ELLIS MOUNT and PAUL FASANA

An Approach to the Measurement of Use and Cost of a Large Academic Research Library System: A Report of a Study Done at Columbia University Libraries

A description of the methodology used in collecting performance data in a large academic research library is given. Twelve types of surveys used to measure and evaluate users, services, and materials were developed and conducted during the period 1968/69 at Columbia University libraries and later evaluated. Sample results are included. Costs of providing research services were found to be 64 percent versus 36 percent for instructional services.

INTRODUCTION

COLUMBIA UNIVERSITY is a large, complex academic institution situated in a changing urban environment. Student enrollment at the university is approximately 18,000 (8,000 undergraduates and 10,000 graduates); the teaching and research faculties number approximately 6,000.[1] Library services are provided by a coordinated library system composed of thirty-five separate subject or department libraries. On a typical day, more than 10,000 patrons enter these libraries.

The total organized book collection contains over four million volumes, with annual additions currently at the rate of 125,000 volumes, representing 65,000 titles. In addition to the organized book collection, there are an estimated three to four million items in separately or-

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ganized collections such as the technical report collection, special manuscript collections, etc. The libraries' annual operating budget exceeds $5 million, with 25 percent of the total budget spent for books, serials, and binding. There are approximately 150 full-time professional librarian positions and 300 full-time clerical positions budgeted.

As is typical in large organizations that have developed over a long period of time (the Columbia libraries date back more than 100 years), valid operating data were not available in several areas seriously affecting the librarians' ability to plan and allocate resources effectively. For example, the library counted the number of items purchased and processed, but little was known about how or by whom these materials were used. One need that was most pressing involved data pertaining to the relationship between library costs incurred to support research and those incurred to support instruction relating to negotiation of the university's govern-

ment contract overhead.

In order to remedy this problem, it was decided early in 1968 that the libraries would appoint a committee of librarians to develop a plan to gather and analyze data on library performance and operation. Although the initial impetus for this effort was provided largely by the need to measure the amount of effort and money allocated to research rather than to instruction, the working group of librarians felt strongly that any plan developed should also provide mechanisms to collect data on performance and cost to assist library managers in evaluating services and materials on a continuing basis. Accordingly, the committee identified five categories in which data and data gathering techniques were needed.

1. Salaries and wages categorized by type of activity (e.g., administration, processing, cataloging, reference, etc.)

2. Space categorized by major use (e.g., reading rooms, shelving, staff work areas, etc.)

3. Supplies and equipment by major use (e.g., card catalogs, typewriters, etc.)

4. Bibliographic materials by type (e.g., monographs, serials, documents, microforms, etc.)

5. User services by type of activity (e.g., reference, reserves, etc.), time (e.g., use patterns during the day, semester, year), type of material (monographs, serials, etc.), and type of user (e.g., undergraduate, graduate, teaching faculty, researchers, etc.)

Within each of these areas, several surveys were designed and tested during the period 1968/69. An evaluation of these surveys was conducted in 1970/71. In the following sections, a brief description of each survey is presented, together with comments on the value and effectiveness of each technique.

SURVEY DESCRIPTIONS

User Survey—A sampling of all users was done on selected days in all units of the libraries during the period November 1, 1968, through July 24, 1969. The purpose of this survey was to identify and measure major user groups and services. All users were asked to complete a special survey form (see Appendix 1). Four university-wide surveys were conducted on days selected to be representative of different phases of the school year as well as different days of the week. The number of usable survey forms completed for each survey was:

1. November 1, 1968	(Friday)	5,109
2. January 14, 1969	(Tuesday)	5,585
3. April 2, 1969	(Wednesday)	2,317
4. July 24, 1969	(Thursday)	2,291
	Total	15,302

Reaction to the form was mixed, but in general most patrons were cooperative. Patrons using more than one library unit in the main library building (Butler Library) were asked to fill out a separate form for each library unit used during the day. Some of the resistance to cooperation was encountered from this group, who did not recognize the need for separate surveys in each unit. Users were asked to identify themselves (i.e., faculty, undergraduate, alumni, administrator, etc.), to indicate what library facilities they used (e.g., tables, catalog, reference assistance, etc.), and to state what kinds of material they sought, the last to measure use both within the library and for material borrowed for use outside the library. The length of time spent in the library and the time of leaving were also recorded. Completed forms were later coded and the data keypunched.

Three major summaries were prepared and are listed here to indicate the kind of analyses that can be done:

A. Type of user (e.g., graduate student in the School of Architecture) arranged by the unit of the library in which the questionnaire was filled out.

B. Type of user (as above) arranged

by the services used (e.g., number of reserve books used in library, length of time spent in library, etc.).

C. Type of user arranged by service (as in paragraph B above) for each library unit.

Survey days were selected to represent four different time periods: Survey 1 was a typical day in the fall semester; Survey 2 was a day shortly before final examinations; Survey 3 was a day during spring vacation; and Survey 4 a day during one of the summer sessions. This was the minimum number of surveys that could be conducted which would reflect library operations as represented by an entire school year. Different days of the week were selected to avoid, as much as possible, bias due to busier days at one time of the week over another.

Of prime concern in planning the survey was whether or not to weight the results. Several alternatives were considered, one being simply to sum the four survey results and obtain an average to use in calculations. If surveys were weighted, one method would be that of calculating the weight in terms of the percentage of days relative to the school year represented by each survey. For example, the third survey, representing a spring vacation day, would have to be expressed as a fraction of the percentage of the total number of vacation days in the calendar year. An alternate method considered was that of giving each survey a weight determined by the ratio of books borrowed during the survey period to the total number borrowed throughout the year. That is, if the third survey represented a period of activity in the school year (vacation days) in which 11 percent of the annual circulation took place, it would have been weighted as 11 percent of every item it measured (i.e., seats used, reference questions asked, etc.).

Both methods of weighting were computed and then compared with the simple method of taking an average of the four surveys. In applying the results to one survey item (type of user) it was found that the two weighting methods were almost identical, and varied only approximately 1 percent from the average, unweighted figures. Therefore, it was decided that it would be statistically valid to use a simple average of four surveys.

These summaries were useful in describing the different groups of users, the services or materials each used, the length of time spent in libraries, etc. For example, in the Engineering Library, engineering graduate students were the heaviest users of the library, using from two to four times as many nonreserve books as undergraduate engineering students. The use of reserve books by the two groups was almost equal. Not too surprisingly, the materials used most by the engineering faculty were periodicals. By contrast, in the Music Library, graduate students used five times as many nonreserve books as undergraduates. Moreover, music faculty used nonreserve books far more than periodicals. Conclusions affecting budget allocation, service hours, and many other aspects of library operations could well benefit from consideration of the quantitative data generated by this survey.

Circulation Survey.—As a further extension and check of the User Survey, all library units were asked to record circulation totals for each day they were open, beginning October 1, 1968, through September 30, 1969. This enabled us to determine whether survey days were in fact typical of periods they had been chosen to represent. A comparison of data, shown in Table 1, indicates that survey days were reasonably typical. The higher loan figures on survey days may in part be explained by the fact that the average loan figure includes Saturdays and Sundays which are both light usage days.

Door Checks.—Two door checks were

conducted to determine the composition of *all* users on typical days (as distinct from the survey days when we knew through observation that *all* users had not actually completed a user survey form). Although these door checks were conducted relatively late in the study (Friday, May 9, 1969, and Wednesday, May 14, 1969) the distribution of categories of patrons in the User Survey and Door Checks agreed closely with each other as shown in Table 2.

Special User Survey.—A sampling of faculty members, graduate students, and research staff members was conducted, asking such questions as services used, purpose, and frequency of library used (see Appendix 2). This survey attempted to characterize in greater detail that segment of the libraries' user population involved primarily in noninstructional activities. Measuring the instructional use of the library can be done relatively straightforwardly by counting students and the types of materials used. Research use of the libraries, by contrast, is more difficult to define and measure. A random sample for each user

category was selected in the following manner: (1) for faculty members, senior research staff, and administrative staff, every tenth name from the University Telephone Directory for 1968–69 was selected, yielding 500 names; (2) for research workers on the technician and research assistant level, every fourth name on a list of all employees in these categories was selected; (3) for graduate students at the master's and doctoral candidate level, every sixteenth name on a list of all such students was selected. The total sample approximated 1,300 names. The questionnaire was mailed in January 1969 to the total sample. Of 1,300 questionnaires sent, 570 responses were received. More than 50 percent response was received in each category except the technician sample. Questionnaires were carefully filled out by the respondents; few misinterpretations of the questions were detected in the analysis.

Appendix 3 shows the results of the Special User survey analyzed according to reason for use, i.e., Research, Instruction, Both Research and Instruction, and

TABLE 1

COMPARISON OF CIRCULATION FIGURES

Survey Dates	Volumes Loaned	Volumes Loaned on an Average Day in Period Shown
November 1, 1968	4,254	4,035 (Oct. 11–Nov. 4)
January 14, 1969	6,297	5,250 (Jan. 6–Jan. 19)
April 12, 1969	3,112	2,300 (Mar. 30–Apr. 5)
July 24, 1969	2,677	1,880 (June 9–Aug. 29)

TABLE 2

CATEGORIES OF USERS OF THE COLUMBIA UNIVERSITY LIBRARIES

Type of User	Average of Door Checks		Average of Surveys	
Students (Total)		78.2%		75.2%
Undergraduates	22.8		21.7	
Graduates	55.4		53.5	
Faculty and Staff		11.5		11.1
Faculty	5.4		5.9	
Staff	6.1		5.2	
Not Columbia		10.3		13.7
		100.0%		100.0%

Other. (The definitions for these terms are given in Appendix 2.) The users' responses were weighted according to the frequency of use by the category of users during the school year. The responses for all users were distributed as follows (see Appendix 3 for greater detail):

Type of Use

Research	46.9%
Instruction	31.8
Both Research and Instruction	11.4
Other	9.9

Assuming that the "Both" figure can be divided evenly between Research and Instruction, the total for Research becomes 52.6 percent for this group of users.

etc.) and for method of processing within Technical Services (e.g., Rush, original cataloging, etc.). In addition, both faculty and library staff were asked to evaluate each item as to its probable use at Columbia (e.g., research, instruction, both, etc.). The information thus gathered provided a ratio which was used to allocate the costs of materials as well as salaries of staff working in Technical Services units.

A form (see Appendix 4) was inserted in each monograph entering the Acquisitions Department during each of the two test weeks in the spring of 1969. A special form was used to evaluate periodicals and special materials (e.g., tech-

	Man-hours	Percentage
Circulation of Library Materials	5,462	52.3
Reference Service	1,177	11
Collection Development and Maintenance	2,621	24.2
Administration	970	9.1
Other (professional, miscellaneous)	410	3.8
Total	10,640	100.4

Staff Survey (Reader Services).—A survey of the library staff involved primarily in public service activities was conducted for a period of one week in December 1968. The purpose of this survey was to establish broad categories of activities common to all public service units and to measure the percentage of time which was spent by various levels of staff performing these different activities. In addition, staff were asked to categorize times within an activity by type of user. This estimate was intended to represent an annual summary of how they spent their time. A general summary of the data shows the following analysis of activities:

Literature Survey (Current).—An analysis was performed of all bibliographic materials acquired during certain periods to determine their nature and intended use. Data were gathered for method of acquisition (gift, purchase,

nical reports, maps, etc.) since they do not normally follow the same process of cataloging and acquisitions.

Approximately 3,100 monographs were evaluated during the two one-week test periods; 76 percent judged by faculty and library staff to be primarily for "Research" use; 6 percent primarily for "Instruction"; and 17 percent for both "Research and Instruction." Again, assuming that half of the "Both" can be assigned to "Research," the total imput in support of "Research" approximates 85 percent. A number of interesting relationships were established. For example, approximately 91 percent of all monographs given original cataloging were evaluated as research items. Serials as a whole were judged to be 80 percent for research use.

Literature Survey (Retrospective).— The object of this survey was to estimate the potential use of monographic literature already in the collection. A random

sample of shelves was selected in each library, and faculty and librarians were asked to evaluate each book on these shelves as to probable use. Faculty and librarians evaluated the same shelves of books independently on a title-by-title basis; the results were compared later. The correlation between the two evaluations was surprisingly close. Approximately 80 percent of the books were judged by both groups to be primarily for "Research" use. As mentioned in the survey of current acquisitions, periodicals and special materials were evaluated on an overall basis by faculty and librarians as to the percentage used for research, rather than on a volume-by-volume analysis. One use of the results of this survey was to estimate the proportion of stack space required to house research and instructional materials.

Staff Survey (Cataloging Department).—Unit costs were calculated of various activities in the Cataloging Department. These costs were in part based on a study of processing costs done previously.[3] Since many of the activities had not changed significantly, the figures used, in fact, simply updated the earlier studies. The study revealed that processing costs had risen at a rate of approximately 6 percent per year. The Cataloging Staff Survey cost data were correlated with the current literature survey to allocate cataloging costs roughly into "Research" and "Instruction." An analysis of other survey data was also performed so as to determine a similar allocation of salary costs of other cataloging functions such as card production, serials handling, etc.

Space Survey.—A detailed study of library space was undertaken to establish space allocation for library staff, users, and collections. This was done by analyzing floor plans for each library unit and assigning all space to one of these three purposes. About one half million square feet was analyzed. Data from the other surveys provided data to determine the portion of space each unit used for research; approximately 63 percent of all library space was used primarily for research purposes.

Literature Cost Analysis.—The total library expenditure for bibliographic materials was computed and categorized in terms of serials, monographs, and commercial binding. Using data from the Literature Survey (Current) for both serials and monographs, literature costs for various different purposes were calculated. Several of the results were of special interest. It was found, for example, that as much as 84 percent of all current monograph costs could reasonably be characterized as being associated with research activities. Serials and document studies revealed approximately the same figures.

Salary Survey.—Data from various surveys which reflected how the library staff spent its time were correlated with salary figures to convert time into dollar amounts. Administrative salaries were charged to research and instruction using the same ratio as the effective average of percentage allocation used for the Reader Service (34.9 percent for research) and the Technical Service staff (84.5 percent for research), on the assumption that administrators were equally interested and responsible for performing both services. The effective average of the two types of services was 57 percent for research.

Equipment and Supply Survey.—An inventory and review of expendable supplies, furnishings, telephones, travel, binding supplies, etc., was conducted. Using percentages and rations developed in the staff salary and user surveys, costs for general equipment and supplies were allocated in a number of ways. Within the context of research and instruction, for example, it was determined that one could reasonably allocate 45 percent of all such costs to instructional purposes, and 55 percent for research purposes.

CONCLUSION

This experimental project has produced a large mass of data and experience which will take considerable time to organize, analyze, and digest fully.[4, 5] But preliminary analyses have already provided the libraries with significant results which are beginning to affect the libraries' policies and attitudes. One example of this is the determination of the ratio of instruction to research in a large university. The results of the entire set of surveys has led us to the conclusion that for Columbia 64.5 percent of the libraries' budget and 63.3 percent of all library space can be allocated to research logically. This finding has already begun to be used in long-range planning, especially with respect to user services.

Other facts gleaned from the surveys are not as obvious or as immediate in their significance for administrative planning. As an example, one interesting point which the user survey disclosed is that a few "heavy" users account for a significant proportion of the circulation activity. For example, 14 percent of the graduate students accounted for 37 percent of all reserve books checked out, while 25 percent of the same group of users borrowed 53 percent of the non-reserve books checked out. Overall, it was found that roughly 40 percent of the users accounted for 70 percent of our circulation, considering all user groups and all types of materials.

Appendix 5 summarizes how various user groups employ different types of materials (books, periodicals, etc.) and various library services and facilities (card catalog, reference assistance, etc.).

For example, graduate students in general head all users of the libraries in per capita borrowing figures except faculty members. Their domination in the use of certain facilities is also evident; for example, 57 percent of those using study tables are graduate students. Graduate students also account for over 48 percent of the use of the card catalogs. So the effects of graduate studies at a university are reflected graphically in the observed use patterns.

Work is progressing to develop better methods of collecting data on a continuing basis throughout the system. Although no final decisions have yet been made, or encompassing data gathering routines implemented, the need for valid data has been recognized and steps to insure that they are collected consistently and comprehensively are underway. The experience gained from this effort will be invaluable in designing systems of continuous data gathering.

REFERENCES

1. If one includes Columbia affiliates, such as Barnard College, Teachers College, Union Theological Seminary, etc., the student population would be increased to about 35,000 and the faculty total to about 10,000.
2. This figure does not include overhead and fringe benefit costs.
3. P. J. Fasana and J. E. Pall, "Processing Costs for Science Monographs in the Columbia University Libraries," *Library Resources & Technical Services* 11:97–114 (Winter 1967).
4. The services of Dr. Abram Jagge of the Bureau of Applied Social Research at Columbia University in the design and analysis of the surveys are acknowledged; his assistance was invaluable to us.
5. Work on the project was partially funded with monies from the National Science Foundation (NSF GN-694).

APPENDIX 1

COLUMBIA UNIVERSITY LIBRARIES
USER SURVEY 1968–1969

We need your help. Will you give us a few minutes of your time to fill out this questionnaire? Columbia University needs accurate data on who uses the libraries and what services they require.

The results of this survey will have a substantial influence on the University's future capacity to finance the Library program.

Thank you for your assistance.

Richard H. Logsdon
Director of Libraries

INSTRUCTIONS

In the appropriate section below please check the <u>one</u> box best describing your status as a user of the Columbia Libraries today.

NOTE: If you are using or borrowing library materials as a <u>deputy</u> for **ANOTHER** PERSON, please check this box ☐ , and also indicate the status of **THAT PERSON** in the section below.

MORNINGSIDE HEIGHTS, LAMONT & SOCIAL WORK

STUDENT

School or Division	Under-graduate	Graduate	Post Graduate	Non-degree candidate
Architecture				
Arts				
Business				
Columbia College				
Engineering				
Foreign Student Center				
General Studies				
Graduate Faculties				
International Affairs				
Journalism				
Law				
Library Service				
Social Work				
Other				

IF YOU ARE A DEGREE CANDIDATE, SPECIFY THE DEGREE (e.g. BA, MS, LLB, PhD) _____

FACULTY

_____ Columbia Corporation (all ranks)

OTHER

_____ Research personnel (Full-time only, e.g., Research Associate)

_____ Other Columbia University staff or employees

_____ Family of Faculty or Staff

_____ Affiliated institution (Barnard, Teachers College, etc.)
Specify _____

_____ Alumni

_____ Not associated with Columbia University

MEDICAL CENTER

STUDENT

Specify School or Division:	Under-graduate	Graduate	Post Grad.	Non-degree cand.

IF YOU ARE A DEGREE CANDIDATE, SPECIFY THE DEGREE (e.g., BS, MS, DDS, MD) _____

HOUSE STAFF	Intern	Resident	Fellow
Presbyterian Hospital			
Other (Specify):			

FACULTY (Columbia Corporation)
Specify Department _____
Specify Rank _____

OTHER

_____ Other Columbia Presbyterian Medical Center Staff (Specify Status) _____

_____ Family of Faculty or Staff

_____ Affiliated institution (C.P.S., Harlem, St. Luke's, etc.) Specify _____

_____ Alumni

_____ Not associated with Columbia University

APPENDIX 1 (cont'd)

NOTE: Please answer all questions below on the basis of THIS VISIT to the Library.

1. Literature used **IN** the library.

	NUMBER OF VOLS. USED IN LIBRARY
Books (Reserve)	_____
Books (Non-Reserve)	_____
Periodicals	_____

Other (Please specify, e.g., maps, newspapers, microforms, government documents, prints)

_____ _____

_____ _____

2. Literature **CHECKED OUT** of the library.

	NUMBER OF VOLS. CHECKED OUT OF LIBRARY
Books (Reserve)	_____
Books (Non-Reserve)	_____
Periodicals	_____

Other (Please specify, e.g. maps, newspapers, microforms, government documents, prints)

_____ _____

_____ _____

3. Study tables, desks, etc. – Did you use any of these facilities?
     _____Yes   _____No

4. Card catalog, other files – Did you use any of these facilities?
     _____Yes   _____No

5. Reference assistance – Did you use any of the following services?

_____ Assistance in identifying a reference to a book or a journal article, etc.

_____ Assistance in the use of the card catalog and other aids

_____ Location of material on a particular subject

_____ Interlibrary loans

_____ Other reference assistance

6. Approximately how much time did you spend in the library during this visit?

_____Hours   _____Minutes

54944

9   11   1   3   5   7   9   11

Please give this questionnaire to a member of the library staff as you leave the library.

If you have additional comments, please write them on the reverse side of this form.

CRL

Signature (Optional) _____

APPENDIX 2

Columbia University Libraries Special User Survey

April 1969

1. Please check the *one* box best describing your status in relation to Columbia University:

   a. ...... Graduate student (If graduate student, candidate for what degree— MS, PhD, etc. ....)
   b. ...... Faculty member of Columbia Corporation (all ranks)
   c. ...... Research personnel (such as Research associates)
   d. ...... Hospital staff member
   e. ...... Other Columbia University staff member
   f. ...... Other (specify position title ....)

2. Indicate, by checking *all* the boxes which are appropriate, those activities in which you participate at Columbia University:

	Full-Time	Part-Time
a. Teaching	....	....
b. Research (Funded either personally or by an organization)	....	....
c. Patient care	....	....
d. Administration (or related to administration)	....	....
e. Graduate study (course work)	....	....

3. About how often did you use any of the Columbia University Libraries during the 1968–69 school year?

   .... Never
   .... Once or twice
   .... About once a month, on the average
   .... About once a week, on the average
   .... Several times a week, on the average
   .... Almost daily

4. Did you use the library last week? .... Yes .... No

5. In the following question, please use these definitions as a guide in describing the reasons for your library use during the 1968–69 school year:

   RESEARCH—*Primarily* used for:

   Faculty and research personnel's research projects, whether funded by local or personal means or by outside agencies.

   Keeping faculty members and other research personnel up to date in their fields of research.

   Preparation by students of doctoral dissertations, master's essays, and major research papers in law or medicine.

   INSTRUCTIONAL—*Primarily* used for:

   Students' work in connection with courses, whether undergraduate or graduate.

   Faculty members' preparation for classroom presentation, or general background development useful in the classroom, or guidance of the work of graduate students toward advanced degrees.

   BOTH RESEARCH AND INSTRUCTIONAL—Used about equally for Research and Instruction.

   OTHER—Related to activities of professional organizations, administrative activities, reccreational or personal activities, etc.

   For each type of library material which you used please indicate as best you can the approximate percentage of use devoted to "Research," "Instructional," "Both," and "Other" purposes. Leave the spaces blank for categories of material you did not use. (Your total use for each type of material used should add up to 100%.)

APPENDIX 2 (cont'd)

a. *Books:*		b. *Periodicals:*		c. *Government Documents, Technical Reports:*	
Research Use	....%	Research Use	....%	Research Use	....%
Instructional Use	....%	Instructional Use	....%	Instructional Use	....%
Both R & I Use	....%	Both R & I Use	....%	Both R & I Use	....%
Other Use	....%	Other Use	....%	Other Use	....%
Total Use	100%	Total Use	100%	Total Use	100%

Other Library Materials (please specify; e.g., Newspapers; Manuscript material; Microforms; Prints, drawings, maps; Recordings; Music, printed):

d.		e.		f.	
Research Use	....%	Research Use	....%	Research Use	....%
Instructional Use	....%	Instructional Use	....%	Instructional Use	....%
Both R & I Use	....%	Both R & I Use	....%	Both R & I Use	....%
Other Use	....%	Other Use	....%	Other Use	....%
Total Use	100%	Total Use	100%	Total Use	100%

Signature (optional) ....

Please return your completed questionnaire to: Mr. Ellis Mount
                                                        Engineering Library
                                                        422 S. W. Mudd

Thank you for your cooperation.

APPENDIX 3

Research and Instructional Use of Library Materials
(Results of the survey described in Appendix 2)

	Books					Periodicals					Government Documents					Newspapers				
	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total
Grad. Students	32.7	47.4	15.1	4.8	100.0	40.1	39.0	12.3	8.6	100.0	49.2	31.9	13.1	5.8	100.0	31.9	21.7	8.6	37.9	100.1
PhD	41.8	35.1	17.6	5.5	100.0	51.0	28.6	12.7	7.7	100.0	66.2	16.8	7.9	9.1	100.0	29.7	18.4	2.7	49.2	100.0
Master's	21.3	63.0	11.9	3.8	100.0	26.5	52.0	11.7	9.8	100.0	35.4	44.2	17.2	3.2	100.0	33.5	24.0	12.8	29.7	100.0
Faculty	47.6	35.4	12.9	4.1	100.0	61.3	24.9	9.4	4.4	100.0	64.5	26.1	7.5	1.9	100.0	65.5	25.9		8.6	100.0
Research	77.4	15.3	3.3	4.0	100.0	86.2	8.6	1.7	3.5	100.0	93.5	2.3	3.5	0.7	100.0	9.1	17.9		73.0	100.0
Other	52.4	29.3	12.7	5.6	100.0	32.5	24.4	8.8	34.3	100.0	33.3	15.3	13.1	38.3	100.0	39.2			60.8	100.0
Total	38.8	40.9	13.5	6.8	100.0	48.0	32.2	10.4	9.4	100.0	54.7	26.7	11.2	7.4	100.0	35.2	20.5	6.6	37.7	100.0

	Manuscripts					Microfilm					Prints					Recordings				
	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total
Grad. Students	66.0	25.8	2.5	5.7	100.0	59.4	22.9	10.9	6.8	100.0	53.5	29.4	16.2	0.9	100.0	10.3			89.7	100.0
PhD	70.7	21.3		8.0	100.0	67.0	9.9	18.0	5.1	100.0	66.7	33.3			100.0	10.3			89.7	100.0
Master's	54.8	36.6	8.6		100.0	48.5	41.8	0.5	9.2	100.0	41.0	25.8	31.4	1.8	100.0					
Faculty	95.1	4.9			100.0	72.5	21.8	5.2	0.5	100.0	78.6	14.3	7.1		100.0	4.9	85.3	4.9	4.9	100.0
Research	80.9	17.2		1.9	100.0					100.0	52.1	38.5		9.4	100.0	50.0			50.0	100.0
Other			45.5	54.5	100.0				100.0	100.0				100.0	100.0			81.8	18.2	100.0
Total	73.1	20.5	2.0	4.4	100.0	62.5	22.3	9.6	5.6	100.0	61.3	24.6	12.0	2.1	100.0	7.0	46.9	5.1	41.0	100.0

	Music, printed					Other					Total				
	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total	Res.	Inst.	R&I	Other	Total
Grad. Students	2.1	11.5		86.4	100.0	57.3		25.7	17.0	100.0	41.0	36.6	12.9	9.5	100.0
PhD	2.3			97.7	100.0	55.0		42.2	2.8	100.0	50.6	25.8	13.3	10.3	100.0
Master's		100.0			100.0	60.8		39.2		100.0	30.0	49.1	12.4	8.5	100.0
Faculty	29.8	25.1	25.1	20.0	100.0	35.7	1.3	57.2	5.8	100.0	57.9	28.3	10.0	3.8	100.0
Research	100.0				100.0					100.0	82.3	10.0	2.4	5.3	100.0
Other				100.0	100.0	50.0			50.0	100.0	30.4	22.6	10.7	36.3	100.0
Total	12.6	16.3	9.1	62.0	100.0	60.1	0.1	24.4	15.4	100.0	46.9	31.8	11.4	9.9	100.0

APPENDIX 4

Survey Form Used to Analyze Currently Acquired Materials

<table>
<tr><td rowspan="2">Physics
QB
44
.S576 Smart, William Marshall, 1889-
1968   The riddle of the universe. New York, Wiley
              [1968] 228p</td><td colspan="2">Columbia Univ. Libs.Literature Survey</td></tr>
<tr><td>ACQUISITIONS</td><td>CATALOGING</td></tr>
</table>

	Columbia Univ. Libs.Literature Survey	
	ACQUISITIONS	CATALOGING
	Sources	New LC
	Book Ord.	New Orig.
	Gifts-Ex.	Repl.
	Ser.-Doc.	Added
	Slavic	Contin.
	Other(specify)	Copy For
		Dupli.
	Rush	Other(specify)
	Non-rush	
	Uncat. for	
	Net price	

	EVALUATION	
	Faculty	Librarian
Research Only		
Instruc. Only		
Both Res.& Inst.		

APPENDIX 5

Type of Use Made of Libraries, by Type of User, Four User Surveys

Type of user	Literature *checked out* of library			Literature *used in* library			No. persons who:	
	No. persons	No. items	Items per person	No. persons	No. items	Items per person	Used study tables, card catalogs	Received reference assist.
Students	3,626	7,478	2.1	10,197	28,309	2.8	14,126	3,576
Undergraduate	1,197	2,376	2.0	2,208	5,125	2.3	3,690	909
Graduate	2,319	4,783	2.1	7,633	22,364	2.9	9,909	2,541
Nondegree	110	319	3.0	356	820	2.3	527	126
Faculty and Staff	624	1,259	2.0	1,416	3,950	2.8	1,779	672
Faculty	340	738	2.2	751	2,314	3.1	954	367
Research	89	181	2.0	290	760	2.6	326	110
Medical Center°	59	100	1.7	145	331	2.3	163	44
Other Staff	136	240	1.8	230	545	2.4	336	151
Non-Columbia	479	999	2.1	1,701	5,679	3.3	2,708	880
Total	4,729	9,736	2.1	13,314	37,938	2.8	18,613	5,128
PERCENTAGE DISTRIBUTION								
Students	77	76		77	75		76	71
Undergraduate	26	24		17	14		20	18
Graduate	49	49		57	59		53	50
Nondegree	2	3		3	2		3	3
Faculty and Staff	13	14		11	10		10	13
Faculty	7	8		6	6		5	7
Research	2	2		2	2		2	2
Medical Center°	1	1		1	1		1	1
Other Staff	3	3		2	1		2	3
Non-Columbia	10	10		13	15		14	17
Total	100	100		101	100		100	101

° Excludes medical students and medical faculty (which are included with "Faculty" and "students").