

DOCUMENT RESUME

ED 290 478

IR 052 248

AUTHOR Goldhor, Herbert; And Others
TITLE The In-House Use of Materials in a Veterinary Medicine Library.
INSTITUTION Illinois Univ., Urbana. Library Research Center.
SPONS AGENCY Council on Library Resources, Inc., Washington, D.C.
PUB DATE 87
NOTE 21p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Libraries; Correlation; Higher Education; Hypothesis Testing; *Interviews; Library Materials; Library Surveys; *Medical Libraries; Questionnaires; Statistical Distributions; *User Satisfaction (Information); *Use Studies; *Veterinary Medicine

ABSTRACT

The main purposes of this study were to ascertain something of the quality of in-house use of materials in a science library, and to test the use of interviews as a method of measuring such use. Brief interviews were held with 414 users of the University of Illinois Veterinary Medicine Library (VML) between March 2 and May 13, 1987, to obtain information on the purpose of their visit and their use of library materials (other than reserve books) while in the VML. A count was also kept of the number of persons in the library and of the books and journals left on the tables. Of the four hypotheses tested, support was found for only one: that the number of items used in the library are at least twice as high when reported by the interviewees as when measured by table counts. It is suggested that future research might start with the hypothesis that people who use materials in a science library are doing so for substantive research and that typically they find what they seek. It is concluded that interviews are to be preferred to both table counts and self-administered questionnaires for collecting data. The report is supplemented with three tables and 18 footnotes/references, and a copy of the interview questions and the one-way frequency distribution of responses is appended. (CGD)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *



ED290478

**The In-House Use of Materials in a
Veterinary Medicine Library***

U S DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it
- Minor changes have been made to improve reproduction quality
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

by
**Herbert Goldhor
Kathleen Roegge
Priscilla Smiley**

(Goldhor and Roegge were with the Library Research Center and Smiley with the Veterinary Medicine Library, of the University of Illinois at Urbana-Champaign. Goldhor is now retired, and Roegge is with the Freeport (IL) Public Library. Correspondence about this study should be addressed to Herbert Goldhor, Graduate School of Library and Information Science, 410 David Kinley Hall, University of Illinois, 1407 W. Gregory Drive, Urbana, IL 61801.)

Table of Contents

Section 1. A Review of the Literature	3
Section 2. Methodology of the Study	5
Section 3. Findings of the Survey	6
Section 4. Tests of the Hypotheses	8
Section 5. Summary and Conclusions	12
Appendix A. Interview Questions and the One-Way Frequency Distribution of Reponses	16

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY
Herbert Goldhor

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)"

* The authors acknowledge with thanks the financial support of the Council on Library Resources for this study.

BEST COPY AVAILABLE

T-R 052248



Librarians are naturally concerned with measuring the use of their collections by readers, and typically the measure used is circulation -- the count of materials borrowed by patrons for use at home. Not only does such a count say nothing about the patron (how he/she came to select the item borrowed, how much of it was read, or for what purpose it was used), but librarians have long realized that the number of items use^d in-house is substantial and of course not recorded in the count of circulation. Even in public libraries in-house use of books and other materials has been found to be as large as recorded circulation [1], and Voigt estimated that the ratio of "total in-library use to total circulation may vary from 3 to 1 to 20 to 1 in different types of libraries" [2]. The standard method of measuring in-house use of materials is to count the number of items left on tables by readers [3], but there is evidence that this method captures half or less of what is found by interviews or questionnaire responses from readers [4]. And the table count method says nothing about the patron, how long the book was used or with what success.

This report describes a study of in-house use of materials in a science library, and uses data gathered by face-to-face interviews with patrons. The Veterinary Medicine Library (hereafter VML) of the University of Illinois at Urbana-Champaign was chosen for this study because it is a science library and because it is located away from the main campus and therefore might be expected to be used primarily by the faculty and students of the College of Veterinary Medicine.

The VML has about 34,000 volumes (approximately half monographs and half bound volumes of periodicals) and receives 600 journal titles. It has a total staff in full-time equivalent of 5.5 (1.5 professional, 2.5 clerical, and 1.5 student assistants), and occupies 10,350 square feet (with 125 readers' seats and 8300 linear feet of shelving) in a new (1983) Veterinary Medicine Basic Sciences Building. The College of Veterinary Medicine (CVM) has about 450 students (all full-time) and over 200 faculty and staff (130 FTE), and awards both the professional degree of DVM and the research degrees of MS and Ph.D. In the course of a year, the VML has about 10,000 reserve book loans, and about 4700 other loans to students and 3800 to faculty and staff. In addition the library staff offers reference assistance, does searches of machine-readable data bases, and handles interlibrary loan requests.

The two main purposes of this study were (1) to ascertain something of the quality of in-house use of materials in a science library, and (2) to test the use of interviews as a method of measuring such use. By looking at quality of use, we sought to go beyond merely counting the number of items used and to learn the purpose of the in-house use, whether the reader did or did not find the desired information, and if not whether he/she had the help of a librarian and what the interviewee proposes to do next. If a person used 10 to 12 books in the library, it may mean only that he/she could not find what was desired, and the high numbers are not a favorable indicator of the library's performance.

We define "use" broadly to include any occasion on which a reader opens a book or journal and reads some or all of its

content, even if only to identify one or more pages to photocopy. We exclude any occasion on which he/she examines only the outside of the book, and all uses of reserve books.

Specifically we interviewed a random sample of users (and for those same hours got a count of all books left on tables) and counted all persons entering the VML, to test four hypotheses. One is that the number of materials used in the library -- other than reserve books -- will be at least twice as high when reported by the interviewees than when measured by table counts. A second is that such reported use of materials will correlate high with the number of people visiting the library (thus enabling an estimate of the former to be made from the latter). Third, that extensive in-house use of library materials is associated with failure to find desired information, faulty searching techniques, and lack of consultation with the librarian. And finally we wanted to ascertain whether Trueswell's 80/20 rule applies to in-house use of materials.

Section 1. A Review of the Literature

A sizable number of studies have reported in greater or less detail facts on in-house use of library materials. We summarize here the most important studies which were concerned with science libraries. From January 5-9, 1955, half of all persons using the Science Library of the Massachusetts Institute of Technology were asked to fill out a questionnaire on what they had done in the Library. There were 2700 responses which gave a total of 457 books, periodicals and reports "withdrawn" and 4068 "consulted," a ratio of 1 to 8.9 [5].

From October 18, 1959 to April 17, 1960, Fussler and Simon placed questionnaires in 2089 monographic and serial volumes in selected areas of the University of Chicago Library stacks, requesting users of these volumes to provide some information. There were 654 returns from questionnaires in physics books and 175 from those in history books. In the years 1954-58, these 2089 volumes had been borrowed 1950 times, while in the six months of the questionnaires they were used 339 times in the stacks (i.e., what is called "loose core browsing"). Since 1950 is the total for 5 years, the average number of loans for half a year is 195, which results in a ratio of 1 to 1.7 (of recorded loans to in-library use) [6].

For "Spring 1966," Jain reported the number of recorded loans of monographs from the Physics and Chemistry Libraries of Purdue University, and the number of volumes left on the tables of the same two libraries. The ratio of recorded loans to in-library use was 1 to 0.6 (1961 to 1247) [7].

For four weeks in February and March, 1970 (?), McGrath reported the number of books (not including periodicals) which were borrowed for home use from the Library of the University of Southwestern Louisiana (8954) and the number of volumes (not including periodicals) which were used in the Library and left on tables (4532). This is a ratio of 1 to 0.5. In a separate two-week count of books borrowed from one floor of the Library and of

books from that floor used in the Library, the figures were 2386 vs. 1102, or 1 to 0.5 [8].

For two weeks at a period of peak use (in 1971?), readers leaving each of three unnamed English university libraries were asked at random times to complete a questionnaire on what they did in the library. At university A there were 1442 returns by readers using library books, and the reported ratio of ex-library use to in-library use was 1 to 1.6; at university B there were 658 returns, and the ratio was 1 to 6.7; and at university C, 139 returns and a ratio of 1 to 11.2. The questionnaires at universities A and B asked about the use of books only, that at C about the use of all materials [9].

For two one-week periods in April 1972, a count was made of the number of periodical volumes left on tables by readers in the University of Minnesota Bio-Medical Library. There were 727 volumes of 264 titles in the first week, and 533 volumes of 209 titles in the second, with a Spearman rho coefficient of .80 in the ranking of titles. In the first week 28% of the titles accounted for 68% of the volumes, and in the second week 29% for 64% [10].

In 1974, slips were placed in 2400 books in four subject areas of the Newcastle-Upon-Tyne Polytechnic Library. If a book was used at all, the slip would be removed or disturbed. Upon examination of the books after seven weeks, 252 (10.5%) could not be found and were assumed to be on loan, 964 (40.2%) had undisturbed slips, and 1184 (49.3%) had missing or disturbed slips. Of those 1184, 62 (5%) had been stamped in a distinctive fashion to indicate reshelving after being found on reading tables, and another 5% were estimated by the author to have been borrowed for home use and returned. The ratio of the number of titles borrowed for home use (252 + 59) compared to the number known to have been reshelved (62) is 1 to 0.2. Total in-library use of these books, however, was 19 times greater than that found solely by counting books left on tables [11].

Also in 1974 a study of the Sears Library (for science and technology) of Case Western Reserve University concluded that "44 percent of books used at Sears Library in the fall of 1974 were through loan and 56 percent were used in house." This is a ratio of 1 to 1.3 [12].

For 30 days, selected at random from August 1975 to April 1976, Kent and others collected data on books left on reading tables of the Hillman Library, the main library of the University of Pittsburgh. The total of such in-house uses, projected to a full year, was 351,067; the average annual circulation for home use of books from the Hillman Library for 1969 through 1975 was 204,818. The ratio of loans to in-house use is 1 to 1.7 [13].

Between 1978 and 1980 (?), 79 users of the Radcliffe Science Library of Oxford University reported 195 activities in the library on the occasion of their visit; 22% involved open shelf journals and 14% circulating books. The 198 users of the Cairnes (hospital) Library reported 350 activities; 22% involved current journals, 17% open-shelf journals, and 11% circulating books and journals [14].

Data were collected by questionnaire for two equal time periods in 1985 and 1986, in a small university library in England, on in-house use. Though only 69% of the forms distributed were returned, if we assume that the average number of items reported as used applies equally to all those polled, an estimated average of 1174 items were used in-house vs. 316 borrowed, or 3.7 to 1 [15].

In 1982, Kantor collected nearly 24,000 users' responses to a questionnaire distributed for one to four weeks in each of a sample of 95 U.S. medical libraries. By respondent's purpose, in-house use was 26% to 41% of total use (mean of 32%) depending on the type of patron; and by type of patron, 25% to 43% (mean of 33%) depending on the purpose of the visit. The author estimated that it cost these medical libraries an average of \$5.30 to provide an item for loan, \$12.63 to answer a reference question, and \$8.29 to provide "space and materials for an hour's study in the library" [16].

In summary, six of the cases reported above involved table counts and have a mean ratio of 0.6 books used in-house to each book borrowed; five studies used patron questionnaires and have a mean ratio of 6.4 to 1; and three studies used other methods (especially a stack browsing record) with a mean ratio of 1.1 to 1.

Section 2. Methodology of the Study

Interviews were held with each consecutive person leaving the VML in random time slots across all 82 hours and 7 days a week the VML was open. All these interviews were conducted by one person, Kathleen Roegge, and they lasted an average of 5 minutes. The survey instrument was pre-tested in January and February 1987 with 12 VML patrons; only question 19 gave any trouble because it asked for nationality when what we really wanted to know was whether the respondent's earlier education had prepared him/her for use of a library like the VML, organized in the American fashion. A copy of the final instrument appears here as Appendix A, and 414 interviews were completed between March 2 and May 13, 1987 in 52 sessions averaging 3 hours each (for a total of 162 hours) on 50 different days, 72% of the 69 days on which the VML was open in this time period. These 162 hours are 20% of all 828 hours in which VML was open between March 2 and May 13. Interviews were held for an average of 15 hours a week (median of 14) for 10.5 weeks. Of all 162 hours of interviewing, 2% were on Sundays, 20% on Mondays, 22% on Tuesdays, 20% on Wednesdays, 14% on Thursdays, 17% on Fridays, and 6% on Saturdays; VML was open fewer hours on Friday, Saturday and Sunday than on the other days of the week. Of all 162 hours, 20% were between 8 AM and noon, 21% between noon and 3 PM, 46% between 3 and 6 PM, and 12% between 6 and 10 PM. There was an average of 2.6 interviews per hour.

The 414 interviews involved 320 different people; 73 (23%) were interviewed twice, 21 (7%) were interviewed three times, and no one was questioned more than three times in the 10.5 weeks. Of the 320 different people, 248 or 78% were from the College of Veterinary Medicine; this is 38% of the 650 faculty, staff and students. Those interviewed only once did not differ

significantly from those interviewed more than once by their reason for using VML or by their use/nonuse of materials in the library. Of the 94 repeat interviews, all but 7 were of CVM personnel.

VML staff counted the number of persons in the library at the beginning of each interview session, counted the number of persons who entered the library during the interview session, and counted the number of persons left in the library at the end of each session. We estimate that 2007 persons left the library during the 162 hours of interviewing, and our 414 completed interviews are 21% of that number; many persons left the library simultaneously at ten minutes before the hour to go to class, and few of them could stop even for five minutes for an interview. VML staff also cleared the tables of all books and other materials at the beginning of each interview session, and then cleared them again at the end of the session, counting the items so picked up by each of three categories (books, bound volumes of periodicals, and unbound issues of periodicals) and by year of publication. A black paper dot was pasted inconspicuously in the back of each such item picked up from the tables. In the last two weeks of the study (May 4-15), the VML staff counted the number of black dots in each item picked up from the tables during the hours the library was open, and recorded the number of items by the number of dots (0, 1, 2 ...) in each.

Section 3. Findings of the Survey

This study turned up data relevant to several main aspects of patron use of science libraries. For one thing, books were used far less than were journals. Of 784 documents left on tables during the hours of interviewing, 10% were books, 60% bound periodicals, and 30% unbound issues; of 639 items left on tables in the last two weeks of the data collection (May 5-16), 8% were books, 70% bound volumes of journals, and 22% unbound periodical issues. Of the 930 items reported by the interviewees as used in-house, 20% were circulating books, 13% reference books, and 66% bound or unbound periodicals. Apparently readers did not leave on the tables the reference books or half the circulating books which they consulted.

Another well-known aspect of the use of science libraries is the emphasis on recent publications. We summarize in Table 1 below the data on the dates of publication of (a) items left on tables during the hours of interviewing, and (b) the items left on tables in all the hours the VML was open from May 5-16. Two-thirds of all the items in both groups were less than 8 years old, and less than 10% were more than 18 years old. As might be expected, unbound magazines were most subject to the emphasis on recency, and indeed almost all of the unbound periodical issues consulted in-house were published in 1986 or 1987. Books were the least influenced by recency; almost two-thirds of those used in-house were more than 8 years old. The differences between the number of books, bound volumes, and unbound magazines for 1980-87 and before 1980 (from Part C of Table 1) are greater than chance alone can account for ($p < .001$).

Table 1. Distribution by Date of Publication and by Type of Material of Two Groups of Items

Part A. Items Left on Tables During Hours of Interviewing.

<u>Years of Publication</u>	<u>Books</u>	<u>Periodicals</u>		<u>Total</u>
		<u>Bound</u>	<u>Unbound</u>	
1980-87	39/48%	276/59%	234/100%	549/70%
1970-79	27/33%	135/29%	--	162/21%
1960-69	11/13%	44/9%	--	55/7%
Up to 1960	5/6%	13/3%	--	18/2%
Total	82/100%	468/100%	234/100%	784/100%
	10%	60%	30%	100%

Part B. Items Left on Tables in All Hours of the Two Weeks From May 5-16, 1987.

1980-87	12/23%	264/59%	138/98%	414/65%
1970-79	33/63%	131/29%	3/2%	167/26%
Up to 1970	7/13%	51/11%	--	58/9%
Total	52/100%	446/100%	141/100%	639/100%
	8%	70%	22%	100%

Part C. Grand Total.

1980-87	51/38%	540/59%	372/99%	963/68%
1970-79	60/45%	266/29%	3/1%	329/23%
Up to 1970	23/17%	108/12%	--	131/9%
Total	134/100%	914/100%	375/100%	1423/100%
	9%	64%	26%	100%

A third dimension of the collected data pertains to the various groups of persons who were interviewed and their relative use of library materials in-house. Seven types of people were identified and compressed into three categories for purposes of analysis, as follows:

1. Graduate students in the DVM professional program -- 224, and 45% used materials in-house.
2. College of Veterinary Medicine faculty -- 71, and 85%. Graduate students in the CVM research program--40, and 68%.
Sub-total -- 111, and 78%
3. Graduate students of other disciplines -- 28, and 86%. UI personnel other than students or faculty -- 24, and 75%. Non-UI personnel -- 14, and 64%. Undergraduates -- 13, and 23%.
Sub-total -- 79, and 68%.
Grand Total -- 414, and 58%.

The Veterinary Medicine faculty, the graduate students in the CVM research program, and the students in the DVM professional program were 81% of all 414 interviewees, and accounted for 78% of all in-house use. But the 224 DVM students were significantly more likely to come to the VML to study their own materials, read books on reserve, or use the photocopier than were either the 111 veterinary medical faculty and CVM graduate students or the 79 persons in category 3 above (68% vs. 25% and 29%), and significantly less likely to come to do research or read new literature (32% vs. 75% and 71%) ($p < .001$), or to borrow books (14% vs. 18% and 30%) ($p < .01$).

When we take a closer look at the 241 people who used library materials in-house, we find that they used journals more than books, that usually they knew where to go to get what they wanted (whether it was subject information or a specific title), and most of the time they found what they were looking for. Of those who failed to get what they wanted, most were going to try another campus library or this library again.

Only about one-fifth of all the interviewees asked any library staff member for assistance, and then usually to locate a document or for reserved material; those who came to read their own books or books on reserve were significantly more likely to ask for help than were those who were in VML to do research ($p = .001$), but persons who said they had visited VML varying numbers of times in the previous week (0-1, 2-3, 4+) were equally likely to have asked for staff assistance ($p = .08$), as were the three main groups of interviewees (see above) ($p = .10$).

One might expect that persons who came to the VML looking for a specific title would act differently than those who sought subject information (Q.2 of Appendix A). They were no more likely to succeed (78% vs. 85%, $p = .20$), and almost as likely to consult materials in-house (85% vs. 92%, $p = .14$). The former group, however, stayed in VML for a significantly shorter period of time than did the latter (median of 15" vs. median of 37", $p < .001$).

We can compress all 414 interviewees into two categories by their reason for using the VML, viz., (a) to study reserved materials or their own books (or for other miscellaneous reasons), and (b) to do research or scan new literature. There were 203 persons (49%) in the former group, and 211 (51%) in the latter. The former group stayed significantly longer in VML than did the latter (median of about an hour vs. that of 20 minutes, $p = .0000$), but (as might be expected) was significantly less likely to use library materials in the VML ($p = .0000$).

Section 4. Tests of the Hypotheses

Hypothesis One: -- Appendix A has the frequency distributions of the responses to each question of the interview schedule. We shall examine these data here in relation to each of the four hypotheses specified above. The first states that the number of materials used in the library, as reported by the interviewees, will be at least twice as many as the number of

items picked up from the tables. Of the 414 interviewees, 241 (58%) said that they used 930 items in-house (an average of 3.9, and for all 414 interviewees an average of 2.2). This finding (that 58% used materials in-house) is supported by the fact that 64% of the interviewees said they had used materials in-house in other visits to VML in the previous week. In the 162 hours of interviewing, an estimated 2007 persons left the library, of whom only 21% were interviewed. If all 2007 persons used materials in-house at the same rate (2.2 per person) as did the 414, the total in-house use in the hours of interviewing was 4415. This compares with a total of 785 items which were collected from tables at the end of the interview sessions. The interviewees reported 18% more items used in-house than were found on the tables, but the total in-house use (estimated by projection) is 5.6 times the 785 items left on tables. We conclude that the first hypothesis is supported by the data.

Of the 930 items reported to have been used in-house, 617 (66%) were periodicals, 184 (20%) were open-shelf circulating books, 119 (13%) were reference books, and 10 (1%) were other types. Of the 414 interviewees, 75 (18%) said that they were borrowing 167 books for use outside the library (an average of 2.2, and for all 414 interviewees an average of 0.4); this is an average of 5.5 items used in-house for each external loan by all 414 interviewees. If all 2007 persons using VML in the hours of interviewing borrowed materials at the same rate, they accounted for 803 loans. The total recorded circulation of VML for March-May (classes were not in session in the last half of May) was 1673 or 38% of the total estimated in-house use of materials in the 162 hours of interviewing of the 10.5 weeks from March 2 to May 13.

This ratio of 5.5 items used in-house to each circulation loan is more than the 8-year average ratio for 130 to 138 U.S. medical school libraries in 1978/79 through 1985/86 (as measured by table counts); the latter average ratio was 3.2, the median 3.2, and the range of annual averages 2.6 to 3.8 [17].

Hypothesis Two: -- It was thought that in-house use of materials would be a function of the number of persons in the library in any given time period. As stated earlier, VML staff recorded the number of persons in the room at the beginning of each interview session, the number who entered during the session, and the number still in the room at the end of the session. We subtracted the latter number from the sum of the two earlier figures for each time period to get an estimate of the number of people who were in the library for at least part of the interview session. In addition the VML staff recorded the number of books and bound and unbound journals left on the tables in the hours of each interview period, having cleared the tables of all materials at the beginning of the period. For a net total of 47 time periods for which we had all necessary data, 796 items were left on tables by 1924 patrons. The range of such values for 47 time periods is 0 to 1.6 per person, with a mean of 0.4 and a median of 0.3. Of four periods with the highest ratios of books to readers (0.9 to 1.6), the average number of readers was 31; of four periods with the lowest ratios (zero to 0.1), the average was 38. In the light of these data, we have to conclude that there is little or no systematic relationship between the number

of persons using the VML and the number of items left on tables. This is understandable in light of the fact that many people use the VML as a study hall. However multiplying 0.4 by the number of persons who enter this library in a week (or multiplying the number of external loans by 5.5) will give a reasonably accurate estimate of the number of books and journals which were used in the library in that time period, if our data are representative of the long term trend. On this basis, we estimate that total in-house use per year in the VML is 46,750 (5.5 x 8500 external loans).

Hypothesis Three: -- It was expected that persons who made extensive in-house use of library materials would be different from those who made limited in-house use, in regard to such factors as faulty searching techniques, lack of consultation with the staff, failure to find desired information, etc.

We divided the 414 interviewees into four groups in regard to the number of items they said they consulted while in the VML; 173 (42%) used nothing, 153 (37%) used 1 to 3 items each, 59 (14%) 4-7 items, and 29 (7%) 8-27. We shall call these Groups A, B, C and D. In two regards these four Groups differed by no more than could be explained by chance fluctuations (see columns b and c of Table 2), viz., whether they used catalogs or asked the staff for help vs. relying on their own knowledge of VML or on browsing ($p = .08$), and whether they searched for a specific title vs. for information on a subject ($p = .05$). Though the latter is on the edge of statistical significance, a t-test of the two groups by the number of items used in-house is clearly significant ($p < .01$).

In three ways, the four Groups differed by more than chance would allow. The more books a person used in-house, the more likely it was that he/she would have asked the help of the staff (column d of Table 2; $p = .03$); this could have been only to secure a book on reserve. The fewer times a respondent had visited the VML in the previous week, the more items he/she used in-house (col. e of Table 2; $p = .001$); the presumption is that those persons who use the library to study their own books or to read books on reserve go there several times a week but rarely use any other library materials in-house, while those who use many items in-house visit the VML less often and for research. This is corroborated by finding that those who used books in-house stayed in the VML a shorter time than those who did not (t-test, $p = .01$). The DVM students typically used no or very few items in-house; the CVM faculty and graduate students and the non-CVM readers were responsible for the bulk of the in-house use ($p = .0000$). Those DVM students who used any materials in-house were significantly more likely to use circulating or reference books than did CVM faculty/graduate research students or other UI students (62% vs. 41% and 44%; $p < .01$) and significantly less likely to use journals.

The criterion however is whether the in-house user found what he/she was seeking. In this regard the distinction between Groups B, C, and D is irrelevant and with no statistical significance ($p = .88$). We conclude that the similarities are more important than the differences, and that hypothesis Three has to be rejected. What distinguishes those who make heavy in-

library use from those who make no or light in-house use is whether or not they are there to do research.

Table 2. Chi-Square Analysis of Selected Aspects of the Interviewees' In-House Use of the VML

(a) Group (no. of items used in-house)	(b) Method Used (Q.6, App. A) b1 - b2	(c) Title vs. Information (Q.2) c1 - c2	(d) Asked Staff (Q.11) d1 - d2
A (0)	-- --	43%-57%	16%-84%
B (1-3)	27%-73%	31%-69%	24%-76%
C (4-7)	42%-58%	19%-81%	29%-71%
D (8-27)	28%-72%	15%-85%	34%-66%
No. of cases	74-167	59-161	90-324
Chi-square	7.74	5.01	8.62
p	.05	.08	.03

(a) Group (no. of items used in-house)	(e) Frequency of Use (Q.15) e1 -e2 - e3	(f) University Status (Q.17) f1 -f2 - f3	(g) Success in Search (Q.7) g1 - g2
A (0)	28%-25%-47%	72%-14%-14%	-- --
B (1-3)	32%-37%-31%	43%-38%-19%	86%-14%
C (4-7)	41%-30%-29%	37%-37%-25%	86%-14%
D (8-27)	52%-38%-10%	41%-24%-34%	83%-17%
No. of cases	137-128-149	224-111-79	205-34
Chi-square	22.12	44.34	0.25
p	.001	.0000	.88

- b1 -- used catalogs or asked the staff for help in locating a title or subject information
b2 -- knew where to look or browsed
c1 -- searched for a specific title
c2 -- sought information on a specific subject
d1 -- asked the staff for help in any regard
d2 -- did not ask the staff for any help
e1 -- visited the VML no or only one other time in previous week
e2 -- visited the VML 2 or 3 times in previous week
e3 -- visited the VML 4 or more times in previous week
f1 -- students in the DVM program
f2 -- CVM faculty and graduate students in the research program
f3 -- UI students from other than CVM
g1 -- found what respondent sought
g2 -- did not find what was sought or did not find all of it

It had also been conjectured that CVM personnel whose college education was in countries with well-developed academic and other libraries would be more frequent and more successful users of VML than persons whose college education was in countries thought or known to have less well-developed libraries. Only 29 persons were identified in the latter group, and only 23 of these had used materials in-house, a higher percentage (79%) than of all other interviewees (58%). All 23 found what they were looking for vs. 84% of the others; and both groups used essentially the same types of materials (journals vs. books), and the same methods of finding what they wanted (Q.6 of Appendix A). The 29 persons from third world countries asked for assistance from the library staff about as often as did the others, and reported using VML about as many times in the previous week, but stayed in the library significantly longer than did the others ($p = .004$), and used significantly more items in-house ($p = .0000$). We conclude that the foreign students from countries with less well-developed libraries performed as well in their use of VML as did students from the U.S. or other western countries.

Hypothesis Four: -- It was hypothesized that Trueswell's 80/20 rule would apply to the in-house use of materials in the Veterinary Medicine Library. The 80/20 rule states that about 80% of the use of a given collection would come from about 20% of the items [18]. To test this hypothesis, a black paper dot was pasted inconspicuously in each item picked up from the VML tables in the hours of interviewing. In the last two weeks of the interviewing, materials gathered from the reading tables were recorded by type of material, by year of publication, and by the number of black dots. Of 639 items so recorded, 52 (8%) were books and none of them had a black dot. The data for the bound and unbound periodicals are shown in Table 3. Three-fourths were apparently used only once and caught in our data collection efforts; 116 were used twice, 26 three times, and 4 four times. Of 767 recorded uses of these periodicals, 441 (57%) were one-time uses; in other words, 25% of the periodicals accounted for 43% of all uses of periodicals (as measured by those left on tables). Of the unbound periodicals, 33% accounted for 52% of the recorded uses; of the bound volumes 21% for 39%. This is far removed from 80/20, and we have to conclude that perhaps the Trueswell rule does not apply to in-house use in a science library.

Section 5. Summary and Conclusions

The study reported here was based on short interviews with a sample of the persons who visited the University of Illinois Veterinary Medicine Library in a random set of hours in the months of March to May 1987. We were particularly interested in those who used--or at least said they used--library materials in-house; of the 414 interviewees, 241 (58%) said they had done so.

Table 3. Distribution of Periodicals Left on Tables in May 5-16, 1987, by Number of Black Dots in Each.

No. of Dots	Bound Journals	Unbound Periodicals	Total	Total Including Books
0	346/78%	95/67%	441/75%	493/77%
1	78/17%	38/27%	116/20%	116/18%
2	19/4%	7/5%	26/4%	26/4%
3	3/1%	1/1%	4/1%	4/1%
Total number of items	446/100%	141/100%	587/100%	639/100%
% of total	76%	24%	100%	--
	70%	22%	92%	100%
Total number of uses	571	196	767	819
% of total	74%	26%	100%	--
	70%	24%	94%	100%

* An item with no dots was used one time, in the final two weeks; an item with one dot was used twice, once in the final two weeks and once before that; etc.

It seems clear that most of those who did not use any materials in-house were students in the DVM professional program; typically they came to the library to read their own books or to read something that was on reserve. The first two years of the DVM program do not lend themselves to the use of library materials other than books on reserve; the last two years allow for some more independent work. The people who used many items in-house were either CVM faculty, students in the MS or Ph.D. research program, or graduate students from other University departments.

We tested four specific hypotheses with the following results: (1) When we project to all readers the number of items reported by the interviewees to have been used in-house, the total is more than five times higher than the number left on tables by all readers. (2) We could find no substantial correlation between the number of persons using the library and the number of items used in-house; this hypothesis is clearly wrong since many persons use the VML to study their own materials. (3) Extensive in-house use was not found to be associated with a failure to find desired information, faulty searching techniques, or lack of consultation with the librarian. (4) Trueswell's 80/20 rule does not fit the data in this study on repeat usage of the items consulted in-house, for either books, bound periodicals, or unbound journal issues.

We sought to learn some identifying features of in-house use in this science library. Most of what we learned concerns what is not true. In any future study of this topic, we would suggest

that one start with the hypothesis that people who use materials in a science library are doing so for substantive research and that typically they find what they seek.

From the point of view of methodology, we are convinced that interviews--even of only a few minutes--are to be preferred to table counts and also to self-administered questionnaires. Though the count of items left on tables was far below the number reported as used, the former were invaluable in several ways where the interview data were completely lacking. We did not ask readers to refrain from reshelving books used; in another such study, this should be emphasized. There are advantages and disadvantages to having one person do all the interviews; we recommend that in another study at least two people share this task. There are many assumptions in this study, e.g., that the interviewees could remember accurately what they had done in the library and were prepared to tell us the truth, and that they understood the terms we used and interpreted them correctly. We hope that others will duplicate our work and either confirm or correct our findings.

Footnotes

1. Richard Rubin, In-House Use of Materials in Public Libraries (Monograph 18; University of Illinois Graduate School of Library and Information Science, 1986).
2. M. J. Voigt, "Circulation Studies Cannot Reflect Research Use," Journal of Academic Libraries 5 (May 1979), p. 66; see also (letter to the editor), College and Research Libraries 38 (May 1977), p. 249-51, and American Libraries 8 (Nov. 1977) p. 533-34.
3. Nancy A. Van House, et al., Output Measures for Public Libraries: A Manual of Standardized Procedures (2d ed.; American Library Association, 1987), p. 45.
4. Rubin, op. cit.
5. G. C. Bush et al., "Attendance and Use of the Science Library at M.I.T.," American Documentation 7 (1956) p. 87, 102.
6. Herman H. Fussler and Julian L. Simon, Patterns in the Use of Books in Large Research Libraries (Chicago: University of Chicago Press, 1969) p. 108-17.
7. Aridaman K. Jain, Report on a Statistical Study of Book Use (PB 176525; Lafayette, IN: Purdue University, 1967) p. 107-10.
8. William E. McGrath, "Correlating the Subjects of Books Taken Out of and Books Used Within an Open-Stack Library," College and Research Libraries 32 (1971) p. 280-85.

9. J. A. Urquhart and J. L. Schofield, "Measuring Readers' Failure at the Shelf in Three University Libraries," Journal of Documentation 28 (1972) p. 237.
10. Pamela Tibbetts, "A Method for Estimating the In-House Use of the Periodical Collection in the University of Minnesota Bio-Medical Library," Bulletin of the Medical Library Association 62 (January 1974) p. 37-48.
11. C. Harris, "A Comparison of Issues and In-Library Use of Books," ASLIB Proceedings 29 (March 1977) p. 118-26.
12. T. Saracevic, et al., "Causes and Dynamics of User Frustration in an Academic Library," College and Research Libraries 38 (January 1977) p. 15.
13. Stephen Bulick, et al., "Chapter II: Circulation and In-House Use of Books," in Allen Kent, et al., Use of Library Materials: The University of Pittsburgh Study (Dekker, 1979) p. 30.
14. V. L. Brember and P. Leggae, "Linking a Medical User Survey to Management for Library Effectiveness: I. The User Survey," Journal of Documentation 41 (March 1985) p. 1-14.
15. T. Wall, "SCONUL Statistical Return: In-Library Use," Library and Information Research News, v. 9, no. 33 (1986) p. 7-8.
16. Paul B. Kantor, Cost and Usage of Medical Libraries: I - Economic Aspects, II - Principal Findings, and Patterns of Burden (Tantalus, Inc., Cleveland, OH, 1983-84), v. I p. 19; v. II p. 18-19; and Paul B. Kantor, "Cost and Usage of Health Sciences Libraries: Economic Aspects," Bulletin of the Medical Library Association 72 (July 1984) p. 274-86.
17. Houston Academy of Medicine, Texas Medical Center Library, Annual Statistics of Medical School Libraries in the United States and Canada, 1978-1979 ... 1985-1986 (1979-86).
18. R. W. Trueswell, "Some Behavioral Patterns of Library Users: The 80/20 Rule," Wilson Library Bulletin 43 (1969), p. 458-61.

APPENDIX A

Interview Questions and the One-Way Frequency
Distribution of Responses

University of Illinois Library Research Center

No. _____
Interview _____

Date _____
Time _____

Questions for Interviews
With Users of the Vet-Medicine Library

(After the first day of interviews, this question should be asked: "Have you been interviewed before?" Yes _____ No _____. Do not interview the same patron more than 3 times.)

1. What was the reason for coming to the library today?

- 180/44% a. research for yourself
 - 19/5% b. research for someone else
 - 3/1% c. class assignment for vet-medicine
 - 2/* d. browsing
 - 10/2% e. checking new literature
 - 115/28% f. studying own material (go to Q.3)
 - 36/9% g. use moneychanger or photocopier (go to Q.3)
 - 24/6% h. reserved materials (go to Q.3)
 - 25/6% i. other (e.g., to return or borrow a book, to read a newspaper, or to find someone)
- (414/100%) * = 0.5% or less

2. Were you looking for

- 54/24% a. a specific title?
 - 153/70% b. information on a specific subject?
 - 8/4% c. other?
 - 5/2% d. a and b?
- (220/100%)

3. Did you use (i.e., take an item from the shelf and open it to read its contents) any materials from this library?

- 241/58% a. yes (go to Q.4)
- 173/42% b. no (go to Q.11)

4. What type and how many of each did you use?

a. journals

<u>no.</u>	<u>frequency/%</u>	<u>no.</u>	<u>frequency/%</u>
1	47/27%	8	4/2%
2	29/18%	10	7/4%
3	26/16%	12	1/1%
4	16/10%	13	1/1%
5	11/7%	15	2/1%
6	8/5%	20	2/1%
7	7/4%	25	1/1%

No. of users 157/100%
% of total 57%

No. of uses 617
% of total 66%

b. books

<u>no.</u>	<u>frequency/%</u>	<u>no.</u>	<u>frequency/%</u>
1	18/30%	6	3/5%
2	14/23%	7	1/2%
3	8/13%	10	2/3%
4	8/13%	12	1/2%
5	5/8%		

No. of users 60/100%
% of total 22%

No. of uses 184
% of total 20%

c. reference books

<u>no.</u>	<u>frequency/%</u>	<u>no.</u>	<u>frequency/%</u>
1	41/68%	5	3/5%
2	7/12%	6	1/2%
3	4/7%	9	3/5%
4	1/2%		

No. of users 60/100%
% of total 22%

No. of uses 119
% of total 13%

d. other (e.g., theses)

<u>no.</u>	<u>frequency/%</u>
1	10/100%

No. of users 1/100%
% of total *

No. of uses 10
% of total 1%

Total users 279/100%
* = 0.5% or less

Total uses 930/100%

5. What was the title or subject of what was used? (If a title is named, convert the answer to a subject.)

<u>subject</u>	<u>frequency/%</u>	<u>subject</u>	<u>frequency/%</u>
Anatomy	20/8%	Biological sciences	38/16%
Organisms	9/4%	Techniques/equipment	31/13%
Diseases	70/29%	Information tools	6/2%
General science	26/11%	Other/miscellaneous	15/6%
		Total	240/100%

6. What method did you use to locate the information you wanted?
(More than one answer possible.)

- 38/13% a. card catalog
- 25/9% b. shelf browsing
- 29/10% c. periodical index
- 12/4% d. asked the librarian
- 36/13% e. used LCS (the campus-wide computerized catalog)
- 90/31% f. knew where it was
- 6/2% g. professor suggested where to look
- 50/17% h. other (e.g., got reference from a bibliography, journal article, or online search)

(286/100%)

7. Did you find the information you were looking for? (If no, go to Q.8; if yes, go to Q.10)

- 205/86% a. yes
- 17/7% b. no
- 17/7% c. yes and no

(239/100%)

8. Why were you unable to find the information you wanted?

- 5/15% a. missing from shelf
- b. lost
- 1/3% c. another patron had the item I needed
- 27/82% d. other (e.g., not available in this library, not yet received, or in bindery)

(33/100%)

9. If you were unable to locate the needed information, what will you do next to find it? (More than one answer possible)

- 16/42% a. try another campus library
- 2/5% b. use LCS to check other Illinois libraries
- 5/13% c. try interlibrary loan
- 3/8% d. forget about it
- 1/3% e. ask the professor
- 8/21% f. try this library again
- 1/3% g. ask the librarian here
- 2/5% h. other

(38/100%)

10. After locating the document with the information you wanted, did you

- 26/12% a. check it out?
- 64/28% b. use it here?
- 97/43% c. photocopy it?
- 16/7% d. check it out and photocopy it?
- 2/1% e. check it out and use it here?
- 14/6% f. use it here and photocopy it?
- 6/3% g. check it out, use it here, and photocopy it?

(225/100%)

11. During your visit here today, did you ask Ms. Smiley or other library personnel for assistance?
 90/22% a. yes
 324/78% b. no (If no, go to Q.13)
 (414/100%)

12. If yes, what did you want?

Assistance in locating document	43/48%
Reserved material	17/19%
Help in finding information	4/4%
Help in locating or using reference books ..	4/4%
Help in using LCS or catalog	2/2%
Interlibrary loan	4/4%
On-line search	4/4%
Literature search	1/1%
Other (e.g., to renew book or use phone) ...	11/12%
TOTAL	90/100%

13. Did you or will you check out any materials today, from this library; and if so, how many?
 75/18% a. yes
 339/82% b. no
 (414/100%)

<u>no.</u>	<u>frequency/%</u>	<u>no.</u>	<u>frequency/%</u>
1	34/45%	4	5/7%
2	18/24%	5	8/11%
3	9/12%	10	1/1%
Total responses 75/100%		Total loans 167	

14. How long have you been in the library on this visit?

< 10 minutes	53/13%	1 hour to 1 hr 29 minutes	56/14%
10 to 19 minutes	65/16%	1 hour 30" to 1 hour 59"	34/8%
20 to 29 minutes	37/9%	2 hours to 2 hours 59"	57/14%
30 to 44 minutes	51/12%	3 hours or more	43/10%
45 to 59 minutes	18/4%	Total	414/100%

15. How many times during the past seven days, not including today, did you visit this library?

<u>no.</u>	<u>frequency/%</u>	<u>no.</u>	<u>frequency/%</u>
0	79/19%	5	35/8%
1	58/14%	6	6/1%
2	64/16%	7	51/12%
3	64/16%	9+	19/5%
4	38/9%		
Total responses 414/100%		Total visits 1288	

16. In that visit (or in any of those visits) did you use any of this library's materials?

264/79% a. yes
71/21% b. no
(335/100%)

17. University status?

13/3% a. undergraduate
224/54% b. graduate student in DVM program of study
40/10% c. graduate student in CVM research program
28/7% d. graduate student in other departments
71/17% e. faculty in College of Veterinary Medicine
24/6% f. other UI personnel, e.g., lab technicians
14/3% g. non-UI personnel
(414/100%)

18. What is your college?

354/89% a. College of Veterinary Medicine
11/3% b. College of Liberal Arts and Sciences
17/4% c. College of Agriculture
5/1% d. College of Applied Life Sciences
4/1% e. College of Medicine
1/* f. College of Education
3/1% g. College of Commerce
2/* h. College of Engineering
2/* i. Other, e.g., College of Law
(399/100%) * = 0.5% or less

19. (To be asked only of Veterinary Medicine personnel) In what country did you receive your college education?

325/92% a. In the U.S., Canada, Australia and other countries with well-developed academic libraries
29/8% b. All other, e.g., third world countries
(354/100%)