources, though requirements rarely dictated the types of materials preferred. No difference was reported concerning the number of sources required for student papers, but there were assignment differences that might have affected student responses to a few of the questionnaire items. These possible effects on student research behavior are noted in the results.

Data Analysis

Mean responses to each questionnaire item were computed for the three groups of students: students who received instruction from the Undergraduate Library, students who received instruction from their rhetoric teaching assistant, and students who received no instruction. One-way analyses of variance statistics (ANOVA) were computed on student item responses to identify statistically significant ($p < 0.05$) differences among group mean responses.

Report of Results

Use of Libraries and Resources

Group response means and standard deviations for each of the questionnaire items are presented along with ANOVA results in tables 1 through 4. Significant ($p < 0.05$) differences were observed among the three groups of students.

In order to determine student use of reference materials, students were asked to indicate how many encyclopedia titles, bibliography titles, periodical index titles, and other reference titles were used in researching their papers (table 1). There was no significant difference between groups in the use of encyclopedias. Students who received no instruction reported greater mean use of bibliographies than did either of the instructed groups. Instructed students reported using an average of almost twice the number of periodical indexes than did un instructed students. Since Research Skills Instruction placed so much emphasis on the use of indexes other than Readers' Guide to Periodical Literature, this finding was thought to be an indication of the effectiveness of instructional efforts. Library-instructed students exhibited the greatest use of periodical index titles, with 74.5 percent reporting use of two titles or more. Of the students who received instruction from their teaching assistant, 67.8 percent reported using more than one index title. But only 39.1 percent of the uninstructed students responded that more than one title was used. Unsurprisingly, it was also found that the number of periodical articles used for documenting papers increased pro-

<table>
<thead>
<tr>
<th>Reference Sources</th>
<th>Library Instruction (L.I.)</th>
<th>Teaching Assistant Instruction (T.A.)</th>
<th>No Instruction (N.O.)</th>
<th>Significance ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bibliographies</td>
<td>0.91 Mean Use 1.11 S.D.</td>
<td>0.96 Mean Use 1.35 S.D.</td>
<td>1.56 Mean Use 1.57 S.D.</td>
<td>$^\dagger$N.O. &gt; L.I. and T.A.</td>
</tr>
<tr>
<td>Encyclopedias</td>
<td>0.33 Mean Use 0.63 S.D.</td>
<td>0.25 Mean Use 0.52 S.D.</td>
<td>0.41 Mean Use 0.96 S.D.</td>
<td>None</td>
</tr>
<tr>
<td>Periodicals</td>
<td>2.42 Mean Use 1.32 S.D.</td>
<td>2.46 Mean Use 1.23 S.D.</td>
<td>1.37 Mean Use 1.20 S.D.</td>
<td>$^\dagger$L.I. and T.A. &gt; N.O.</td>
</tr>
<tr>
<td>Other</td>
<td>0.17 Mean Use 0.61 S.D.</td>
<td>0.43 Mean Use 0.54 S.D.</td>
<td>0.20 Mean Use 0.69 S.D.</td>
<td>None</td>
</tr>
</tbody>
</table>

*Response scale was 0, 1, 2, 3, and 3+.  
$^\dagger$p < 0.01
portionately to the number of index titles used for each of the three groups. (Pearson product moment correlation coefficients included: L.I. \( r = .32 \); T.A. \( r = .43 \); N.O. \( r = .52 \).)

As a means of determining student use of information sources, students were asked to indicate how many books, articles, media and microform sources, and other information sources they used in researching their papers (table 2). Both the library-instructed students and the students who received instruction from their teaching assistant reported greater mean use of periodical articles than did uninstructed students. It was found that as mean use of articles increased, mean use of monographs decreased for both instructed groups (L.I. \( r = -.46 \); T.A. \( r = -.30 \)). Students who received instruction from their teaching assistant and students who received no instruction reported greater mean use of monographic literature than library-instructed students. This difference may have been a result of the substantial emphasis placed upon the use of a variety of sources and selectivity in choice of materials by library instructors. Students who received instruction exhibited greater mean use of microform and media materials than did uninstructed students. Whereas 31.1 percent of the students who received instruction from the library and 39.3 percent of those who received instruction from their teaching assistant used microform and media materials, only 4.3 percent of the uninstructed students reported using these materials. There was little difference in the reported use of government documents among the three groups. The difficulty of locating documents within the library system at that time was probably partially responsible for the low use of these materials.

To determine student use of catalogs, students were asked how many times they used the Undergraduate Library card catalog, the main card catalog in the main library, the serial record, the Library Computer System, and Library of Congress Subject Headings (table 3). A majority of

**TABLE 2**

**Student Use of Information Sources: Number of Items Used**

<table>
<thead>
<tr>
<th>Information Sources</th>
<th>Library Instruction (L.I.)</th>
<th>Teaching Assistant Instruction (T.A.)</th>
<th>No Instruction (N.O.)</th>
<th>Significance ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Use</td>
<td>S.D.</td>
<td>Mean Use</td>
<td>S.D.</td>
</tr>
<tr>
<td>Books</td>
<td>3.50</td>
<td>1.80</td>
<td>4.43</td>
<td>1.32</td>
</tr>
<tr>
<td>Periodicals</td>
<td>3.09</td>
<td>1.92</td>
<td>3.39</td>
<td>1.64</td>
</tr>
<tr>
<td>Government publications</td>
<td>0.63</td>
<td>1.11</td>
<td>0.54</td>
<td>0.88</td>
</tr>
<tr>
<td>Microform and media materials</td>
<td>0.81</td>
<td>1.48</td>
<td>1.14</td>
<td>1.80</td>
</tr>
<tr>
<td>Other</td>
<td>0.07</td>
<td>0.32</td>
<td>0.04</td>
<td>0.19</td>
</tr>
</tbody>
</table>

*Response scale was 0, 1, 2, 3, 4, and 4+.
†p < 0.01.

**TABLE 3**

**Student Use of Catalogs: Number of Times Used**

<table>
<thead>
<tr>
<th>Catalogs</th>
<th>Library Instruction (L.I.)</th>
<th>Teaching Assistant Instruction (T.A.)</th>
<th>No Instruction (N.O.)</th>
<th>Significance ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Use</td>
<td>S.D.</td>
<td>Mean Use</td>
<td>S.D.</td>
</tr>
<tr>
<td>Undergraduate Library card catalog</td>
<td>2.67</td>
<td>1.34</td>
<td>2.96</td>
<td>1.32</td>
</tr>
<tr>
<td>Main card catalog</td>
<td>1.47</td>
<td>1.44</td>
<td>1.68</td>
<td>1.47</td>
</tr>
<tr>
<td>Serial Record</td>
<td>0.68</td>
<td>1.11</td>
<td>0.68</td>
<td>1.31</td>
</tr>
<tr>
<td>Library of Congress Subject Headings</td>
<td>0.19</td>
<td>0.59</td>
<td>0.43</td>
<td>0.92</td>
</tr>
<tr>
<td>Library Computer System (LCS)</td>
<td>1.30</td>
<td>1.52</td>
<td>0.50</td>
<td>1.20</td>
</tr>
</tbody>
</table>

*Response scale was 0, 1, 2, 3, and 3+.
†p < 0.01.
‡p < 0.05.
students from each group reported using the Undergraduate Library card catalog at least once (L.I. = 92.5 percent; T.A. = 92.9 percent; N.O. = 87 percent). Mean use was almost three times per student. The main card catalog in the main library was used slightly less often, about three-quarters of the students from each group reported using this catalog, with mean use totaling less than twice per student in each group. The card catalog that proved an exception in use patterns was the serial record, located in the main card catalog area of the main library. Students who received no instruction reported using the serial record almost twice the number of times per student as did instructed students. Considering the low use of periodical articles and periodical indexes exhibited by uninstructed students, this may be an indication of their lack of retrieval skills. Students who received instruction from the library staff demonstrated strong use of the Library Computer System. Mean use of LCS for this group was more than twice that reported by the other students, reflecting the impact of Research Skills Instruction. There was no significant difference in reported use of Library of Congress Subject Headings among groups.

To determine student use of libraries and services, students were asked how many times they used the Undergraduate Library reference service, the term-paper counseling service, the main library reference service, departmental libraries, and the media center (table 4). The responses of students in the three groups reported similar use of reference services. Mean use of the Undergraduate Library reference service was less than once per student. Only one-half of the students or less in each of the three groups responded that they asked for assistance at any of these service points. Among the un instructed students, this result may coincide with their reported feelings of discomfort using the libraries, as indicated below. Instructed students may not have felt the need to use the services. Nonetheless, this low use was puzzling in the case of the Undergraduate Library reference service, which answered nearly 130,000 questions that year.22

There was no significant difference in reported use of departmental libraries. The majority of students in each of the groups reported using a departmental library other than the Undergraduate Library at least once (N.O. = 76.1 percent; T.A. = 64.3 percent; L.I. = 62.3 percent). Mean use of the departmental libraries was greater than once per student. Students who received instruction from their teaching assistant reported greater mean use of the Undergraduate Library media center than did students from either of the other two groups. This result was probably due to the instructor’s requirement that each student select a term paper topic from the New York Times published on the date of the student’s birth. That newspaper is available on microfilm in the media center as well as in the newspaper library. Almost one-half of the students who received instruction from their teaching assistant and one-quarter of the library-instructed students reported using the media center, compared to only one-tenth of the uninstructed students.

<table>
<thead>
<tr>
<th>Libraries and Services</th>
<th>Library Instruction (L.I.)</th>
<th>Teaching Assistant Instruction (T.A.)</th>
<th>No Instruction (N.O.)</th>
<th>Significance ANOVA Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Use</td>
<td>S.D.</td>
<td>Mean Use</td>
<td>S.D.</td>
</tr>
<tr>
<td>Undergraduate Library reference service</td>
<td>0.89</td>
<td>1.10</td>
<td>0.96</td>
<td>1.27</td>
</tr>
<tr>
<td>Term-paper counseling service</td>
<td>0.45</td>
<td>0.68</td>
<td>0.54</td>
<td>1.11</td>
</tr>
<tr>
<td>Main library reference service</td>
<td>0.81</td>
<td>1.30</td>
<td>0.75</td>
<td>0.97</td>
</tr>
<tr>
<td>Departmental libraries</td>
<td>1.42</td>
<td>1.45</td>
<td>1.54</td>
<td>1.48</td>
</tr>
<tr>
<td>Media center</td>
<td>0.47</td>
<td>1.01</td>
<td>1.18</td>
<td>1.49</td>
</tr>
</tbody>
</table>

*Response scale was 0, 1, 2, 3, and 3+.

†p < 0.01.
Student Perceptual Responses

Student responses to opinion and self-evaluation items are presented along with ANOVA results in Table 5. Again, it is revealing to consider items for which there was no variation, as well as those for which significant differences were apparent.

The responses of students from all three groups indicated strong agreement that knowing how to use the library is important, and that a class or two devoted to using the libraries would be helpful to most new students. The majority of students expressed the desire for more instruction (N.O. = 80.4 percent; T.A. = 71.4 percent, L.I. = 66 percent).

Students who received instruction from the Undergraduate Library and those who received instruction from their teaching assistant exhibited a greater mean response concerning confidence in their ability to locate materials in the Undergraduate Library (L.I. = 88.6 percent; T.A. = 85.7 percent; N.O. = 67.4 percent). All groups reported somewhat less confidence in the ability to locate materials in the main library, with no difference in responses between groups. It was found, however, that

| Table 5 |
|------------------|------------------|------------------|------------------|
| **Statement**    | **Library Instruction (L.I.)** | **Teaching Assistant Instruction (T.A.)** | **No Instruction (N.O.)** | **Significance ANOVA Results** |
| 1. Everyone needs to know how to use the library. | 1.34 0.53 | 1.25 0.65 | 1.35 0.48 | None |
| 2. I know how to locate most of the materials I might need in the Undergraduate Library. | 1.86 0.65 | 1.86 0.65 | 2.20 0.78 | †L.I. and T.A. < N.O. |
| 3. I know how to locate most of the materials I might need in the main library. | 2.53 0.89 | 2.57 0.74 | 2.72 0.91 | None |
| 4. A class or two devoted to using the libraries would help most new students. | 1.70 0.75 | 1.86 0.80 | 1.72 0.66 | None |
| 5. I feel comfortable asking for assistance in the Undergraduate Library. | 1.59 0.61 | 1.75 0.75 | 1.96 0.93 | †L.I. < N.O. |
| 6. I feel comfortable asking for assistance in the main library. | 1.98 0.84 | 2.18 0.82 | 2.18 0.91 | None |
| 7. Using the libraries is a frustrating experience. | 2.72 0.87 | 2.26 0.94 | 2.33 1.01 | †L.I. > T.A. and N.O. |
| 8. I wish more instruction were available in how to do library research. | 2.30 0.83 | 2.11 0.85 | 2.02 0.61 | None |
| 9. I feel confident using the university libraries. | 1.91 0.70 | 2.00 0.61 | 2.22 0.76 | †L.I. < N.O. |
| 10. The university libraries are difficult to use. | 2.85 0.82 | 2.79 0.74 | 2.52 0.81 | None |

*Response scale: 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree.*

†p < 0.05.
confidence in the ability to locate materials in the main library increased as confidence in the ability to locate materials in the Undergraduate Library rose (L.I. \( r = .48 \); T.A. \( r = .71 \); N.O. \( r = .34 \)). Interestingly, confidence in the ability to locate materials in the main library increased in proportion to reported mean use of the main card catalog for library-instructed students, but decreased for the other two groups (L.I. \( r = .48 \); T.A. \( r = -.47 \); N.O. \( r = -.47 \)). Overall, students who received instruction from library staff demonstrated a higher mean response concerning their confidence using the university libraries than did uninstructed students. A higher percentage of library-instructed students and students who received instruction from their teaching assistant reported feeling confident of their ability to use the university libraries than did uninstructed students (L.I. = 83.9 percent; T.A. = 82.2 percent; N.O. = 63.1 percent).

Students who received instruction from the Undergraduate Library reported a greater mean response concerning their comfort asking for assistance in the Undergraduate Library than did students who received no instruction. A higher percentage of the library-instructed students reported feeling comfortable asking for assistance in the Undergraduate Library (L.I. = 93.4 percent; N.O. = 76.1 percent). Overall, confidence in the ability to use university libraries increased in proportion to the reported feeling of comfort asking for assistance in the Undergraduate Library for library-instructed students (L.I. \( r = .44 \)).

Finally, students who received no instruction and students who received instruction from their teaching assistant reported feeling that "using the libraries is a frustrating experience" more often than did students who received instruction from the library staff. The percentage of library-instructed students reporting a feeling of frustration using the libraries was much lower than for the other two groups (L.I. = 35.8 percent; T.A. = 60.7 percent; N.O. = 58.7 percent). This finding was particularly revealing since there was no significant difference in the responses of students in the three groups concerning how difficult it is to use the libraries.

Discussion

The objectives of the instruction program of the Undergraduate Library at the University of Illinois, Urbana-Champaign, were primarily concerned with the task of introducing students to those basic research methods and materials that would enable them to use a variety of sources in their research, evaluate materials for authority and appropriateness, and exploit the complex library system confidently and competently. The findings of the evaluation are best expressed within the context of these objectives, comparing the library-use behavior of students involved in library research.

Students who received instruction from the Undergraduate Library used a greater number of periodical index and abstract titles, a greater number of periodical articles, and a greater number of microform and media sources per student than did uninstructed students. Conversely, the library-instructed students demonstrated less reliance upon books than did students who received no instruction. Thus, it might be concluded that students who received instruction from the Undergraduate Library were successfully introduced to the variety of resources available to them for research and were induced to use them. The only evidence found concerning the expressed need for selectivity in the choice of materials was the fact that library-instructed students relied less heavily upon books in a library of such huge volume and sought out the less familiar and less accessible periodical, microform, and media materials. This is perhaps supported by the finding that no significant variations were reported in the use of the main card catalog, the Undergraduate Library card catalog, library services, or departmental libraries.

Students who received instruction from the rhetoric teaching assistant compared favorably with library-instructed students in the variety of sources used. The evidence for selectivity in the choice of materials among these students is perhaps less compelling, however, since these students reported using as many books as did uninstructed students.

All three groups of students appear to have used campus libraries, card catalogs (except for the serial record), and library
services to a similar extent. On the whole, they seem to have preferred the resources and services of the Undergraduate Library and the departmental libraries over those of the main library, perhaps because these libraries have open stacks, study facilities, and contain the bulk of current periodical and monographic literature. Library-instructed students exhibited a significantly greater use of the Library Computer System than students in the other two groups. Since neither of the other groups received LCS instruction, this result can probably be attributed directly to the Undergraduate Library instruction effort.

Students themselves were not remiss in recognizing the need for instruction. Students from all three groups expressed the nearly unanimous opinion that to use the library effectively is important, and most felt that instruction in library skills would be of value to new students. A majority of students in each of the groups expressed an interest in receiving more instruction.

Students who received instruction from the Undergraduate Library demonstrated confidence in their ability to use the libraries, especially the Undergraduate Library, to a greater extent than did uninstructed students. The library-instructed students also reported feeling more comfortable asking for assistance in the Undergraduate Library. Reported feelings of frustration using the libraries were lower for students who received instruction from the Undergraduate Library than in either of the other two groups. This occurred in spite of the fact that just as many of these students reported feeling that the libraries are difficult to use as did students who received instruction from their teaching assistant and those who received no instruction.

Overall, the evaluation appears to have indicated that the instruction program of the Undergraduate Library was successful in achieving its objectives. Students who received instruction from the Undergraduate Library used a greater variety of sources, seem to have exhibited a degree of selectivity in their choice of materials, and appear to have attained a sense of confidence and competence in their ability to use the library effectively.

**Conclusion**

Library user-education programs have long needed a method by which the impact of instruction on student use of the library could be determined. Evaluations based on library use offer an objective, data-based impression of the overall success or failure of an instruction program by identifying portions that have achieved or failed to achieve the desired results, and by indicating any undesirable consequences of the instruction effort. When used in conjunction with perceptual evaluation methods, such evaluations provide a means of gaining insight into the motivational and practical aspects of student behavior as manifested in uncontrolled library situations.

The evaluation described in this paper is but one step in the development of an adequate methodology for evaluations based on library use. A notable shortcoming of the evaluation design employed here was its inability to reveal the order in which materials were used—an extremely important concern for programs that attempt to teach search strategy.

Evaluations based on library use cannot reveal all the causes of success or failure in library instruction. Achievement and performance testing along with perceptual evaluation remain important tools for monitoring the cognitive and affective results of instruction on a day-to-day basis. Yet to be found is a methodology that will express the role student motivation and maturation play in the development of effective library skills. Evaluations based on library use can, however, present a picture of the impact of instruction within the context of a program's behavioral objectives.

**References**


2. See, for example, James Benson, "Bibliographic Education: A Radical Assessment," in Cerise Oberman-Soroka, ed., *Proceedings*

3. An overview of goals and objectives for a variety of user-education purposes is provided by Nancy Fjalbrant and Malcolm Stevenson, User Education in Libraries (London: Clive Bingley, 1978).


9. One of the more commonly used and adapted standardized tests has been Ethel M. Feagley and others, A Library Orientation Test for College Freshmen (New York: Teachers College Pr., Columbia Univ., 1955).


18. Combinations of the evaluation techniques described above, along with subjective observations of the programs, have been termed illuminative evaluation and applied to the Travelling Workshops program in England. See Colin Harris, “Illuminative Evaluation of User Education Programmes,” Aslib Proceedings 29, no.10:348–62 (1977).


20. Both Kirk (“Bibliographic Instruction”) and Johnson (“Library Instruction”) urged the development of user study methodologies for instruction-program evaluation.

21. More detailed information concerning this study, including copies of the questionnaire employed, is available from author David King.

22. UGCI Newsletter, no.15, 1980 (published by the Undergraduate Librarians Discussion Group, Association of College and Research Libraries).
EUGENE P. SHEEHY

Selected Reference Books of 1979–80

THIS ARTICLE continues the semiannual series originally edited by Constance M. Winchell. Although it appears under a byline, the list is a project of the Reference Department of the Columbia University Libraries, and notes are signed with the initials of the individual staff members. 1

Since the purpose of the list is to present a selection of recent scholarly and general works of interest to reference workers in university libraries, it does not pretend to be either well balanced or comprehensive. A brief roundup of new editions of standard works, continuations, and supplements is presented at the end of the article. Code numbers (such as BD371, CA23) have been used to refer to titles in the Guide to Reference Books and its supplement. 2

BIBLIOGRAPHY


Scholars and students of Slavic studies, to say nothing of interlibrary loan librarians, will welcome this work as the successor to the Cyrillic Union Catalog (Guide AA856). The scope of the new work is considerably expanded over the earlier version, listing books, pamphlets, maps, atlases, periodicals, and other serials published before 1956 in the Cyrillic alphabet and in seven languages: Russian, Church Slavic, Belorussian, Ukrainian, Bulgarian, Serbian, and Macedonian. It represents well over 350,000 titles (main and added entries and cross-references) cataloged by the Library of Congress and participating libraries and held by 220 libraries in the United States and Canada. When CUC was published in 1963, it included locational information up to March 1956. Over the last two decades locations continued to be recorded in the Slavic Union Catalog at the Library of Congress, and this information is now incorporated into SCUC. Starting in 1980, further locations for these materials will appear in the National Register of Additional Locations under the SCUC card number.

Arrangement is a single alphabet by main entry. Essential added entries and cross-references are included, but the main entry must be consulted for locations. Whereas the CUC used a romanized form throughout, SCUC was prepared from Library of Congress cards wherever possible and contains only a small percentage of entries using transliteration. No attempt was made to edit for conformity with LC practice the variations in contributed copy for which no LC card existed. Consequently, the searcher must be aware that inconsistencies are to be expected.

Fiches are of a forty-eight-diameter reduction with twelve cards to a frame. Frames are arranged in the comic mode, but the individual frame consists of three columns of four cards each, to be read by column. Some few handwritten cards and those on colored stock are difficult or impossible to read, but despite all its imperfections, SCUC will be recognized as an enormously valuable research tool. —R.K.

MANUSCRIPTS

Henry E. Huntington Library and Art Gallery, San Marino, California. Guide to American Historical Manuscripts in the Huntington Library. [San Marino], Hunt-

1. Paul Cohen, Rita Keckeissen, Anita Lowry, Eileen McIlvaine, Mary Ann Miller; Lehman Library: Laura Binkowski, Diane Goon.

With more than five million manuscripts in its collections, the Huntington Library is one of the richest depositories in the country. In 1975 the library began a survey of these holdings which has so far resulted in two published guides giving detailed information about the collections: literary manuscripts and American historical manuscripts.

The historical volume covers materials dating from the sixteenth century; each entry in the guide includes a well-researched historical or biographical sketch, an account of the subject matter, a list of significant correspondents represented, a physical description of the papers, and the provenance, as well as any useful bibliographical sources. More than 500 separate collections are described in this manner, making the volume a useful reference work even for those not searching for the manuscripts themselves.

Holdings described in the volume devoted to literary manuscripts include some 125,000 pieces written by more than 1,000 authors. It was not possible to give descriptions here as full as those in the historical volume. Biographical notes, for example, are included only for the largest collections. However the manuscripts themselves are listed in some detail, often with a brief description and usually dated.

In 1981 the final two volumes of this guide series are scheduled for publication: British historical manuscripts, and medieval and Renaissance manuscripts. Together, these four volumes will greatly facilitate using the Huntington Library; they will also serve as a model for compilers of manuscript catalogs for other libraries. — P. C.


In 1965 Matthews and Wainwright made a survey of British libraries (including those of museums and learned societies) to identify holdings of Western-language manuscripts relating to Asia and Africa. This is the last of the guides based on that survey, earlier volumes having covered South and Southeast Asia (1965; Guide DE15), Africa (1971; Guide DD59), and the Far East (1977; Suppl. DE2). J. D. Pearson has updated the original survey information: he has perused descriptions or inventories published since 1965; revisited the main libraries in London, Oxford, and Cambridge; and used the notes from the National Register of Archives and, for private papers, the Middle East Centre in Oxford. Thus he has provided an important catalog of manuscript materials in the British Isles dealing with the Arab countries, Israel, Cyprus, Turkey, Iran, and regions of the Caucasus, Central Asia, and the Crimea.

For each archive a note indicates any published guides or inventories of the collection, and this is followed by brief description of the contents of pertinent files. The index is very detailed.

Scholars are fortunate to have this useful series of guides, and they will be grateful to have had such a knowledgeable editor as Pearson for this one. — E. M.

PERIODICALS


Libraries that purchased University Microfilms' American Periodicals series now have an impressive index to those collections. It has title, editor, subject, and reel indexes to a significant group of periodicals published in America from the first one issued, The American Magazine (1741), through the nineteenth century. The index is the culmination of a project started forty years ago at the University of Michigan's Clements Library, where filming of rare
eighteenth-century periodicals was begun on a small scale. Over the years periodicals from other libraries were added, not only making the series more complete but also making available the best copies for general use. When the three microfilm sets mentioned in the subtitle were complete, serials from more than 250 libraries were represented and the number of periodicals totaled more than 1,100. More than simply a guide to these collections, the index serves as an important reference work on eighteenth- and nineteenth-century publishing history.

Each entry is accompanied by a historical note similar to those in Brigham’s History and Bibliography of American Newspapers. Here editorial policies are chronicled, activities and contributors are described, and general history is traced. Lists of editors are also provided, along with pertinent bibliographical data (e.g., information on supplements and pagination) and a description of the actual paper copy microfilmed (indicating such matters as missing issues and damaged leaves). Even libraries that do not own the microfilm collections will find this index a valuable guide to the rich history of American periodical publishing.—P.C.

NEWSPAPERS


Abandoning the system of ranking used in Merrill’s Elite Press (New York, 1968), the editors here present profiles of the newspapers that they believe “represent the very best in the world’s journalism, regardless of how differently this journalism may manifest itself in different cultures and ideological contexts.”—Pref. Nearly half of the papers profiled are English-language publications (ten from the USA), but the selection is worldwide and many different countries and languages are represented. An average of about seven pages (including an illustration of a typical front page) is devoted to each newspaper, with information provided on the history, policies, staff, circulation, strengths, and limitations. Sketches are highly readable and include bibliographic footnotes, but a fuller bibliography than the selected list found on pages 375–79 would have been welcome.—E.S.

BIOGRAPHY


Following the completion in 1937 of the Nieuw Nederlandsch Biografisch Woordenboek (Guide A)240), there was no ongoing effort toward a dictionary of national biography for the Netherlands until work was begun on this new compilation. Inasmuch as the NNBW included only persons deceased before the end of 1910, there is a considerable gap to be filled by the new series. As in the NNBW, each volume of the new set will offer an alphabetical sequence of articles with, presumably, cumulative indexes in subsequent volumes. Only deceased persons are included (with dates as late as 1977 noted in volume 1), but coverage is meant to be broad in regard to fields of endeavor, and nationals of other countries are included if their work or influence was notable in the Netherlands. Articles are signed and provide references to principal published writings of the biographes, collections of documents and archival materials, and biographical/critical studies.—E.S.

LINGUISTICS


At head of title: Linguistic Atlas of the United States and Canada, Hans Kurath, Director.

"Sponsored by the American Council of Learned Societies."—t.p.

In the 1930s and 1940s Hans Kurath directed a team of field workers who visited the Middle and South Atlantic states—from southern Ontario and upstate New York to northeastern Florida—to interview residents of specified communities for examples of
pronunciation and grammatical usage. In each community (usually a county) an average of two “informants of contrasting age and social background . . . and often at different locations within the county” (Introd.) were chosen. For a few metropolitan areas such as Manhattan, Brooklyn, and Atlanta, six to eight people were interviewed.

After long delay, the first two fascicles of the atlas have been issued; these give the results of the survey for the pronunciation of “New England,” state names, and “Philadelphia,” “Baltimore,” and “Washington,” as well as county name of the informant. Transcriptions of pronunciations are given in a modified International Phonetic Alphabet. A “Table of Informants by Types” gives the age and sex of each informant, date of the interview, and the initials of the field worker.

Before relinquishing editorship of the project, Kurath decided that the format would not be overprinted maps as in the Linguistic Atlas of New England (Guide BC59), but rather “lists, printed by photo-offset from typed copy. This would permit less costly publication and produce volumes easier to use and store.”—Pref. There is no projected timetable for the completion of the atlas, but an index is expected to be ready at the time the last fascicle is published. Also in progress is a “LAMSAS handbook,” which will provide a more detailed introduction to the project and its informants. Together with the Linguistic Atlas of New England, the completed LAMSAS will offer “the full phonetic record of the primary dialect survey of the Atlantic States . . . where the chief varieties of our English developed during the colonial period, dialects that were carried westward in the nineteenth century.”—E.M.

LITERATURE


Like Eagle and Carnell’s Oxford Literary Guide to the British Isles (Oxford, 1977. 413p.), this work offers an alphabetically arranged series of articles on places—towns, villages, rivers, mountains, etc.—with literary associations. But, apart from being more elaborately produced and confined to places in England, this volume exhibits various other differences from the Oxford work. Each volume includes certain place-names not found in the other, and different literary associations are sometimes singled out for the same place. Fisher’s articles are almost always longer, more discursive in style, and more often include quotations from literary works. However, despite its length (p.322–477), the “London” entry in Fisher, consisting mainly of entries for individual writers (arranged by birth date) and detailing their association with the city, seems generally less satisfactory than that in the Oxford work, which is subdivided by area, with entries for named districts, streets, and even specific buildings. The Oxford volume’s unusually full “Index of Authors” also offers advantages over Fisher’s index. Large libraries, however, will undoubtedly want both works.—E.S.


This latest addition to the Wilson Authors series is a handy compilation of biographical-critical articles on 376 authors of ancient and early medieval times, the period that precedes the publisher’s European Authors: 1000–1900 (Guide BD88). Entries, alphabetically arranged, cover the writer’s life, identify and describe the contents of his works, and, for the more important authors, indicate his influence on later literature. The bibliography that concludes each account lists the most useful editions of the writings, translations, and critical materials, thus providing the student with a good starting point for further investigation. Two appendices offer a list of works of doubtful attribution and a chronological list of authors by century. Valuable for any reference collection, especially in the smaller library.—R.K.


As the author states in the introduction to the first volume of this set, "This bibliography records writings in English published from 1890 which discuss bibliographical aspects of works printed or published in Britain from 1475 to the present day, and the circumstances of production and distribution of books in Britain during that period. From the literary viewpoint, the bibliography provides access to the literature of which a student or editor must take account when he attempts to determine the authority and correctness of a text which interests him." The principles of inclusion and exclusion for the bibliography are enumerated in careful detail, but without noting the numerous exceptions (for example, certain foreign-language materials) to the general rules, one can summarize the scope of the bibliography as follows: English-language books and articles published between 1890 and 1969 that are concerned primarily with the bibliographical and textual questions of English literary history.

For the most part, the style and arrangement of entries are consistent with the earlier volumes in the Index to British Literary Bibliography series: Bibliography of British Literary Bibliographies (1969; Guide BD371) and Shakespearean Bibliography and Textual Criticism (1971; Guide BD528). The entries are grouped in six sections: "Bibliography and Textual Criticism"; "General and Period Bibliography"; "Regional Bibliography"; "Book Production and Distribution"; "Forms, Genres, and Subjects" (all in one volume); and "Authors" (in the second physical volume). Within each section entries are arranged chronologically. A combined index to the four published volumes of the series (v. 3, British Bibliography to 1890, is still in preparation), announced for June 1980 publication, was not available for examination, but the completed work will constitute a major scholarly reference work.—A.L.


Designated as a volume in the Wilson Authors series, this volume is called "a companion rather than a supplement" to such earlier Wilson biographical dictionaries as Twentieth Century Authors (Guide BD89) and World Authors, 1950—1970 (Suppl. BD20) because it does not update biographies of authors dealt with in those works. Some 348 writers are represented, most of them being novelists, poets, or dramatists "of literary importance and/or exceptional popularity" (Pref.), although philosophers, historians, biographers, critics, scientists, and journalists are included if their writings seemed of "sufficiently wide interest, influence, or literary merit." Most came to prominence during the 1970—75 period, but a number of figures omitted from earlier volumes (because of lack of bibliographical information or because their work was not available in English translation) are included here. Articles employ the combination of biographical material (with autobiographical statements provided by many of the biographees) and critical comment familiar to users of the Wilson series. Lists of principal writings and of writings about the authors complete the entries.—E.S.
of the dictionary is determined by Roud's thinking about cinema—from the selection of subjects, contributors, and format to the personal comments added by Roud at the end of each article (comments that update, supplement, evaluate, and add bibliographical references).

Emphasis is primarily, though not exclusively, on feature-length, narrative cinema of the United States, Western Europe, Russia, and Japan. All of the generally accepted major directors are included, plus many lesser-known ones. Among other topics afforded separate articles are "American Avant-Garde Cinema," "Dance in Film," "Soviet Cinema since the War." The contributors are well-known scholars and critics; the articles reflect a variety of styles and approaches, and range from a few paragraphs to many pages.

As a reference work, this is a valuable source of concise, analytical essays of a kind that cannot be found in any other English-language reference book in the field; indeed, for some of its subjects it may provide the only (or at least the most accessible) critical survey in English. The index of names and titles and the well-reproduced stills enhance the book's usefulness.—A.L.

**PHOTOGRAPHY**


This guide seeks to provide access to some of the important but elusive documents of photographic history. By indexing twenty-two books of collected photographs, it enables the student or researcher to identify and locate published reproductions of "thousands" of photographs. The volumes indexed are, for the most part, general photo anthologies and major histories of photography, including six volumes in the Time-Life photography series. Citations to photographs are listed in three sections: by photographer, by subject (using subject headings drawn mainly from the Sears List of Subject Headings), and portraits by name of sitter. For each photograph the following information is given: photographer, title, date, list of sources (with page or plate number), whether it is a color reproduction, and descriptive title for untitled photographs. Full citations to the sources are found in the "List of Books Indexed." Supplementary volumes are planned.—A.L.

**GRANTS**


Nowadays there is a burgeoning of new guides, directories, and journals to aid groups and individuals in their quest for the keys to the kingdom of patronage, and Virginia White leads the crowd with her ability to inspire while creating the order and perspective necessary for successful grantsmanship. She has previously given us one of the best general guides to grant seeking (Grants, 1975; Suppl. CA23) and here turns her experienced hand to helping a group that has heretofore not had a good guide of its own. To warm the grant seeker to the task she offers a fascinating historical essay on the history of artists and patrons. Noting the subtleties of grantsmanship from one discipline to another, she holds that philanthropists in the arts do not act out of compassion, altruism, or social concern; rather, "arts groups and artists are the means by which many sponsors try to make their own dreams come true. Understanding this important fact is essential in establishing a favorable relationship with a grantor."—p.17. Even so, having sometimes been disappointed, sponsors of the arts are now as hard-nosed as grantors in other fields, so the remaining fourteen chapters and six appendixes of White's guide are devoted to such tasks as identifying potential funding sources, managing the informal negotiations preceding the submission of an application, and preparing the written application. She covers government, corporate, and foundation sources, lists helpers such as "volunteer lawyers for the arts organizations," and provides sample budgets.

Coleman's book echoes much of White's advice and information, but it is most signif-
E. Coleman has compiled a list of agencies interested in funding individuals for postdoctoral research without geographic limitations. He has found and indexed by subject more than 130 such agencies and hopes for an annual revision of the list. The definition of humanities used by Coleman includes "the history, theory and practice of the arts" along with other disciplines and studies considered humanistic, and thus serves for some as an excellent companion to White's guides. For many other humanists it will be their best primary guide and directory. —M.A.M.

**SOCILOGY**


This bibliography is the published result of a special project of the *Journal of Family History* that was funded by a grant from the National Endowment for the Humanities. Coverage is worldwide and systematic through 1976. The 6,200 entries are grouped by regional or national units and are usually subdivided chronologically, with two exceptions: an excellent introductory chapter, and a chapter on classical antiquity. The organization of each chapter enhances its usefulness, beginning with works of a general nature, bibliographies, review essays, and methodological sources, followed by topic-specific citations. References contain a minimum of bibliographic information. A name index concludes the volume.

The compilers, a team of editors, research assistants, and regional experts, have listed those studies which focus on "the internal structures and processes of family and kinship as well as their interaction within the larger society and with community, economic, legal, religious and educational institutions."—Pref. To limit this grand design, historical relevance is the chief criterion for selection. Items from disciplines other than history have been included only when their contribution to the history of the family experience has been significant. The bibliography is selective in other respects as well: the majority of references cite published monographs and journal articles, whereas doctoral dissertations, conference proceedings, and other "less accessible" literature are not as well represented. Items in non-Western languages are included only if they have summaries in a Western European language. However, within its predetermined guidelines, the bibliography is a worthy effort that reflects in part the quantity, quality, and emphasis of research on family history in different areas of the world.—L.B.


Although bibliographies on women in many regions of the world have proliferated since the International Women's Year in 1975, a comprehensive bibliography on the 400 million women of South Asia has been lacking until the appearance of this impressive volume, which includes primary and secondary Western-language sources on historical and contemporary India, Pakistan, Bangladesh, Sri Lanka, and Nepal.

Part I is a bibliography of more than 4,600 books, essays, articles, serial titles, films and recordings, and those doctoral dissertations published by University Microfilms International. The list is based on the holdings of the South Asian collection at the University of Chicago's Regenstein Library; most items were published between the late eighteenth century and 1979. In the very detailed classification scheme general materials are listed first; then more specific titles are arranged in chronological time periods and in geographic contexts. Most entries include descriptive annotations. Part II consists of reports submitted by four scholars on research resources available in libraries, archives, and local collections in India, Pakistan, Bangladesh, and England. There is an author index to part I; the subject index covers both parts.

This work has a particularly individual stamp. The author notes, for example, that "the major divisions of the outline ... do not correspond to western academic categories, but describe historical periods and cultural areas significant for South Asia and
South Asians."—Introd. The subject index also employs a very hierarchical structure, evidently assuming that the user interested in Kali will go directly to "goddesses" without need of a see reference; similarly, there is no reference from "dowry" to "kinship—marriage—economic transactions." The user will want to supplement this volume with other bibliographies on women in individual South Asian countries for more complete coverage of foreign academic theses and documents. Scholars in both South Asian and women's studies will welcome this volume for its scholarly quality, its utility, and, last but not least, its bargain price.—D.G.

**Political Science**


Findling has selected 500 people and more than 500 events, conference names, catchwords, etc., for inclusion in this volume. For each he gives brief factual treatment, includes some critical statement as to the effect on American diplomatic history, and ends with a brief bibliography. The names of the U.S. chiefs of mission were "winnowed" to a manageable number and to these were added "a selection of non-diplomatic personnel, businessmen and missionaries, and publicists, including correspondents and broadcasters who had an impact on history."—Introd. Excluded are presidents who did not have a diplomatic career, and foreign diplomats and statesmen. Thus we have Washington Irving, John Quincy Adams, Charles A. Beard, and Eleanor Roosevelt, but neither Franklin nor Theodore Roosevelt, nor do we find many of the post-World War II chiefs of mission since very few of them had any substantial role in United States diplomatic policy. Nonbiographical entries range from the "SALT talks" to "Counselor" and "Council on Foreign Relations." The compiler omitted wars and the Department of Defense and its "military activities abroad," feeling that the "major portion of defense concerns is now with diplomacy."

There are five handy appendixes: "Chronology of American Diplomatic History" (which covers 1775–1978); "Key Diplomatic Personnel Listed by Presidential Administration"; "Initiation, Suspension, and Termination of Diplomatic Relations"; "Place of Birth"; and, most useful of all, "Location of Manuscript Collections and Oral Histories." A good index concludes the volume.

This dictionary and the *Encyclopedia of American Foreign Policy* (Suppl. DB27) complement each other nicely. There is very little duplication of persons chosen for inclusion and, of course, the *Dictionary* has no survey articles. The volume should be useful to all levels of readers not only for identification and quick definition, but also for the short bibliographies and the appendices.—E.M.

**Archaeology**


In an "attempt to summarize the present state of knowledge over the whole field of archaeological inquiry" (Introd.), this compilation presents sixty-two short chapters by more than fifty scholars, which treat the origin and development of archaeology and describe the cultures and areas of its activity throughout the world. Part I is devoted to the origin and development of the discipline, its recent advances, and current trends. Part II, the major portion of the book, offers more than fifty short essays that delineate the history and archaeology of cultures throughout the world, from man the hunter to the early Middle Ages. The empires of the Old World, the East, the New World, and the Pacific are all included. Part III, "Frameworks: Dating and Distribution," includes three articles on methods of dating and on chronologies. Contributors are identified. Bibliographical notes for each chapter, a list of books for further reading, and an index conclude the work. Illustrations, many in color, and a double-column page of good design make for an attractive format. The volume is more likely to be used for browsing than for quick reference.—R.K.
AREA STUDIES


Although based on Nunn's Asia, a Selected and Annotated Guide (1971; Guide DE1), this is virtually a new work, less than a third of the 1,567 titles in the present edition having been retained without change from the earlier publication. As before, a regional/country arrangement is used for the annotated listings of encyclopedias, handbooks, yearbooks, dictionaries, directories, atlases, gazetteers, chronologies, statistical sources, and bibliographies; various new subcategories were added in the bibliography sections. Oriental and Western-language (mainly English) materials are cited. In addition to the author and title index, a table of "Chinese, Japanese and Korean Characters for Titles" is provided (transliteration being used in the text of the guide). The volume represents a thorough revision and updating of a very useful work.—E.S.

NEW EDITIONS, SUPPLEMENTS, ETC.

With the completion (in 685 volumes) of the National Union Catalog—Pre-1956 Imprints (Guide AA96), the gap left for the Bible entries (volumes 53-56) has at last been filled. A special introduction, with notes on arrangement of the Bible cards, is provided in volume 53. The four volumes encompass some 63,000 entries representing editions of the Bible in about 700 languages and dialects. The Bible segment is available separately as a five-volume set (London, Mansell, 1980. $440) with an index of some 18,000 entries, but was not available for examination at this writing. The first installment of supplementary volumes for the "Pre-'56" set has also appeared; it continues the numbering of the basic series.

In the new subtitle "Répertoire Cumulatif des Livres de l'Année—Biblio," the recently published volumes of La Librairie Française, Tables Décennales 1966-1975 (Paris, Cercle de la Librairie, 1979. 6v. 289F.) acknowledge the source of the listings therein: Les Livres de l'Année—Biblio (Guide AA617) and its predecessors. This cumulative continues the separate author and title listings as found in the earlier volumes of La Librairie Française (Guide AA615).

Compiled under the editorship of L. Dawn Pohlman, the third edition of A Union List of Selected Microforms in Libraries in the New York Metropolitan Area (New York, New York Metropolitan Reference and Research Library Agency, 1979. 181p. METRO Misc. Publ. no.22. $30 prepaid) adds about 300 entries for major microform series and selected items of scholarly interest in microform. Observance of somewhat stricter guidelines led to the elimination of some 75 items from the previous edition (1975); 922 entries are now included. Indexes and finding aids for individual collections and series are again noted; some of the descriptive notes have been expanded.

The introduction to the ninth edition of Library of Congress Subject Headings (Washington, D.C., Library of Congress, 1980. 2v. $75) notes two major changes made by the computer program for this list: "First, the previously announced adoption of indirect local subdivision has been implemented with the substitution of the instruction (Indirect) for (Direct) . . . . Second, many free-floating form and topical subdivisions were removed from the list under specific subjects if no cross-references to the subdivisions were involved." Headings established and applied through December 1978 are included.

The fourth edition of Hans Wehr's Dictionary of Modern Written Arabic (Arabic-English), edited by J. Milton Cowan (Wiesbaden, Harrassowitz, 1979. 1,301p. DM198), incorporates some 13,000 new entries for new words and usages, idiomatic phrases, etc. Additions and deletions were accomplished by "cutting and pasting" rather than resetting, with some resulting inconsistencies in presentation and arrangement.

Some 600 titles are included in the second, revised edition of Black Periodicals and Newspapers (Madison, State Historical Society of Wisconsin, 1979. 83p. $3.50 paper). Subtitled "A Union List of Holdings in Libraries of the University of Wisconsin and the Library of the State Historical Soci-
ety of Wisconsin," the work gives holdings and locations of both current and defunct publications representing all phases of American black thought and action. Although limited to the libraries indicated, the combined holdings are believed to constitute one of the strongest collections in the field.

Covering the years 1956-60, "Supplement Six" (New York, Scribner, 1980. 769p. $55) of the Dictionary of American Biography (Guide AJ41) offers biographical sketches of 524 persons by some 450 contributors. The DAB and its supplements now include a total of 17,084 biographies.

C. Hugh Holman is again the editor of A Handbook to Literature, now in its fourth edition (Indianapolis, Bobbs-Merrill, 1980. 537p. $7.50 paper; 3d ed. 1972; Guide BD42). In addition to various revisions and corrections, there are some 200 new terms (including terms relating to film criticism) that "reflect the rapidity of critical change during the past seven years."—Pref.

Poetry Explication: A Checklist of Interpretation Since 1925 of British and American Poems, Past and Present is now available in a third edition (Boston, G. K. Hall, 1980. 570p. $35). Prepared under the editorship of Joseph M. Kuntz and Nancy C. Martinez, this useful work "incorporates the checklists of 1950 and 1962 [Guide BD486] and, following the same aim, scope and limitations established for the first editions, lists explications printed through 1977, with an occasional excursion into 1978."—Intro.

Chapters on carols, ballads, and John Lydgate make up volume 6 of A Manual of the Writings in Middle English (New Haven, Conn., Academy of Arts & Sciences, dist. by Shoe String, 1980. $25). As in the earlier volumes (Guide BD389), there is an extensive bibliography for each chapter, with some citations from the late 1970s noted in this volume.

About 1,500 new entries appear in the second edition of Halliwell's Film Guide, edited by Leslie Halliwell (New York, Scribner, 1979. 1,015p. $24.95); these include films released to autumn 1978, a selection of outstanding silent films, significant foreign-language films, and some English-language films omitted from the earlier edition (Suppl. BG44). Television movies have been dropped and now appear in a separate publication, Halliwell's Teleguide.

First of a proposed series of similar biographical dictionaries, Paul G. Partington's Who's Who on the Postage Stamps of Eastern Europe (Metuchen, N. J., Scarecrow, 1979. 506p. $29.50) offers brief biographies of major and minor figures commemorated on postage stamps of Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania, and Yugoslavia. Because it provides information on many persons not usually treated in English-language sources, the work has utility well beyond the field of philately.

Sponsored by the Federal Council on the Arts and the Humanities, Cultural Directory II (Washington, D. C., Smithsonian Institution Pr., 1980. unpaged. $7.75 paper) is an updated edition of the guide published in 1975 (Suppl. CA25). The directory has been expanded to include descriptions of federal government support programs for the humanities as well as the arts, with some 300 programs and activities now listed.


Christine Steinberg and John Paxton have again brought up to date Sigfrid H. Steinberg’s Historical Tables (Guide DA47). The tenth edition (New York, St. Martin’s, 1979. 269p. $22.50) covers through 1978, and the tables from 1945 have been rearranged.

Like the volumes covering 1913–65 (Guide EA214), the Isis Cumulative Bibliography 1966–1975 (London, Mansell, 1980. v.l: 483p., $92.50), edited by John Neu, cumulates the references from the “Critical Bibliography of the History of Science” appearing annually in Isis. Volume 1 lists, in separate sections, all items referring to individuals and to institutions; a second volume of this supplement will list references to topical subjects.—E.S.
Application of Bradford’s Law to Citation Data

This study serves as a test of the two formulations of Bradford’s law, verbal and graphical, using 5,628 citations to journal literature referenced in College & Research Libraries and Special Libraries, 1940 through 1974. The data are divided into seven five-year spans so that comparisons can be made between the calculated percentage errors for each journal during each five-year period. In addition, trends in citation patterns are identified. Neither the verbal nor the graphical formulation provides results that are clearly more consistent with the practical situation.

INTRODUCTION

The intellectual base of any discipline is revealed in its journal literature, which serves, among other things, as a vehicle for disseminating information, introducing innovations, and reporting the findings of research in the field. In recent years, bibliometric techniques have been used widely to identify the characteristics of the journal literature of many different subject areas, but most often researchers have concentrated the use of these techniques on the literature from various branches of science. Library periodical literature has seldom been subjected to such intense scrutiny and when appraisals have been made, comments generally have been negative. In 1967, for example, Katz conducted a survey of the attitudes of library science faculty and students toward their professional literature and summarized their comments by saying, “Library literature is timid, rotten, unimaginative, vague, repulsive, and debased.”1 Moon described the literature as a “stream of garbage.”2 With these thoughts in mind, it seems obvious that librarians must look back at their literature and produce evaluative accounts of any changes that may have occurred in the principal library science journals to refute these negative statements. Bibliometric techniques present themselves as a key to objective evaluation.

Since the basic data for many of the bibliometric techniques are citations, the question rapidly arises concerning which of the library periodicals are likely subjects for investigation. Until recently, the national general-interest journals such as Library Journal and American Libraries published articles having no references whatever. Others like Library Quarterly were thought to be too scholarly to have wide appeal. Appearing between the two extremes were College & Research Libraries (C&RL) and Special Libraries (SL), both of which had been published for many years, thus permitting retrospective analysis, had solid reputations, and had wide readership. Bibliometric techniques could certainly be applied to the citations listed in these journals in order to identify changes that had occurred through the years.

Although one of the leading bibliometric techniques, Bradford’s law, lends itself to such a study, it will require some explication.3 First published in 1948, Bradford’s law has been used to test the completeness of a bibliography, to describe the characteristics of various subject literatures,4

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Gloria S. Cline is assistant director, University Libraries, the University of Southwestern Louisiana, Lafayette.
and even to describe the interaction between book users and books available for use in a library. Librarians generally relate the Bradford distribution to "zones" of productivity and appreciate the fact that the nuclear zone identifies the most productive journals in a subject area. Here in practical terms Bradford's law aids in selection and collection development. However, when one goes beyond this point to discuss the difference between the verbal and graphical formulations of Bradford's law, most librarians become confused, uncertain as to just what the difference is. This study will attempt to explain the two formulations of Bradford's law, verbal and graphical, and then, utilizing Wilkinson's formulas, will test the two to determine which provides a better fit for citation data taken from C&RL and SL over the thirty-five-year period 1940 through 1974. By dividing the data into five-year spans, it will also be possible to identify changes in the literature published in C&RL and SL during this time.

BACKGROUND

Basically, Bradford's law states that a quantitative relation exists between journals and the papers they publish. The oft-quoted law, now recognized as the verbal formulation, represents Bradford's theory rather than his observations and reads:

If scientific journals are arranged in order of decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject, and several groups or zones containing the same number of articles as the nucleus, where the number of periodicals in the nucleus and succeeding zones will be 1:aa3. . . . 7

In other words, only a small number of journals will be needed to supply the nucleus of papers on a given topic, assuming that the topic is a narrow scientific subject. Beyond the nucleus or first zone, however, the number of journals required to produce the same number of papers increases dramatically. For example, if two journals supply 300 articles on a topic, then four additional journals will be needed to supply the next 300 articles, and sixteen journals the next 300 articles.

When Bradford applied his formulation to bibliographies on lubrication and geophysics, he found that three zones of productivity resulted. Unfortunately, Bradford did not conclude his study by simply stating his law verbally, but instead went on to express it graphically using experimental data, not noting himself that the graphical expression was not mathematically identical to the verbal formulation. He plotted \( R(n) \) (cumulative total of relevant papers) against \( \log n \) (natural logarithm of the total of productive journals) and found that the data revealed an elongated S-shaped curve, the general form of which is shown in figure 1. Part one of the curve, the initial concave portion, represents the higher density of the nuclear zone. Part two, the linear portion of the curve when data are plotted on a semilog scale, is equivalent to the Zipf distribution, hence the commonly used expression the Bradford-Zipf distribution. Part three, often called the Groos droop, shows the departure from linearity for higher values of \( n \), the reason for which is not yet fully understood. Brookes thought that the droop was observed when there were omissions from the relevant literature. However, Praunlich and Kroll thought it was an intrinsic factor of the distribution.

In the years following the publication of Bradford's law, papers by eminent researchers such as Vickery, Brookes, and Leimkuhler contributed to a partial understanding of the Bradford distribution—partially because these contributors did not interpret the law in mathematically identical terms. Vickery extended the verbal formulation to show that it applied to any number of zones of equal yield, not to only the three zones that Bradford had used for his data. Later Leimkuhler expressed the verbal formulation mathematically as is shown in equation 1.

\[
R(n) = j \log (n/t + 1) \quad (n > n_m) \quad [1]
\]

where

\[
R(n) = \text{cumulative total of relevant papers found in the first } n \text{ journals when all periodicals are ranked } 1, 2, 3 . . . n \text{ in order of decreasing productivity;}
\]

\[
n = \text{cumulative number of journals producing } R(n) \text{ relevant papers;}
\]

\[
j \text{ and } t = \text{constants defined in terms of other variables; see equations (4) and (6);}
\]

\[
n_m = \text{the value of } n \text{ beyond which the curve becomes linear.}
\]
Application of Bradford's Law

Fig. 1
General Form of Bradford Distribution
Still later, Brookes expressed the formula for the graphical version of Bradford's law beyond the nuclear zone and for $N$ large as is shown in equation 2.\[ R(n) = N \log (n/s) \ (n > n_m) \] where $N = \text{total number of journals estimated to contain articles relevant to the subject of the search}$; and $s = \text{a constant calculated using experimental data}$.

For some time, it seemed that only Vickery had noted that the verbal and graphical formulations were not mathematically identical. Once the disparity between the two formulations was recognized, the question arose concerning which of the two was more practical to apply to empirical data. Wilkinson devised a comparative test between the two formulations utilizing the same bibliographic data for four different subjects (agricultural economics, muscle fiber, schistosomiasis, and mast cells). The test did not require calculation of the nucleus (region I in figure 1). Instead it utilized simple formulas for calculating $N$ (the estimated total number of journals containing articles relevant to the subject of the search) and $R(N)$ (the estimated total number of papers produced by $N$). Only $p$ (number of journals) and $S$ (the corresponding cumulative number of papers) had to be known in order to apply the formulas. Both $p$ and $S$ were obtained from a plot of the empirical data on semilog paper. Although the value of $p$ could be chosen anywhere in the linear portion of the curve, the point at which the initial concave portion of the curve turned into the linear region ($n = n_m$) was arbitrarily chosen to be equal to $p$ and was used in determining the corresponding value of $S$. By identifying on the plot 2S papers, the corresponding number of journals required to supply 2S, called $q$, was ascertained. The values obtained for $S$, $p$, and $q$ were then used to calculate $N$ and $R(N)$ for both the verbal and graphical expressions of Bradford's law (equations 3-6*). Wilkinson's test revealed that, for the data she considered, the graphical rather than the verbal formulation was more consistent with the practical situation.

**Verbal Formulation**

\[
N = \frac{S}{\log \alpha} - \frac{p}{\alpha - 1} \tag{3}
\]

where $\alpha = \frac{q - p}{p}$

\[
R(N) = \frac{S}{\log \alpha} \cdot \frac{S}{\log \alpha} \cdot \frac{\beta}{p} \tag{4}
\]

**Graphical Formulation**

\[
N = \frac{S}{\log \beta} \tag{5}
\]

where $\beta = \frac{q}{p}$

\[
R(N) = \frac{S}{\log \beta} \cdot \frac{S}{\log \beta} \cdot \frac{\beta}{p} \tag{6}
\]

**PURPOSE**

The purpose of this investigation is threefold. First, the study serves as a test of the two formulations of Bradford's law, verbal and graphical, to determine which better fits citation data from two selected journals in library science. Wilkinson's formulas are used, thus permitting comparisons to be made, not only between the two library periodicals, but also with the results of her study. Two basic differences exist between the Wilkinson study and the current one. The first is that citations are used rather than a bibliography. This means that the physical significance of $N$ as representing the exhaustive search of a complete bibliography does not apply here since there is no restriction on the cumulative sum of citations that can be made. The second difference is that the citations were drawn from two library science periodicals, C&RL and SL, rather than from journals representing a narrow scientific subject. Thus, another purpose of this study is to test the appropriateness of applying Bradford's law to works in broad subject fields such as library science. The final purpose of this in-

---

*Note that the discrepancy in equations 4 and 6, when they are compared with those given by Wilkinson, was attributed to a printer's error in the original article.*
vestigation is to briefly identify any changes and trends in adherence to the Bradford distribution that may have occurred in library literature during the thirty-five-year period 1940 through 1974.

METHODS

The data base for this study consists of 5,628 citations to the journal literature referenced in the articles published in *C&RL* and *SL* from 1940 through 1974. The data were divided into seven five-year totals. *C&RL* began publication in December 1939; this single issue from 1939 is included in the study. The bibliographic information recorded for each citation included journal title and date. Journal titles were sorted in descending order of productivity. Graphs were plotted on semilogarithmic paper, with the vertical axis representing the cumulative number of citations and the horizontal axis being the natural logarithm of the number of journals producing these citations. On the resulting graphs, the linear region was extended as a dashed line for use in calculating the deviation from the Bradford distribution. Great care was taken in ascertaining the slope of the extended portion of the linear region, because it was found that even slight inaccuracies strongly affected the percentage-error calculations. Figures 2 and 3 represent the extreme cases encountered in this study, both of which by coincidence involved citation data from *C&RL*. Note that the dashed line in figure 2 deviates dramatically from the solid line, illustrating that the calculated number of papers was far greater than the observed number of papers. The percentage error here is 144.0 percent, the largest of the study. On the other hand, the dashed line in figure 3 deviates very little from the solid line and indicates only a small difference between the calculated and observed num-

![Graph](image-url)
ber of papers. This graph illustrates the smallest percentage error of the study, -0.7 percent. Note also in figures 2 and 3 that these curves represent Zipf distributions rather than true Bradford distributions since there is essentially no nuclear zone present in either case. As East and Weyman pointed out, this is because citation data are used. 17

RESULTS

Recall from the earlier discussion that the physical significance of \( N \) as representing the exhaustive search of a complete bibliography does not apply in the case of citations, since no restriction on the cumulative sum of citations can be made. This study, therefore, deals only with the estimated values of \( R(N) \). However, the value of \( N \) still represents a point on the extension of the linear portion of the curve and as such can be calculated using Wilkinson's formulas to provide values of \( R(N) \) for both the verbal and graphical expressions of the Bradford distribution. Tables 1 and 2 present the data for this study for the seven five-year periods, 1940 through 1974. The data for C&RL given in table 1 can be read in this manner:

During the 1940-44 time span, two journals (p) produced a total of 86 papers (S). By plotting the data on semilog paper, it was found that 5.7 journals would be required to supply 172 papers (or 2S). For that entire five-year period, a total of 234 papers was actually cited. When the formula for the graphical expression was applied to the observed data, the estimated total of papers was found to be 391.1, a sum considerably larger than the observed total of 234. Therefore, the percentage error was rather large, 67.1 percent. The verbal formulation provided an even larger estimated total of papers, 571, and, of course, a still greater percentage error, 144.0 percent.

In the tables note that the percentage errors
### TABLE 1
**COMPARISON OF RESULTS FOR TOTAL NUMBER OF PAPERS R(N) USING DATA FROM C&RL**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>p</th>
<th>q</th>
<th>S</th>
<th>R(N) Using Graphical Formulation</th>
<th>R(N) Using Verbal Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Observed</td>
<td>Estimated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>1940-44</td>
<td>2</td>
<td>5.7</td>
<td>86</td>
<td>234</td>
<td>391.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>67.1</td>
</tr>
<tr>
<td>1945-49</td>
<td>2</td>
<td>6.7</td>
<td>156</td>
<td>435</td>
<td>693.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>59.5</td>
</tr>
<tr>
<td>1950-54</td>
<td>1</td>
<td>3.0</td>
<td>105</td>
<td>391</td>
<td>540.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38.3</td>
</tr>
<tr>
<td>1955-59</td>
<td>3</td>
<td>25.0</td>
<td>153</td>
<td>385</td>
<td>382.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.7</td>
</tr>
<tr>
<td>1960-64</td>
<td>5</td>
<td>35.0</td>
<td>203</td>
<td>496</td>
<td>519.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.8</td>
</tr>
<tr>
<td>1965-69</td>
<td>3</td>
<td>12.3</td>
<td>297</td>
<td>993</td>
<td>1191.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20.0</td>
</tr>
<tr>
<td>1970-74</td>
<td>3</td>
<td>15.0</td>
<td>258</td>
<td>797</td>
<td>815.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3</td>
</tr>
</tbody>
</table>

\[ p = \text{particular value of the cumulative number of journals, } n, \text{ arbitrarily selected } = n_m \]

\[ S = \text{estimated cumulative number of papers, } R(p), \text{ corresponding to } n = p. \]

\[ q = \text{cumulative number of journals, } n, \text{ required to supply } 2S \text{ papers.} \]

Percentage error (for both graphical and verbal) = \( \frac{\text{Estimated} - \text{Observed}}{\text{Observed}} \times 100 \) (at corresponding \( N \)).

### TABLE 2
**COMPARISON OF RESULTS FOR TOTAL NUMBER OF PAPERS R(N) USING DATA FROM SL**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>p</th>
<th>q</th>
<th>S</th>
<th>R(N) Using Graphical Formulation</th>
<th>R(N) Using Verbal Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Observed</td>
<td>Estimated</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>1940-44</td>
<td>1</td>
<td>2.9</td>
<td>40</td>
<td>175</td>
<td>176.2</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
</tr>
<tr>
<td>1945-49</td>
<td>4</td>
<td>54.0</td>
<td>80</td>
<td>159</td>
<td>142.7</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-10.3</td>
</tr>
<tr>
<td>1950-54</td>
<td>4</td>
<td>29.0</td>
<td>50</td>
<td>119</td>
<td>96.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-18.9</td>
</tr>
<tr>
<td>1955-59</td>
<td>6</td>
<td>46.0</td>
<td>97</td>
<td>215</td>
<td>195.7</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-9.0</td>
</tr>
<tr>
<td>1960-64</td>
<td>3</td>
<td>16.4</td>
<td>82</td>
<td>251</td>
<td>216.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-13.9</td>
</tr>
<tr>
<td>1965-69</td>
<td>4</td>
<td>30.3</td>
<td>158</td>
<td>369</td>
<td>389.8</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.6</td>
</tr>
<tr>
<td>1970-74</td>
<td>3</td>
<td>14.0</td>
<td>170</td>
<td>609</td>
<td>567.9</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>-6.8</td>
</tr>
</tbody>
</table>

\[ p = \text{particular value of the cumulative number of journals, } n, \text{ arbitrarily selected } = n_m \]

\[ S = \text{estimated cumulative number of papers, } R(p), \text{ corresponding to } n = p. \]

\[ q = \text{cumulative number of journals, } n, \text{ required to supply } 2S \text{ papers.} \]

Percentage error (for both graphical and verbal) = \( \frac{\text{Estimated} - \text{Observed}}{\text{Observed}} \times 100 \) (at corresponding \( N \)).

for each set of citation data from C&RL and SL generally decrease in the latter years of the study, and rather dramatically for the C&RL data.

Whereas Wilkinson's results plainly indicated that, for her data, the graphical formulation more closely adhered to the practical situation, the present investigation reveals no such clear-cut picture. In all seven cases for the C&RL data, the graphical formulation does provide smaller percentage errors for estimated values of \( R(N) \). On the other hand, the verbal formulation provides smaller errors in five of seven cases for the SL data. For these sets of citation data, then, neither formulation appears to be distinctly superior to the other.

Wilkinson's study utilized complete bibliographies for four narrow scientific fields, while the current investigation uses citation data from two widely circulating library science periodicals. The question thus arises concerning which group of data more closely adheres to the Bradford distribution. Since, at the present time, there is no agreed-upon percentage of error that determines adherence to Bradford's law, one can state only that the smaller percentage errors indicate closer adherence. For Wilkinson's data, the errors ranged from 1 percent to slightly more than 5 percent in six of eight cases for both graphical and verbal formulations. The errors were much higher for the C&RL and SL data, with fewer than 50 percent of the cases calculated as about 10 percent or less. Only five of twenty-eight cases had errors of less than 5 percent. This gloomy picture is lightened, however, by a closer inspection of the percentage errors given in tables 1 and 2, which reveals an
important fact—that the higher errors generally occurred in the early years of the study, 1940 through 1954. This is particularly evident in the C&RL data. After 1955, in six of eight cases, the C&RL data had errors of less than 10 percent. This obvious trend toward smaller errors in the latter years of the study is not present in the SL data. Instead, smaller percentage errors exist for both graphical and verbal formulations of SL data, with ten of fourteen cases having errors of about 10 percent or less. Thus, while the percentage errors for both formulations of Bradford’s law and for both library journals overall were not as small as Wilkinson’s, the majority are in the range of acceptability for the latter years of the study.

CONCLUSIONS

The purpose of this study was threefold: (1) to ascertain whether the graphical or verbal formulation of Bradford’s law more closely adhered to the practical situation when applied to citation data; (2) to test the appropriateness of applying Bradford’s law to works in broad subject fields such as library science rather than to data from narrow scientific fields; and (3) to identify any trends in adherence to the Bradford distribution that occurred in popular library literature during the thirty-five-year span, 1940 through 1974. The results were mixed to such an extent that few firm conclusions can be reached.

For the data analyzed, neither verbal nor graphical formulation of Bradford’s law provided strong enough evidence to indicate its superiority for use with citations. While the graphical formulation provided smaller percentage errors for the citations from C&RL in all seven cases, the verbal formulation did so for the SL data in five of seven cases. Thus, the obvious conclusion is that further testing of citation data is needed, with the stipulation that the same methodology and formulas be used.

The appropriateness of Bradford’s law as a test of data from a broad subject field like library science is another question addressed in this investigation. The evidence supports a positive response. In almost all cases for the SL data, the percentage errors were not so high that either the data or the test could be called invalid. The reasons for the consistently closer adherence of SL citations to Bradford’s law are not known. It may have been that SL had a narrower subject coverage than did C&RL. On the other hand, the very large errors observed in the C&RL data for the first three time spans, 1940 through 1954, indicate that either the test is inappropriate or the data are invalid. The latter reason seems to be correct since much smaller and more acceptable errors are observed after 1954. This fact may indicate that library literature as reflected in C&RL and SL changed or, at the very least, began to change into something more substantive and more worthy than “garbage.” Regardless of the reasons for the behavior of the citation data from C&RL and SL, however, the overall evidence indicates that Bradford’s law can be applied with a relatively high degree of confidence to data from sources not generally considered to be “narrow” or “scientific”—sources such as library science periodicals.

REFERENCES

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BOOKREVIEWS


In the last few years, articles and books on continuing education have rolled from the presses in a veritable flood. Most of them have been sheer pap—lacking in substance and reminiscent of the sentimental rhetoric of the library-college proponents. Now comes a first-rate book on lifelong learning by one of the leading students of professionalism. Cyril O. Houle, professor emeritus of education at the University of Chicago and senior program consultant for the Kellogg Foundation, has summarized his own lifelong study of the professions in this major work that will undoubtedly become a fundamental treatise for the field. Houle is interested not just in professional education in the restricted sense but also in education that will result in a lifelong system of continuing learning to provide quality skills for society's changing needs. Thus his book combines an overview of research, theory, and observations of practice in all the professions (including librarianship) as well as some reflections on the changing nature of professionalism in our turbulent society.
Not that Houle proposes a grand design. He recognizes the infinite variety of professionals and the need to use all three modes of learning: inquiry, instruction, and performance. What this book may do best for us, librarians and library educators, is to force consideration of the problem of how one enters the profession, attains basic skills through a degree program, and adds constantly to his or her store of knowledge.

Along the way to raising basic questions, Professor Houle provides a new framework for looking at theory and practice (p. 105-6). He suggests that we must move from a static to a dynamic concept of professionalism and isolates fourteen characteristics (chapter 3) broadly associated with the process, which can provide the basis for goals. If you can read only part of his book, by all means read and think about these characteristics in chapter 3, “Goals of Lifelong Professional Education,” and chapter 4, “Lifespan Learning of the Professional.” These chapters, with their references to research on professional practice, should provide librarians with a better framework for considering their library schools, their places of work, their associations, and their career development. As the Council on Library Resources begins to provide substantial funds for a new approach to the education of the research librarian, Houle’s chapters are especially worth consideration. For much too long a period we have assumed that a basic master’s degree should prepare one fully for the practice of his or her profession for the next twenty to forty years. Incidentally, the text has numerous references to librarians as professionals and to the Asheim statement on library personnel.

Possibly the greatest obstacle to lifelong learning in the nonscientific professions has been the lack of a “Zest for Learning” (chapter 5), which should permeate one’s entire career. There has been all too little encouragement among academic librarians to develop their own resources and to become lifelong inquirers. Certainly it is difficult amid the routine dullness of many day-to-day library, ministerial, or legal tasks to maintain the kind of enthusiasm with which one may have entered a given profession. Yet as Houle says, “...if practice dulls the keenness of knowledge, skill, and commitment, education can resharpen it” (p. 123). How one rekindles the fires of learning is a major task of professional leaders, who should ponder Houle’s summary of studies on why professionals want to learn (p. 150-52). In discussing the laggards in all professions, Houle notes that they not only cause concern to their colleagues and the society at large but also have a high resistance to learning, believing that it costs too much time and money but not realizing that ignorance is even more expensive (p. 159). Yet Houle recognizes that continuing education is expensive and that ultimately a major part of the real cost falls upon the individual practitioner (p. 196-99).

Few would doubt that librarians have yet to demonstrate the kind of commitment to improved performance that causes medical practitioners to move into specialties or demands that the military officer spend at least one-fourth of his or her career in some kind of training situation (p. 186). Perhaps there is more than historical interest in
Houle’s quotation from a biography about Sir William Osler in the early days of modern medicine:

It is interesting to see how consistently he began anew at Oxford with precisely the same projects as those which had engaged him in Montreal, Philadelphia, and Baltimore. A consuming interest in libraries and librarians; the reunifying of an old medical society or the organization of new ones; the establishment of a medical journal, the bringing together of discordant elements in the profession, and the raising of money when money was needed (p.195).

As Houle comments, “A similar pioneering enterprise is still necessary for most professions in most places at most times” (p.196).

There is a great deal more in this book, of course. Houle analyzes the organizational structure of continuing professional education, he addresses the need for designing programs of learning, and he is well aware of the naiveté of many who are currently working in the field. And he is also aware that the impetus for advances in continuing education came from attacks upon the professions by the general public. As he notes in the chapter “Assuring Professional Quality,” “It was thought that earnest and, if possible, innovative efforts to help practitioners learn might greatly improve performance, disarm criticism, and build defenses against malpractice suits, loss of certification, and the requirement of compulsory periodic relicensure or other forms of recredentialing” (p.269). Education, of course, is no assurance that quality will result; “... the effort to achieve excellence must be based on the realization that it is ultimately subjective. Procedures can be refined, outcomes can be measured, authorities can be cited, precedents can be followed, and data can be brought to bear upon decision-making processes, but qualitative conclusions must always be judgmental” (p.269).

Where, then, do we go from here? We consider the accusations of failure to serve all the people, of the self-interest of professionals, and of their reported incompetence, and institute those controls that give the public confidence in the continued expertise of the “experts.” To do this will certainly require such elements as reshaping accreditation, a new look at licensure or certification, and reaccrediting professionals themselves. For the comfort of the professional, one is reminded of the optimism expressed by Lloyd Elliott, president of George Washington University, who stated at a Columbia University conference last March, “society seeks out the expert to answer that special question or to solve that unique problem. We believe the expert to be on the cutting edge of new knowledge, and we continue to increase our dependence on that advanced achievement” (“Some Observations on Graduate and Professional Education,” in Richard L. Darling and Terry Belanger, eds., Extended Library Education Programs [New York: School of Library Service, Columbia Univ., 1980], p.19). Elliott believes our society will continue to need such professionals.

Houle says that each profession must develop its own tailor-made system of life-span education with an attention to what is happening in comparable situations in other professions. He does not believe the task will be easy. At the advanced level professional work demands “the skilled use of intricate and complex techniques, the comprehension of abstruse knowledge, and the application of sensitive understanding” (p.305). In the development of lifelong learning for librarians, the primary responsibility will doubtless remain with the individual. But professional associations, library schools, and libraries cannot escape their own responsibility for developing goals for education throughout the whole life span—and funding them.

When a colleague of mine stepped down from the directorship of a major research unit at the University of North Carolina at Chapel Hill, I expressed my regret. He appreciated the compliment but he added, “I’m midway between the receipt of my M.D. and retirement. What I need just now is some time to think about what I want to do with the second part of my career.” Lots of librarians at mid-career are asking themselves a similar question. Reading Houle’s book will make a contribution to their deliberations.—Edward G. Holley, School of Library Science, University of North Carolina at Chapel Hill.
This book is a good one, designed for use as a research-methods textbook in library school courses and as a handbook for practicing professionals who are engaged in research projects or in the review of them. Beyond the introduction to research and the scientific method, the book is set up in three main parts. The first, methods of research, considers in some detail survey research, historical research, and operations research. Each section contains a description of the research techniques applicable to the method, the pitfalls surrounding the particular method, and a description of some of the completed research projects in librarianship that serve as examples of the particular method being discussed.

The chapter on survey research is the most comprehensive. The authors introduce the issues of populations and samples, offer comments on the advantages and disadvantages of the questionnaire, and introduce types of questions that are included in questionnaires. Good advice is offered on the preparation of a questionnaire and on the scaling of the responses.

In the chapter on historical research, the authors describe the search for evidence undertaken by the historian. They analyze and classify sources according to whether they are primary or secondary and classify types of records that are considered primary sources.

Also included in the first section are short discussions on the case-study method, library-user studies, evaluation research, content analysis, community surveys, and the Delphi method.

The second part of the book introduces descriptive and inferential statistics. The explanations are clear and concise and are welcome in this guide to library research. The final section of the book offers advice on the computer and the calculator as aids to research, on writing a research proposal, and on writing a research report.

Good textbooks enhance the development of librarianship. The profession indeed will be well served by this excellent text on research methods in librarianship.—Beverly P. Lynch, University of Illinois, Chicago Circle.


Boring. What seemed like a new and exciting concept ten years ago is now old and faded. Perhaps that is just symptomatic of the transitory nature of our times.

Boring. The fact that there is still, despite a recent proliferation of specialized library journals, so little library literature that makes for stimulating reading on the part of the faithful reader is discouraging. It is hard to believe that Katz can really think that "a prudent reading of the past ten years will show that there is no more stimulating, no more exciting profession than being a librarian" (p. vi).

Boring. The nine articles on libraries and librarians, the eight articles on technical services/readers' services, the seven articles on communication and education, and the six articles on the social perogative that constitute the thirty articles selected by this year's panel of judges to represent the best of 1979 are indeed, for the most part, simply boring. Not one of those articles really catches the reader's imagination or stands out as one that will prove to be of enduring value.

Despite my obviously unfavorable attitude toward the series as a whole at this point and toward this particular volume, some comment on the particular volume is needed. Approximately half of the articles are either by, or are of potential interest to, academic librarians. Not bad and worth our attention on that score alone. Unfortunately, most of them (e.g., DeGennaro on "Library Administration and New Management Systems") appeared in journals that we all read regularly. What was of interest on first reading somehow doesn't always seem quite as exciting on rereading only a short while later. A few (e.g., Hickey on "The American Librarian's Dream: Full Bibliographic Control") are from more obscure sources that we might not normally encounter. It is helpful to have them brought to our attention here. A few, and
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this is more and more evident in recent volumes, are, like Stange on preservation in "From Rags to Riches," by nonlibrarians and appeared originally in non-library journals. It is interesting to see the aspects and ideas of librarianship that are capturing the imagination of the outside world. Perhaps we are seeing, to some degree, a return to the golden days of the early nineteenth century when librarianship was of somewhat greater interest to the world in general.

While, fortunately, this particular volume contains no examples of what Shaw castigated as articles on "how-I-run-my-library-good," it is replete with the relatively new kind of speculative essay on "how-I-should-run-my-libraries-good" that has become popular in recent years. In one sense such essays continue the kind of innocuous "glad tidings" essay that Beals deplored some forty years ago, but, in another sense, they are somewhat more substantial and valuable because they build on an increasingly solid base of literature and research. They seem to represent the beginnings of a more analytical approach to librarianship designed to synthesize ideas and information into a philosophical structure. For pointing up that trend this series, and its editor, deserves credit.

All in all, this is a volume you may want to borrow from your library and dip into. Unless you are aiming to maintain a complete series, it is not one that you are likely to want to buy for your own collection.—Norman D. Stevens, University of Connecticut, Storrs.


How refreshing it is to read a lively and well-written book on an important aspect of librarianship! Mason presents five chapters on building problems, originally published from 1965 to 1969. The chapters on lighting and air handling are superb, and the chapter on interiors remains very good indeed. There follow six chapters providing library building reviews, three of which were published previously. The new critiques are of Harvard's Countway Library of Medicine, Dalhousie University, and the Robarts at Toronto. Stimulating and sometimes humorous footnotes greatly add to the text.

A typical note comments that removal of shields from light fixtures provides more footcandles "but at the same time anyone exposed to the fixture has constricted eye pupils, and he gets less light. In addition, the diffusing properties of the fixtures are greatly impaired and interreflection of light in the room drops enormously. *Sic crescit stultitia!* (Loose translation, 'Fools may take over the world')."

Mason at times presents but one view of what should be done. For example, he mandates use of a building-planning committee, but states later, however, that he is grateful he had no committee of any kind at Hofstra "to muck-up affairs." And, as another highly questionable assertion, an institution should never use an architect who has not designed libraries.

This volume is full of wisdom. Mason properly points out that seating was in the past generally projected at too high a percentage of enrollment. Construction penalty clauses in contracts are nearly impossible to invoke successfully. There has been a rather wide student reaction against carrels. Many interiors are left to the mercies of the purchasing agent, and "in this direction madness lies." And custom-designed furniture can be less expensive than ready-made furniture.

Mason provides a great service with his candor. For example, he is frank to say that OSHA issues stupid regulations. He is good on details. (But false in repeating that "water is more destructive to books than fire.") This is an attractive book, with a good selection of appropriate photographs; building floor plans and a demonstration model building program are appended. Anyone entering the task of planning an academic library addition or substantial renovation...
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Two publications of *Library Journal* also treat of library buildings. The first, #15, constitutes a review article. Boll provides sixty-nine references largely from the 1970s and adds a useful index. Boll’s product is quite comprehensive and competently presented.

The LJ Special Report #16 superficially treats sixteen academic libraries of the early 1970s—a couple of paragraphs by the librarian, a few from the architect, a trivia of building statistics, and half of the publication pictures of no particular distinction. It is hoped the planned second issue of “new academic library buildings” will produce something more than totally inadequate floor plans with a bit of froth.—David C. Weber, Stanford University, Stanford, California.


This volume contains the proceedings of the Conference on Networks for Networkers held in Indianapolis, Indiana, from May 30 through June 1, 1979. The conference included “136 official delegates, observers, guests and speakers from the U.S. and the Virgin Islands . . . their purpose was to listen, ponder, discuss, argue, and make suggestions concerning the critical issues in library network development” (Introduction, p.xiii).

These proceedings include eight major theme papers that were delivered at the conference, twelve background papers, two keynote speeches, supplementary reading material, and appendixes that include conference participants’ viewpoints, resolutions of Pre-White House Conferences on Libraries and Information Services, a glossary, and a list of acronyms.

The conference topics were selected to address public-policy issues and were geared almost exclusively to computer-based library networking. Part I is entitled “The Network Revolution” and presents a history and overview of networking. Part II, “National Policy and Network Development,” deals with national information policy development (or nondevelopment, in the view of several conference participants). Part III, entitled “Network Technology and Standards,” describes in considerable detail the state of existing technology and telecommunications relevant to library networking, and looks at some trends and innovations. Part IV, “Network Governance and Funding,” includes discussion of the legal aspects as well as the economics of networking. Part V, “Network Users and Services,” concentrates on the interaction of networks and their clients, with presentations on the role of several types of libraries in networking.

This conference was held almost ten years after one sponsored by the U.S. Office of Education with the American Library Association, which concentrated on the establishment of library networks. *Networks for Networkers* is at once a ten-year review of the development and progress of networks in this country and a presentation of some clear-sighted assessments of the impact networks have had on libraries and librarians. There is necessarily some repetition in these chapters; from different points of view several of the papers refer to the same groups, projects, agencies, and technologies and discuss common problems in network progress. Although some libraries have resisted the movement, many academic and research libraries are in some way connected to a network, and the issues discussed in this volume are of critical importance to academic librarians. Of particular interest are the areas of national library and information policies, network governance, network economics, technology, and the crucial questions of user access to network services. The planners of the conference did not pretend to provide answers to all the networking questions and dilemmas, but all the presentations are lucid and well prepared. They range from theoretical (Don Swanson on trial-and-error evolution in library network development) to technically specific (James Barrentine on future computer technology) to pragmatic (debate between Swartz and Evans on whether state-level networking should evolve from the state library agency or a member-governed
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cooperative). Being at the conference might have been more exciting, but the editors of these proceedings have provided a smooth, almost seamless volume that gives us the opportunity to read selectively and ponder present and future networking. The book’s format and production are admirable and its appearance timely. Finally, rereading this volume in 1990, when no doubt a conference on networking will again be held, will be very instructive.—Fay Zipkowitz, Rhode Island Department of State Library Services, Providence.


This study is a systematic evaluation of two federal programs to improve library and information services. The first, HEA II-B Library Research and Demonstration Program, provides grants to support research demonstration projects in library and information services. Title III, Inter-library Cooperation, of the Library Services and Construction Act (LSCA III) was enacted in 1966 to provide categorical grants to state library agencies to plan, develop, and operate cooperative library networks. Taken together, these programs are major channels of federal support to libraries.

It is an ambitious and difficult undertaking indeed to evaluate the general effectiveness and impact of programs supporting the diversity of projects funded under HEA II-B and LSCA III. Patrick, Casey, and Novalis have made an impressive attempt at this task. They have amassed a large amount of data and analyzed it in terms of a change model that “describes the stages and processes necessary for new, improved, and/or expanded library and information services and illustrates an optimal relationship among the tasks, agencies, and sources of funds currently used in the changing of library and information services.” Due to the use of this model, the study is interesting from the point of view of evaluation methodology as well as for the data it presents on the HEA II-B and LSCA III programs.

Volume I reports the findings and recommendations related to the two programs. The findings are summarized and interpreted in a manner that is somewhat repetitive but that is suitable for the general reader. Volume II presents twenty-two selected case studies of projects funded under the two programs. The titles of two case studies, “Development of a Computerized Regional Library System” (OCLC) and “Library School and Education Program without Wall,” serve to illustrate the diversity of data from which the authors had to develop coherent generalizations. Obviously, a study of this scope demands the use of evaluation models, and the success of the study owes much to the model used.

The detailed findings contained in the two volumes are difficult to encapsulate. In general, however, the HEA II-B and LSCA III were found to have had a favorable impact on library services, although one that is muted considerably by a number of deficiencies. These deficiencies are addressed by recommendations in four areas: 1) the need to define and focus the role of the two

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programs; 2) the need to provide linkages
between the different stages of the change
process and the variety of agencies, indi-
viduals, and organizations that are involved
in this process; 3) the need to substantially
upgrade federal and state management of
the programs and to redefine USOE man-
agement responsibilities; and 4) the need
for USOE to reconsider the role it plays in
the development process.

This work should be of interest to librar-
ians interested in the general issues related
to the management of federally funded pro-
grams, as well as those interested specifically
in the administration and impact of HEA
II-B and LSCA III. If proper attention is
given to these findings, it could well lead to
needed improvements in the effectiveness
of federal funds directed to the support of
the nation’s libraries.—Joe A. Hewitt, Uni-
versity of North Carolina at Chapel Hill.

Technology and Copyright: Sources and
Materials. Rev. ed. Edited by George P.
Bush and Robert H. Dreyfuss. Mt. Airy,
Md.: Lomond Books, 1979. 552p. $22.50
clothbound; $15.50 microfiche. LC 79-
65635. ISBN 0-912338-17-2 (clothbound);
0-912338-18-0 (microfiche).

This is a revised second edition of Tech-
nology and Copyright: Annotated Bibliogra-
phy and Source Materials, originally pre-
pared in 1972 by the distinguished bibliog-
raper, technologist, and academician, the
late George P. Bush. Robert H. Dreyfuss
accepted the invitation to update and revise
the first edition and worked with Bush in
the early stages of the work. Reflecting the
narrow scope of the work, i.e., the impact
of technology on copyright and visa versa,
the volume, nevertheless, consists of 80
percent new references and resource docu-
ments and is described by the publishers as
a “one-stop encyclopedia . . . to understand
the issues and answer questions about inter-
relationships of copyright and the informa-
tion technologies of reprography, comput-
ers, communications, networks, micro-
graphics and other elements of information
transfer.”

Three elements of the format contribute
to the volume’s usefulness to librarians,
lawyers, publishers, information and repro-
graphic industries, educators, and research-
ers. Part I consists of an annotated bibliog-
raphy of more than 350 references grouped
under thirteen major topics: technology;
computer systems; reprography; video com-
munications; microforms; CONTU; fair use;
education; libraries, networks, and informa-
tion systems; permissions and payments;
legislation/legal; international; and basic ref-
erences. The references were selected to be
representative of the diverse views that
have been expressed on the provisions of
the new law, before and after the effective
date of January 1, 1978.

Part II contains nineteen selected re-
prints of law review and other journal arti-
cles, research reports, essays, and docu-
ments that provide an overview of the ma-
jor technology-related issues and concerns
confronting copyright owners and the users
of their works. That the 1976 Copyright
Law is a complex piece of legislation is not
in dispute. The selections include in part II,
by such noted authorities as former Register
of Copyrights Barbara Ringer, author John
Hersey, librarians Madeline Henderson,
Bernard Fry, Herbert White, Maurice
Line, and Richard DeGennaro, attorney
Stephen Freid, law professor and educator
James M. Treece, cable TV authority Susan
C. Greene, and King - Research, Inc., may
not resolve the complexities, but they do
help to explain why the complexities exist.

The third element that makes this a use-
ful reference tool is the name and subject
indexes, as well as an index of legal cases
referred to or explicated in the text. In
addition to its value in reference work, the
volume has selections in part II whose titles
pique the curiosity and can be read as
stand-alones: “Will Betamax Be Busted?” by
Steven Brill, “Copyright and Compilations
in the Computerized Era: Old Wine in New
Bottles,” by Jeffrey Squires, and “Williams
and Wilkins v. the United States.”

The editors assume a general knowledge
of the new copyright law and an awareness
of some of the major issues. They have,
therefore, blessedly refrained from padding
the volume with the full texts of the law,
accompanying guidelines on classroom
copying, music, and interlibrary arrange-
ments, and House, Senate, and conference
committee reports, which are easily avail-
able elsewhere.
Of particular interest to copyright aficionados, which should gain widespread approval and appreciation from all categories of users, is the disclaimer found on the verso of the title page: "Lomond Publications, Inc. will not enforce its copyright after January 1, 1985. Permission to copy the whole or part of the bibliography of this book is hereby granted to those who wish to use such copies for educational purposes, including use for such purposes in an information storage and retrieval system. Permission to others is governed by fair use."—Nancy H. Marshall, University of Wisconsin–Madison.


Those familiar with the first edition of Brother James McCabe's Critical Guide to Catholic Reference Books, published in 1971, might be surprised to learn that the second edition has been increased by 202 titles. Even though more than forty of these were earlier works omitted in the first edition, in this age of ecumenism the number of Catholic reference books is considerable. It should be kept in mind, though, that a rather broad definition of Catholic reference works is used. As Russell Bidlack pointed out in the introduction, the author has used reference books in the way Constance Winchell did in her Guide to Reference Books (8th ed., American Library Assn., 1976, p.xiv) to include those works "which, while intended primarily to be read through for either information or pleasure, are so comprehensive and accurate in their treatment and so well provided with indexes that they serve also as reference books." The term Catholic is used in a broad sense also. In addition to dealing with topics specifically relating to the Catholic church, the volume includes the social sciences, literature, the arts, and similar subjects to which Catholics have traditionally contributed their own unique perspective. Many of the works are written or sponsored by non-Catholics, but only those that deal exclusively or in large part with the church are included.

The work is divided into five chapters—"General Works," "Theology," "The Humanities," "Social Sciences," and "History"—with each of these divided into main sections and then further subdivided by form or subject. Thus a glance at the table of contents, which shows chapters, sections, and subdivisions, would enable one to find all of the works on the Councils of the Church fairly easily since "Councils" is one of the sections in chapter V on history. The subheadings include each of the councils in addition to sections of sources, dictionaries, and handbooks.

Each entry gives complete bibliographical information, with the LC and ISBN numbers added when available and also an annotation ranging from two lines to four paragraphs. Some of the annotations are taken from reviews of the work and sources of these are included for those who wish to read the entire review. Although most of the works listed are in English, the author notes in his preface that no important foreign-language works have been omitted and that some of the most significant new titles are those produced in European countries. While no cutoff date for entries is specifically stated, a check of all new entries would seem to place it at 1978, and only six works, all published in the U.S., had this date.

One of the most valuable features of the guide is its thirty-page author/title/subject index. Since each entity in the book is numbered, one can find a specific work fairly quickly by turning to the proper section and numbered item. Subject entries are all in capital letters and thus can be found quickly also. Although some names are listed as subjects, e.g., Teilhard de Chardin, most of the subject entries are quite general. There is the general heading Saints, for example, but no entries for beatification or canonization, terms mentioned in news articles recently. This would probably pose no problem for those familiar with Catholic terminology but might present some difficulties for others.

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work a pleasure to use. It will be especially valuable for all Catholic institutions, but it is recommended also for large academic and public libraries and for those having special collections in theology.—Lucille Whalen, State University of New York at Albany.


Morse has somehow managed to convince himself (and a publisher) that the *New York Times Index* is so enigmatic and abstruse that his personal intervention was warranted in the form of this slim volume. “Incomparable” qualities notwithstanding, he admonishes those who “... naively insist that any intelligent person is capable of comprehending the *Index* without a guide.” The fact that the NYTI, like many other reference sources, harbors a few unique elements and approaches by no means justifies Morse’s well-intentioned contribution.

The *Guide to the Incomparable New York Times Index* seems to have been prepared under the assumption that the user is mildly retarded yet simultaneously delivers page after page of extremely tedious information on subject headings, cross-references, and entries. One wonders who constitutes Morse’s primary audience. He immodestly and ungrammatically announces that “Herein one will find what you always wanted to know about the *New York Times Index*, but never dared ask.” Though Morse does answer many questions that none would dream of posing, he does provide several practical observations, e.g., the NYTI serves as index and abstract, it can often be used as a fairly accurate guide to major stories in other newspapers, and that librarians should save the daily news summaries until the *Index* itself arrives. Certainly he seems hard-pressed to carry on for seventy-two pages; an appendix section, for example, contains full-page photographs of the *Index*, of an anonymous hand removing microfilm from a cabinet, of someone removing reel from box, and of someone consulting film on a reader. Furthermore, the book is strangely arranged; there is no logical sequence or progression. Perhaps the most useful section is the one entitled “Miscellaneous Information.”

Morse’s prose style is, to say the least, most unusual. Rarely has this reviewer seen anything like it committed to print. Two typical examples:

The reputation of the Times shines perhaps the brightest in that within its pages are found a large number of source documents in full or in substantial excerpts, and thus it came to be regarded as “The newspaper of record.”

Throughout the years The New York Times has maintained a status unequaled in the history of periodical publishing in the length of time of its continuous publication, the comprehensiveness of its coverage, and the quality of its authoritative-ness. It is beyond question the outstanding resource for general reference and serials divisions of libraries worldwide.

There is no need to belabor the obvious. The *Guide to the Incomparable New York Times Index* is simply not a worthwhile reference acquisition. For the most part, Morse has made much ado about not much at all. In order to preserve the reputation of both author and publisher, the *Guide*, like a faulty automobile, should be recalled if in fact it has already been released.—Mark R.
Yerburgh, State University of New York at Albany.

**Pseudonyms and Nicknames Dictionary.**


The *Pseudonyms and Nicknames Dictionary* (PND) will not replace any works a library already has on pseudonyms and nicknames but it will supplement them. Its scope is revealed in a subtitle worthy of a nineteenth-century novel, "A Guide to Pseudonyms, Pen Names, Nicknames, Epithets, Stage Names, Cognomens, Aliases, and Sobriquets of Twentieth-Century Persons, including the Subjects' Real Names, Basic Biographical Information, and Citations for the Sources from Which the Entries Were Compiled." It is thus limited to "figures who have achieved some degree of prominence or recognition" who were alive during some part of the twentieth century, with emphasis on North Americans and Western Europeans. It includes more than 17,000 real names and almost 22,000 assumed ones, with authors accounting for only 40 percent of the names.

The PND was compiled by consulting more than eighty biographical dictionaries and through contacts with specialists in fields such as auto racing and rodeos. A useful feature is an indication by the real name of the source or sources used to obtain the information. In addition to providing a source of verification, this serves as a starting point for further investigation. When no source is listed, the information was obtained through independent editorial research.

Since most libraries hold a number of pseudonym and nickname dictionaries already, it is important to know how the PND compares with them. I selected Harold Sharp's *Handbook of Pseudonyms and Personal Nicknames* (Scarceow, 1972) and *Supplement* (1975), Frank Atkinson's *Dictionary of Pseudonyms and Pen Names* (Linett Books, 1975), Samuel Halkett and John Laing's *Dictionary of Anonymous and Pseudonymous English Literature* (Oliver and Boyd, v.8, 1956, and v.9, 1962), and Laurence Urdang's *Twentieth Century American Nicknames* (Wilson, 1979) for comparison. Taking a page of the PND with forty-seven names, I found twenty-eight not listed in Sharp. Of the twenty English or American authors on the page, nineteen were not listed in Halkett and nine were not in Atkinson. Six of the eleven twentieth-century personal nicknames were not in Urdang. Covering the same alphabetical range, Sharp had six twentieth-century names not in PND, Halkett seven, Atkinson three, and Urdang five. PND is thus not comprehensive but it does add significantly to any pseudonym and nickname collection. From recent ads it appears that the PND will be supplemented in usual Gale fashion by *New Pseudonyms and Nicknames*, thus increasing its usefulness especially for current figures.

Given its restriction to twentieth-century figures, one suprising area in which I found some lacks was what might be described as popular culture. PND had no listings for Miss Vicky (Mrs. Herbert "Tiny Tim" Buckingham Khaury), Cheech (Richard Marin), or Evel Knievel (Robert Craig Knievel). PND is, however, strong in sports. Another problem is that an asterisk is used to indicate a pseudonym, but that is not explained anywhere. It would also be useful, in the case of authors, to distinguish between pen names and nicknames.—Carol M. Tobin, Princeton University, Princeton, New Jersey.


Despite the somewhat misleading title, *Serials: Past, Present and Future* is intended as a handbook for new serials librarians and a reference tool for experienced ones and deals primarily with the specifics of serials management. It is an enlarged and revised edition of Clara Brown's *Serials: Acquisition and Maintenance*, published in paper in 1972. The first edition contains solid information on such matters as who to order serials from, how to know when to claim, and what to do with duplicate issues and reflects the author's long experience in the field and her familiarity with all types of serials problems. This new edition builds on
the previous one, leaving the original chapters relatively unchanged, with the addition of further chapters on acquisition and maintenance (selection and deselection and reprography) as well as serials cataloging and serials processing at the Library of Congress. Contributed by Lynn Smith, the latter chapters are especially well written. Smith carefully details the history of the various cataloging codes up to AACR2 and how they relate to serials. She makes sense of the world of serials acronyms (CONSER, ISBD-S, etc.) and acknowledges the role of automation in cataloging.

The authors' collective strength lies in their ability to present the work flow of serials operations, to analyze possible points of breakdown, and to present, albeit often in rough list form, possible solutions, alternatives, and answers to the myriad questions one encounters in handling serials. One occasionally wishes for more explanation of general concepts (serials record, for example), coupled with concise definitions of the terms that will be used, such as serials department or division. Each chapter has its own bibliography, and the reader is also referred to other pertinent sections of the book for related material. (These references are sometimes annoying because of their frequency and intrusion into the text.) Other new material sometimes suffers from being presented in a hodgepodge or perfunctory fashion; the history section relies heavily on other sources and is superficial. The miscellaneous-topics chapter could have been called something else and should have included the role of automation in serials ordering, check-in, and publication. The abundance of sample forms is overwhelming at times since many of them are not filled in or else are not clearly explained.

On balance, *Serials: Past, Present and Future* is disappointing and not as successful as the earlier edition. It attempts too much and, consequently, a wealth of good information gets buried. The lack of a strong focus means the new and old sections are not tied together. —Jean W. Farrington, University of Pennsylvania, Philadelphia.

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Because of the specialization often required for many of its procedures, preservation is a forbidding area for most librarians. This volume fills a long-standing need for a basic and comprehensive text on the subject, one that presents preservation in a clear, nontechnical fashion. It is not a manual on how to perform various techniques, but rather an introduction to the general requirements for care of all types of library materials. As such, it is a valuable aid for librarians since the job of making our holdings accessible also requires a commitment to maintaining those materials in good, usable condition.

Swartzburg emphasizes the importance of proper collection management, or good housekeeping, as a key element in any preservation program. Throughout, she makes clear what can be accomplished by regular staff and notes the stages at which the aid of a professional conservator is required. She strikes a sensible balance in her discussion on care between rare materials and those that are for wider, and therefore heavier, use. The difficulty for any one library to go it alone in a thorough and systematic effort is also recognized, and Swartzburg strongly recommends cooperative conservation ventures.

Beginning with an overview and historical perspective on library materials and their care, Swartzburg then details the requirements for care of books, emphasizing environmental factors as well as proper handling. A significant chapter deals with disaster planning and another treats bookbinding. A very clear and concise chapter concerns the historical development of paper and the problem of acidic deterioration. The balance of the text, roughly one-third, is about nonbook materials, most notably photographs, slides, and movie films, though such items as maps, paintings, manuscripts, sound recordings, and videotapes are also included. Each chapter of text is followed by a list of selected readings on the subject.

The narrative portion occupies less than one-half of the volume. In addition, there are several appendixes relating to preservation.
tion, the most useful of which are an annotated list of periodicals and one of organizations. The latter is especially valuable in that a short history of the organization is supplied along with details of its activities and publications. These appendixes are followed by a glossary and an extensive, annotated bibliography that is conveniently divided by chapter. In all, Swartzburg exhibits a familiarity with a wide range of archival, museum, and library literature.

I have only two criticisms of this volume. The first is that though Swartzburg generally avoids detailing specific preservation procedures, she does make some unusual exceptions. In the case of the matting of prints, for example, the detail provided seems unjustified in that other easily learned techniques are given only the briefest of descriptions. Second, the usefulness of the volume would have been enhanced by a more comprehensive index. These are, of course, minor quibbles. Swartzburg's work is indeed a valuable one and should be required reading for most practicing librarians and all library students.—Roy H. Tryon, The Balch Institute for Ethnic Studies, Philadelphia.


This a fine revision of Philip Immroth's work, Guide to the Library of Congress Classification, last published in 1971. Lois Mai Chan has updated this guide to reflect the revision and expansions in the Library of Congress classification schedules as well as changes in Library of Congress policies and practices.

The first four chapters have been reorganized and rewritten, and the effect on the reader is more positive. The introductory chapter covers the history of classification, systems used by the Library of Congress, and the purpose of the Library of Congress classification. Chapter 2, "Principles, Structure and Format," describes the notation, display, and general characteristics of the classification schedules and includes new material on the use of Library of Congress cataloging records and on the revisions and expansions in the classification schedules. Chapter 3 is a discussion of the Library of Congress call number notation and includes an excellent explanation and description of the uses of Cutter numbers in the Library of Congress classification schedules. Chapter 4 discusses the various tables used in the schedules—form, geographic, chronological, subject, and author. Chapter 5 is the class-by-class breakdown of the system. There are some new examples in addition to those used in earlier editions. All examples have been verified at the Library of Congress. Each of these chapters contains up-to-date bibliographies.

The author has added a new chapter, "Classification of Special Types of Library Materials." Included in this chapter are explanations of Library of Congress classification usages for serial publications, monographic series, collected sets and collected works, abstracts, indexes, supplements, materials cataloged under corporate headings, juvenile materials, nonbook materials, microforms, incunabula, translations,
"bound-with" books, pictorial books, and biography.

The appendix contains tables of general application throughout the Library of Congress classification schedules, Cutter numbers for individual biography, and tables used with individual classes. Finally, the index is very usable. Throughout this work past and present Library of Congress practices are explained in a clear and concise manner, which clarifies variations sometimes puzzling to the cataloger.

The format of the work is a great improvement over the earlier editions. The type is darker and headings and subheadings are in heavy type. The effect on the reader, at least this reader, is very positive.

For the reference librarian, Immroth's Guide to the Library of Congress Classification, third edition, is a very good reference tool and introduction to the classification system. For the practicing cataloger or classifier it is a reference tool and a source of information for new Library of Congress practice. For the library school professor and student it is an excellent teaching tool and textbook.—Barbara A. Gates, Brown University, Providence, Rhode Island.

ABSTRACTS

The following abstracts are based on those prepared by the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University.

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A textbook classification scheme that allows the expression of curricular relationships is revised to include new curriculum materials for math, science, special education, career education, foreign languages, and social studies. Designed for teacher training institutions, curriculum laboratories, resource centers, and adjunct collections in school libraries, this scheme can be used separately or to supplement standard classification systems, which, while they have provision for textbooks, do not make plain the curricular relationships involved. Underlying usage assumptions for the scheme are: (1) the collection does not circulate but is maintained as a unit; (2) the books must be so classified as to indicate their use in the curriculum; and (3) the textbooks must be shelved as classified if the open-shelf method is used. The notation is mixed, combining uppercase letters with decimal numbers, utilizes cutting by publisher rather than by author, and allows the formation of call numbers. An outline schedule for small collections and a full schedule for larger collections are provided, as well as a subject index to the classification scheme.


Selected to aid academic library administrators in developing a basic understanding of how a library maintains numerous relationships with various campus departments, governmental agencies, and funding authorities, citations for nineteen books and articles, produced between July 1967 and June 1979, are provided, together with abstracts. Conclusions reached by the author on the basis of reading these sources follow the annotated list, and a fifty-six-item bibliography without annotations is attached: items from the first list are repeated.

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Prepared by Eldon W. Tamblyn

FILING

Filing is word-by-word.

ABBRÉVIATIONS

Standard abbreviations are used except in titles. Names of some organizations, ALA, ACRL, LC, etc., are also abbreviated and are alphabetized as if spelled out.

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