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ABSTRACT

This study was conducted to test measures of library service developed in a 1974 national performance measurement study, and to develop personnel training programs in data collection and analysis in New Jersey public libraries. The study was conducted in three phases: (1) revision of original procedures manual; (2) measurement implementation in 25 libraries with total expenditures greater than 100,000 dollars; and (3) implementation in 16 libraries with expenditures of 100,000 dollars or less. Materials availability and usage, facility and equipment usage, and staff availability data were collected. Performance results of different measures showed interlibrary loan circulation, and facility availability and usage need further definition. Title availability, in-library circulation, staff assistance patterns, and user characteristics provided much information for decision making. The study concluded that data collection and tabulation can be performed successfully by librarians in public libraries of any size. The New Jersey State Library were to: (1) conduct further research and analyze data for norms; (2) require inclusion of measures in library annual reports; and (3) support continuing education in using the method. Appended is a report on the public use of academic libraries. (KP)

BLISR 76-1

NEW JERSEY MEASUREMENT STUDY

A STUDY TO REFINE AND TEST NEW MEASURES OF LIBRARY SERVICE AND TRAIN LIBRARY PERSONNEL IN THEIR USE

by

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THE NEW JERSEY MEASUREMENT STUDY: AN OVERVIEW

In September 1974, the Bureau of Library and Information Science Research started a project to refine and test new measures of library service in New Jersey and train library personnel in their use. This project had three principal purposes. First, the implementation and testing of the reliability of the measurement techniques developed during the course of the PLA/ALA Measurement Study[1] and the development of additional measures of library service within New Jersey. Second, the development of a program of training and education based upon the implementation of the measurement tools that would expand the abilities of library personnel in the State in data collection and analysis of library operations. The research activity was divided into four phases: (1) a preparatory phase, (2) the large library phase, (3) the small library phase, and (4) college library phase. The following is a report on the results of this project.

Preparatory Phase

Prior to the beginning of the project, the research team had been engaged in rewriting the procedures manual that had been previously developed for the national measurement study. The activity included revision of data collection instructions, the creation of tabulation

and analysis instructions, modification of previously developed measures, and addition of new measures of library activity.

The data gathering manual developed for the National Measurement Study was a first step in implementing new measures of library performance. As such, it had two major limitiations. First, it was designed to be used only after extensive workshops with the research staff. Second, it was written with the assumption that all data collected by the individual libraries would be returned to the Bureau for tabulation and analysis. The procedures manual for the New Jersey Measurement Study was designed to overcome these limitations and thus allow a broader base for implementation. Thus, the directions for data collection were simplified and expanded and the data collection forms were modiifed to make the Procedures Manual self-explanatory. Furthermore, instructions and forms for tabulating and summarizing the data collected were created to allow self-analysis by the libraries themselves.

On the basis of the Bureau's previous experience with implementation of the measurement tools, several were modified in the process of rewriting. A new American Book Publishing Record (BPR) Probability Sample was drawn. The sample size was increased from 500 to 1000 titles in order to allow a broader base for analysis. The periodical sample was changed from a sample of periodical articles to a sample of periodical titles since a high correlation had been found between title availability and article availability. The measure of staff availability was changed in two ways.

First, all library staff were to be included in the measure as opposed to public service personnel only. Secondly, the measure was expanded to measure not only the number of staff members present to assist patrons but also the number actually free to assist patrons. The measure of Patterns of Staff Assistance was simplified and amended and the scope of the measure was expanded to include all personnel that might answer patron's questions. Two additional questions were added to the user ticket. Finally, a measure of interlibrary interaction was designed and added.*

September and early October 1974 were devoted to the preparation of the revised manual for publication and the compilation of the necessary data collection forms for the participating libraries.

Large Library Phase:

The large library phase was designed to include two types of activity. First, the implementation of all the measures in a sample of large libraries and their branches for one day in the Fall of 1974. Second, the implementation of selected measures over time in the Spring of 1975.

For the purposes of this project, large libraries were defined as

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* Among the measures omitted in the New Jersey Study were those of lighting, table and seating areas, outreach programs, and "organizational health". The first three were omitted because of limited usefulness; the last because of the complexity of analysis required.

those libraries with total expenditures of over $100,000. A list of all libraries in New Jersey which meet this criterion was obtained from a computerized data file previously created by the Bureau from the State statistical reporting forms submitted to the State Library. From this universe, the research team in conjunction with the staff of the Library Development Bureau chose a sample of 25 libraries to participate in this phase of the study. Of these, only one was unable to participate. The criteria for selection were: (1) number of branches, (2) geographical distribution, and (3) willingness to participate. Number of branches was considered to be important for several reasons. First, the national measurement study had concentrated on central headquarters libraries only. The feasibility and applicability of these measures in branch operations was to be tested in this study. Second, implementation of the measures in branches would be a pretest for the second phase implementation in small libraries. Thus the sample of large libraries was weighted toward those with one or more branches as can be seen in Table I.

Table I: Distribution of Sample Libraries by Number of Branches and Comparable Distribution for Large Libraries in New Jersey

# of Branches	Sample	% Sample	% Large Libraries
0	10	42	63
1	4	17	14
2	3	12	7
3	3	12	7
4+	4	17	9
	24	100	100

Included in the sample was at least one library from each of the seven regions in New Jersey as indicated in Table II.

Table II: Distribution of Sample of Large Libraries by Region

Region	#	%
Northeast Urban	9	38
Northeast Suburban	3	12
Northwest Agricultural	1	4
Central	3	12
Southwest Metropolitan	2	8
Southwest Agricultural	3	12
Seashore	3	12
	24	100

In budget size , these libraries ranged from $100,000 to almost two million with a median of approximately $300,000. In terms of collection size, they varied from just under 30,000 volumes to approximately 600,000 with a median of 116,783.

Furthermore, the final sample included six county libraries, seven Area libraries, and one association library that was also a county member, reflecting the different types of libraries within New Jersey.

All libraries were contacted in late October and early November, 1974. Each library was requested to appoint a project coordinator who would oversee the data collection for that library and its branches. It was recommended that the person appointed should be a staff member other than the Director in order to broaden the participation and involvement of the library staff.

From November 11 to 13, 1974, four regional orientation sessions were held for project coordinators from the participating large libraries. These sessions were held at the Montclair Public Library, the Rutgers Graduate School of Library Service, the Atlantic City Public Library, and the Cumberland County Library. They were designed to give a general background of the project to the participants, a brief explanation of the measures that they would be implementing, and to answer any questions that might arise. All materials that the libraries would need for data collection and tabulation were distributed at this time.

Data collection took place primarily from November 18 through the first week in December. Each library collected extensive usage information for one day during this period in the central headquarters as well as in each of the participating branches. During this period, a "hotline" was maintained at the Bureau to handle unanticipated problems and questions. Upon completion of the data collection, each of the libraries tabulated the data they had collected and returned all materials to the Bureau for further analysis.

Feedback sessions were held during the week of December 16, 1974 at the same places that the initial orientation sessions had been held. At these sessions, the research team first presented a brief summary of the data that had been received to date. The remainder of these sessions were devoted to a discussion with the project coordinators about the value of, and difficulties involved in the data collection and tabulation.

Further analysis of the data received from the participating libraries continued through April, 1975. This process was held up to a

certain extent by late returns. An interim report was completed and sent to the large libraries summarizing the data for main libraries and branch libraries as well as data for their own libraries and each branch for purposes of comparison. This comparative summary was accompanied by a narrative report instructing the libraries how to read and interpret the information provided, as well as suggestions for further analysis.

During April through June, 1975, a number of the large libraries experimented with using one or more of the measures over time. During this phase, user characteristics, patterns of staff assistance, staff availability, in-library circulation, title availability, as well as bookmobile usage were monitored anywhere from three days to three weeks in individual libraries. These data were analyzed by the Bureau staff in order to determine changes in the measures over time as well as to provide a basis for suggesting appropriate sampling intervals.

Small Library Phase:

In late February of 1975, work was started on the small library phase of the project. The Procedures Manual was extensively reviewed, improvements considered, and technical revisions made in light of the feedback during the large library phase. This review resulted in the following modifications:

(a) The section on Inter-library Loan circulation was omitted since the returns indicated that it was insufficient to measure this very important activity.

(b) A method of 'coding' the user tickets was added to facilitate the tabulation of this information and as a time saving device.

(c) Patterns of Staff Assistance was simplified for the purpose of more complete and accurate data collection.

In addition, the following modifications were made specifically for the small libraries:

(a) The BPR probability sample was omitted in consideration of the time and manpower needed to complete this measure. Also, preliminary analysis of the data from the large libraries and their branches indicated that too few titles would be owned to enable substantive analysis.

(b) The Staff Availability Measure was changed due to the fact that smaller libraries would have fewer staff. In this situation, sampling would be unduly cumbersome and unnecessary.

In early March, the research team met with the staff of the Library Development Bureau of the State Library for the purpose of sample selection. Small libraries were considered to be those with total expenditures of under $100,000. An additional criterion of 2 or more FTE staff was taken into account to assure that the libraries chosen would have the manpower to complete this experimental phase of the project. This meeting resulted in a list of approximately forty small libraries chosen on the basis of potential willingness to participate and geographical distribution. Subsequently, 20 libraries were selected form this list to actually participate in this phase of the project. Of these, fifteen were ultimately able to participate. An additional library was subsequently added to the sample making a total of sixteen small libraries participating in this phase of the project. The final sample, by region,

was as follows:

Table III: Distribution of Small Library Sample by Region

Region	#	%
Northeast Urban	5	31
Northeast Suburban	4	25
Central	2	13
Northwest Agricultural	0	*
Southwest Metropolitan	3	19
Southwest Agricultural	1	6
Seashore	1	6
	16	100

The budget size of these libraries ranged from under twenty thousand ($18,960) to over seventy-five thousand ($76,976) with a median of approximately forty thousand dollars. Collection size ranged from just over eleven thousand to almost fifty thousand with a median of eighteen thousand. Ten of the sample libraries were municipal while six were association libraries. Five of them were county members.

Two regional orientation sessions were held for project coordinators from the participating small libraries - similar to those for the large libraries. The first was held at the Newark Public Library on April 10, and the second at the State Library in Trenton on April 17.

The libraries conducted the study for one day during late April or May, 1975. They tabulated the data and returned it to the Bureau for further analysis. The results were compiled into a comparative statistical report with an explanatory narrative similar to that received by the larger libraries. The compilation was done during June and sent to the responding libraries in early July, 1975.

SECTION I: MATERIALS AVAILABILITY

Patrons entering the library to use materials are presented with a set of probabilities of finding that a library owns a book and that it is available on the shelf for their use. The probabilities of both ownership and availability will vary from library to library and will vary from day to day, month to month and year to year. The extent of the variation has not been probed in this study. Rather, procedures have been developed to allow a library or a group of libraries to establish what that variation might be if applied on a sampling basis.

In the most basic terms, a library either (a) owns a given item which is available on the shelf, (b) owns an item which is not on the shelf, or (c) does not own the item. By determining the proportion of a library's materials that fall into each of these categories, probabilities can be determined allowing one to estimate users' "success rates" in obtaining materials from a library or a group of libraries.

By using the techniques of sampling and simulation, probabilities of ownership and ayailability can be determined. Sampling techniques were used to draw representative groups of (a) recently published books, (b) titles owned by the library, and (c) periodicals indexed in eight comonly held indexes. A form of simulation was used by having library staff or volunteers act as users

in attempting to obtain materials from the library's collection as represented by the three samples listed above. In effect, using the samples of recently published books, titles owned and periodicals listed in indexes, the chances that a user has of being able to walk into the library and use a particular item on the spot was the subject of the investigation.

Recently Published Books:

It is frequently claimed that recently published books are requested and circulated more frequently than older titles in the collection. The volume of material that is published in the English language by American publishers has recently run in the neighborhood of 30,000 titles per year; a number that only a few libraries could afford to acquire and, even then, the need to acquire them all would most likely be at odds with the purposes and objectives of the library. Theoretically, however, each book published has a potential demand if not a sizable demand. Thus, there is the chance that a person may enter the library and ask for any book published.

Taking these two concepts into consideration -- demand for recently published books and demand for any book published -- a random sample of approximately 1,000 titles was selected from five years of American Book Publishing Record (1969-1973), alphabetized by author, and assembled into a list to be checked by library staff in the public catalog. Five years was considered to be an approximation of "recent". The American Book Publishing Record was used because "it is a conscientious listing of the American book pool"[1]. In effect, it constitutes an unbiased and reasonably comprehensive list of books that are published in the

United States. The many other listing and reviewing sources do not have this quality.

A randomly selected list of titles from BPR can thus be considered as representative of books published. On the other hand, it must be stressed that the titles cannot be considered as "Recommended" in any sense and should not be used as any sort of acquisition list. Being representative of books published, however, it can be used as one indicator of what Childers has called "..... the readiness of a library to meet a randomly distributed range of demands."[2] Knowledge of the volume of acquisitions in New Jersey's libraries also deemed it realistic to expect that libraries would own only a relatively small fraction of these titles.

The procedures for data collection asked that members of the staff (or volunteers) check each title in the public catalog and, when a title was found to be owned, to note the Dewey number so that a check of the shelves could be made. If the library owned an earlier edition than that listed, staff were to note that fact on the form and search on the shelves for that item. When, upon checking the shelves an item was not found, instructions were given to check the circulation file to determine whether or not it was in circulation. Extended searches for books beyond checking the

circulation file were not required. In fact, many of the larger libraries in the study were unable to check their circulation files because their charging systems were of the type that precluded this step (e.g., film charging).

The following basic calculations were completed by the project coordinators. By counting the number of titles owned and dividing by the total number of titles on the list, they determined the probability or chance that the library owned a recently published book. Dividing the number of titles on the shelf by the number of titles owned produced the probability of availability of titles owned. Finally, dividing the number of titles on the shelf by the total number of titles on the list produced the probability that a user could obtain any title listed in BPR for the five year period.

The potential effectiveness and usefulness of this indicator, however, is hindered by a widespread resistance on the part of librarians. In New Jersey, this resistance was practical, psychological, and conceptual. Practically, the process of checking 1000 titles in a library's collection is time-consuming and unnecessary in most cases. Except in the largest of libraries, a sample of 500 or even less would be sufficient. The psychological problems, however, are much harder to overcome. The ownership of recently published books by a particular library is largely determined by book budget and less so by acquisition policies. On the other hand, the participating

libraries expected or wanted to find a higher proportion of books owned than could reasonably be expected and this resulted in feelings of inadequacy. Conceptually, perhaps as a result of the above two problems, librarians seem to be unable to accept the assumption of random demand.

While the indicator of probability of availability of recently published books may have limited value to an individual library, the results of checking the titles in a number of libraries can be very useful. The use of the BPR sample as a test of the pooling capabilities of various aggregations of libraries was proposed and described in the Clark, McGinty and Clark work New Jersey Libraries and the State Plan[3]. Using the data from the New Jersey Measurement Study this concept was further tested to see what coverage of material the participating public libraries plus the four research center libraries could provide. The 43 public libraries, put together, owned 488 of the 1032 titles in the sample -- 47% of the total. The list was then checked in the union catalog of the Rutgers University Library system where an additional 251 titles were owned, raising the total owned to 75%. The remaining 293 titles -- and only these titles -- were searched for in the catalogs at Newark Public Library, Princeton University and the New Jersey State Library. One or more of these libraries owned another 124 titles. This brought the total number owned by this group of libraries in New Jersey to 863 or 84%. At present, then, we know that the

probability of ownership within the State of any title published between 1969 and 1973 is approximately .84.

But two important questions remain unanswered. First, to what extent does ownership within the state mean easy availability to a citizen of the state? The potential appears to be there but the delivery problems remain. Future study might be developed along the lines of the recently conducted study in Illinois[4] or based on the "Document Delivery Test" developed by Orr, et al.[5] for medical libraries.

Second, should the probability of ownership be higher than .84? When the 169 titles not owned in the libraries studied here were arranged according to the Dewey number assigned to them in BPR, no obvious areas of insufficiency could be detected, as the titles were spread over all ten classes. Perhaps the unowned 16% are available within the State. On the other hand, this 16% represents 19,000 volumes over a five year period, which raises the question of possible weaknesses in the system. Practically, however, some of the titles listed in BPR may be condidered unsuitable for purchase by any library in the State, but the proportion is in question.

In summary, the determination of the probability of availability of recently published books has certain limitations as an

indicator of potential output for the local library. It appears to have greater possibilities for use at the area and statewide levels where comparisons, determinations of overlap and uniqueness and other matters are to be considered. The sample needs updating on a regular basis if long range projections and actions are to stem from its use.

BPR Sample

Data Gathering

Step 1:

Begin by checking all titles on BPR Probability Sample: Form I in the public card catalog. If your library owns the title, put a check mark on the column headed "ownership" and record the Dewey number beside that title.

Some of these titles are reprints or new editions. If the title you own has a different publication date from that listed or is a different edition, indicate the date or edition beside the title on the list.

Step 2:

For those titles that you own, check the shelves to see if the book is now available. If the book is on the shelf, place a check mark in the column headed "On Shelf". If possible, this should be done on or as close to the day your library is being monitored.

Step 3:

For those titles that you own but that were not on the shelf check the circulation file. If the title is in circulation, place a check mark in the "Circulating" column. Do not search any further for missing titles.

Tabulation

Step 1:

Count the number of titles that your library owns. Enter this figure beside TOTAL under the "Ownership" column. Follow the same procedure for the "On Shelf" column.

Step 2:

In order to determine the probability that your library owns a recently published title, divide the total for the "Ownership" column by the number of titles listed.

Step 3:

In order to determine the availability of the books owned, divide the total number of books available by the total number of books owned.

Step 4:

Finally, in order to determine the probability that a user could obtain any title listed in BPR for the last five years, multiply the probability of ownership by the probability of availability, that is, the result of Step 2 by the result of Step 3.

For example, if you found the following results for your library:

(Step 1) Number of titles listed = 1000**
Number of titles owned = 400
Number of titles on shelf = 200

The following would be your probabilities:

(Step 2) Probability of ownership = 400/1000 or 0.40. Thus, a user would have four chances in ten of finding that you owned a recently published title.

(Step 3) Probability of availability of books owned = 200/400 or 0.50, thus a user would have 5 chances in ten of obtaining a recently published title listed in your public catalog.

(Step 4) Probability that a user could obtain any title listed in BPR for the last five years = 0.40 X 0.50 or 0.20, thus the user would have two chances in ten.

(Step 5) List results at end of form in space provided.

**The actual number of titles listed in the BPR Probability Sample is 1032. The number "1000" was used merely for an example. In you calculations you will use 1032.

Name of Library_____

BPR Probability Sample

Own	Author	Title	Dat
	Abetti, Giorgio	The Exploration of the Universe	196
	Acheson, Dean G.	Present at the Creation	197
	Adams, Alfred E.	Information Theorie und Psychopathologie des Ged.	197
	Adams, Alfred R.	Adams & Maegraith: Clinical Tropical Diseases	197
	Adivar, Halide E.	Turkey Faces West	197
		Advances in Exper. Social Psychology, v.4	196
		Advances in Polyurethane Technology	196
	Agassi, Joseph	Faraday as a Natural Philosopher	197
		Advances in Heterocyclic Chemistry, v.10	196
	Agrawala, S.K.	Aircraft Hijacking and International Law	197
	Aiken, Joan	The Cuckoo Tree	197
	Akert,K.&Waser,P. eds.	Mechanics of Synaptic Transmission	196
	Alderman, Clifford L.	The Royal Opposition	197
	Alexander, David ed.	Tales for a Rainy Night	196
	Alexander, Lloyd	The Cat who Wished to Be a Man	197
	Allen, Michael	Poe & the British Magazine Tradition	196
	Allen, Reginald E.	Plato's 'Euthyphro' and Earlier Theory of Forms	197
	Allen, Steve	The Wake	197
	Alstead, Stanley ed.	Textbook of Medical Treatment	197
	Altman, Leon L.	The Dream in Psychoanalysis	196
	Am.Assc. for Health,Phsy.Ed.	Bowling-Fencing-Golf Guide	196
		American Book Prices Current v.76	197
	Am.Bur. Metal Statistics	Yearbook of the American Bureau of Metal Statistics	48t
	Am. Chem. Soc.	Specialty Chemicals	197
	Am. Inst. of C.P.A.s	Solving Today's Management Problems	197
	Am. Inst. Chem. Engineers	Water, 1968	196
	Am. Library Association	ALA Organizational Information	197
	Am. Mathematical Society	Memoirs	no9
	Am.Soc.Testing & Materials	Special Procedures for Testing Soil & Rock for	197
	Ames, Louise	Adolescent Rorschach Responses	197
	Amoda, Moyibi	Black Politics and Black Vision	197

Name of Library_____ BPR Probability Sample-28

Own	Author	Title	Date	On Shelf	Circulation
	Wright, Joseph	The English Dialect Grammar	1968		
	Wright, Robert C.	Seek the North Star	1972		
	Wrong, George M.	The Rise and Fall of New France	1970		
	Wyman, William H.	Biblio. of the Bacon-Shakespeare Controversy	1973		
	Wyrtzen, Jack	Jesus Talked with Me	1973		
	Yashpal	Short Stories of Yashpal	1969		
		Yearbook of Urology (The)	1969		
	Yip, Wai-lim comp.	Modern Chinese Poetry	1970		
	Young, John Z.	The Anatomy of the Nervous System of Octopus Vulgaris	1971		
	Young, Richard S.	Life Beyond Earth	1969		
		Young, Spartacus. v.1-4 no.6 Dec 1931-Dec 1935			
	Youngman, Henny	How Do You Like Me So Far?	1970		
	Yunis, Jorge J.	Biochemical Methods in Red Cell Genetics	1969		
	Zamir, Lelia J. comp.ed.	Expanding Dimensions in Rehabilitation	1969		
	Zangwill, Israel	"They That Walk in Darkness"	1970		
	Ziman, J.M. ed.	Physics of Metals	1969		
	Zimelman, Nathan	What Shall We Have for Breakfast?	1969		
	Zindel, Paul	I Never Loved Your Mind	1972		

____Total Owned _____ Total Available

Probability of Ownership = _____

Probability of Availability of Books Owned = _____

Probability that User Can Obtain Any Recently Published Title = _____

Title Availability:

The second aspect of the availability of materials for use by the public involves the concept of the availability, on the shelf, of materials owned by library. In its basic form, the question posed is "What chance does a user of the public library have of being able to obtain a book said to be owned by the library, from that library's shelves, at a given point in time?" In addition to providing a general indicator of a library's ability to supply its books, the procedures provide for (a) the assessment of shelf availability for the various Dewey classes, and fiction, (b)the assessment of shelf availability by imprint date of materials owned, and (c) a general profile of the collection in terms of its age and Dewey class distribution. Juvenile materials are considered separately from adult materials in this schema.

In order to determine availability of materials as well as a general profile of the library's collection, the participating libraries were asked to select a systematic sample of 500 titles from their shelflist. While the actual procedures for selecting the sample were visually extensive, the basic operations are simple and easily understood. The basic idea is to select a total of 500 cards from the shelflist at regular intervals from beginning to end. If the actual number of cards in the shelflist is known, one merely divides the sample size (500) into the total number of cards to determine the interval (i.e., the number of cards between sample cards)

and proceeds to count their way through the card file. However, the actual number of cards is rarely known and the process of counting cards in a large file such as a shelflist creates the chance for a great deal of human error as well as tedium and time consumption. The procedure recommended in this study was to (a) tightly pack the cards in each drawer of the shelflist, (b) measure the total number of inches of cards with a ruler for the entire shelflist, and (c) divide the number of total inches of cards by 500. The resulting figure, in inches, is the sample interval or the distance between cards that will be selected for inclusion in the sample. The procedures specified that reference materials be excluded so as to approximate a circulating collection.

Initially, the procedures specified that the average number of cards per inch be determined by taking seven random samples of one inch each, averaging the total of these seven sample inches and multiplying this figure by the total number of inches in the shelflist in order to arrive at an approximation of the total number of titles in the collection for comparison with reported number of titles from other sources.

For each of the 500 titles selected from the shelflist, the following information was recorded on forms provided to the participating libraries: (1) complete call number including cutter number or an "F" for fiction, preceded by a "J" for juvenile titles for shelf

location and general information by major Dewey class, (2) author's last name and first initial (again, for location purposes), (3) the first letter of each word in the title (for location purposes) and (4) the imprint date of the title.

After this information was gathered, a shelf check was made to see if any copies of the title were on the shelf. If a copy of the title was on the shelf, it was marked as available. If not, libraries were again instructed to search for it in the circulation file where this was feasible.

Although this process of selecting a sample of the titles in the collection and a search of the shelves for the designated titles proved to be quite time consuming, the participating libraries did consider it to be highly valuable. One major problem did arise, however. That is, many of the branches and some smaller libraries do not have a shelflist, or had one one that was incomplete, thus making the selection of a representative sample of the collection impossible. One cannot substitute a sample of the public catalog for the shelflist because of the varying number of entries per title. Such a procedure would over-represent titles with multiple authors, and subject entries.

The recommended procedure enables a library to know:

1) What proportion of the book collection falls into each Dewey class and non-classed fiction.

2) What proportion of the book collection was published within particular time periods.

3) The shelf availability of both adult and juvenile books in each Dewey class and non-classed fiction.

4) The shelf availability of both adult and juvenile books in five year time periods.

5) The total probability that any title in the collection is on the shelf.

The resulting profile of a library's book collection is a rough approximation in that subject breakdown is shown only by the ten major Dewey classes plus fiction. By subdividing into Adult and Juvenile materials the tabulations of availability of books owned for Dewey and age categories can result in rather small numbers for some of these categories and thus percentage could be misleading on such small bases*. Overall, however, the sample does give a good approximation of the distribution of the collection by Dewey and fiction classes, by age, and the availability of the collection.

In addition to the availability of both adult and juvenile materials on the shelves, the profile information can suggest answers to several different kinds of questions such as:

*. From this first approximation, Dewey classes that contain fewer than 40 items could be separately sampled to bring the sample size to 40-50 items and then the shelf checks could be done. However, the same cannot be done for the date distribution portion due to the arrangement of the shelflist according to Dewey classes.

- Is the distribution of titles by Dewey class appropriate for our type of library?
- Are there apparently neglected areas in our collection?
- Does the distribution by date suggest that weeding is necessary?

The information on availability must be interpreted in light of local conditions. High availability may suggest an over-exuberant duplication policy, a mismatch between borrower preferences and acquisitions policies, or low use of the collection. Low availability can indicate high circulation of materials with little duplication, backlogs in shelving materials, lengthy loan periods, or unrecognized loss rates.

The Title Availability sample can be used over time to check on the relative availability of books on the shelf in various classifications including adult and juvenile, Dewey and fiction, and date. This was attempted by two of the large libraries. In one of these there was little change in availability from one point in time to the other. In the second, there was a 15 percent variation indicating differences in use patterns.

The Title Availability Measure can also be used to show turnover in the collection, i.e., what portion of the collection is most heavily used and that which is least heavily used. Finally, it provides an estimate of the chances a patron has of being able to retrieve a book said to be in the collection. This knowledge could

lead to a review of acquisitions policy, loan periods and other procedures that would maximize the availability of materials to the public within the constraints of budgetary and human expenditures.

Title Availability

Data Gathering

Step 1:

Take a ruler and measure the total number of inches of tightly-packed cards in each drawer of the shelflist omitting reference. Do not measure the length of the drawer itself. If you use a retractable metal ruler with a hook on the end, you can hook around the pack of cards. If you have separate shelf lists for adult and juvenile materials, measure both and add the totals.

Measure the cards on their side rather than on top. This gives a more accurate measurement since you will not have to contend with tabs on guide cards.

Step 2:

Record the total number of inches for all circulating titles; exclude reference. If your library interfiles reference with circulating titles, do not try to separate out reference.

Step 3:

Open any drawer of the shelflist at random, but exclude sections containing reference titles. (From this point on, all reference titles should be omitted.)

(a) Use the ruler to measure a one-inch thick pack of cards. Hold the pack tightly.

(b) Put markers before and after these cards, and count how many cards are in this inch pack.

(c) Record this number on the Shelflist Distribution Form.

Step 4:

Repeat the same process six more times, using a different drawer each time and a different location in each drawer.

(a) Record the number of cards per inch for each sample on the Shelflist Distribution Form.

(b) If the number of cards varies by more than four from the average (see below), you are not holding the pack tightly enough. In this case, repeat the measurement.

Step 5:

Determine the number of cards between each sample card drawn as follows:

(a) Average the number of cards per inch for the seven samples by dividing the sum of the 7 samples by 7.

(b) Multiply the average by the total number of inches which the Shelflist occupies omitting reference.

(c) Divide your answer by 500. The quotient obtained is the number of cards between each sample interval.

(d) Divide the average number of cards per inch into the number of cards between each sample interval. The answer obtained tells the number of inches between cards to be drawn for the sample. The cards selected should be as close as possible to the exact interval.

Here is an example of how to proceed, but you must substitute the numbers from your own library. Use the Shelflist Distribution Form as a worksheet.

Example: Calculating the number of cards between each sample card.

80 = average number of cards per inch
320 inches = length of shelflist minus reference
(a) 80x320 = 25,600 = total number of cards in shelflist excluding reference
(b) 25,600/500 = 51.2 cards per interval
(c) 51.2/80 = .64 inches per interval
(d) .64x16 (16 is a constant) = 10.24
(e) 10/16 = 5/8 inch interval between sample cards to be drawn

The Index below allows you to correlate the quotient (inches per interval) obtained in step (c) with the inch interval sample cards to be drawn. For example, the answer for step (c) in the example is .64, which falls nearer to .625 than to .6875 on the index. Therefore, you should use 10/16 or 5/8 of an inch interval between sample cards.

Index

1/16 = 0.0625	9/16 = 0.5625
2/16 = .1250	10/16 = .6250
3/16 = .1875	11/16 = .6875
4/16 = .2500	12/16 = .7500
5/16 = .3125	13/16 = .8125
6/16 = .3750	14/16 = .8750
7/16 = .4375	15/16 = .9375
8/16 = .5000	16/16 = 1.0

SHELFLIST DISTRIBUTION FORM

1. Give number of shelflist cards per inch for:

Sample 1	_____
Sample 2	_____
Sample 3	_____
Sample 4	_____
Sample 5	_____
Sample 6	_____
Sample 7	_____
Sum	_____

2. Length of shelflist minus reference titles _____ inches

3. Average number of cards per inch = Sum/7 = _____
(give formula) Sum divided by 7

4. Total number of cards = total inches of shelflist x average number of cards per inch _____

5. Number of cards per interval = total number of cards divided by 500 _____

6. Number of inches per interval = Number of cards per interval divided by average number of cards per inch _____

7. Inch interval between sample cards to be drawn - (Taken from Index) _____

Remember, the actual number of inches per interval must be determined by you on the basis of the length of your shelflist and the average number of cards per inch in your library.

Step 6:

Take the answer which you got for step (e) in the example or the answer for step (c) which correlates with the Index numbers. Either of these answers will be the inch interval for your library which you will use for the remainder of this section. If you mark your inch interval in ink on your ruler, it will save time and eye strain.

Step 7:

Open the first drawer of the shelflist. Measure in your inch interval. Write the following information about that card on the Title Availability Sample: Form I.

(a) The number of the title drawn under "Title #". The first title selected will be the number one. Number the titles consecutively as you draw them.

(b) Complete call number including Cutter. If the title drawn is a juvenile title, precede the call number with a J. If the title is fiction, indicate it with an F. A juvenile fiction title would be indicated by JF.

(c) Write the author's last name and first initial under "Author".

(d) Under "Title", indicate the first letter of each word in the title. For example, Another Country would be recorded AC.

(e) Write the date of publication in the "Date of Publication" column.

If the card drawn is a reference title, do not use it. Take the next card.

Step 8:

To draw the second card, move in whatever your inch interval is from the first card you drew. Take the card closest to your inch interval. Record the information indicated above.

Keep moving forward your appropriate inch interval each time until you have gone through the entire shelflist for circulating books. This should equal approximately 500 cards.

If you have part of an interval remaining at the end of a drawer -- carry this number forward to the next drawer. For example, if your interval is 5/8th's and you have a 1/8th inch pack of cards left at the end of the drawer, you would measure in 4/8ths of an inch to draw the first card in the next drawer. Remember, the numbers we have used are only examples. You must calculate the correct inch interval for your library.

If you have separate shelf lists for adult and juvenile materials continue on to the juvenile shelf list once you have completed the adult shelf list. Be sure to carry forward any part of your interval which is remaining at the end of the adult shelf list.

Step 9:

Once the shelflist sample is completed, check the shelves and note by checkmark if the book is on the shelf. If the book is not on the shelf, check the circulation files and note by checkmark if the book is circulating. Do not search for missing books. This should be done on or as close as possible to the day your library is to be monitored. If it is not possible to determine whether or not a book is circulating due to the nature of the circulation system your library maintains, omit step 9.

Name of Library _____

TITLE AVAILABILITY SAMPLE: FORM I

Title #	Call #	Author	Title Initials	Date of Publication

Step 2:

Record the following information on Title Availability Sample: Form III.

(a) The number of adult titles chosen in the sample for each of the date categories indicated.

(b) The number of juvenile titles chosen in the sample for each of the date categories indicated.

(c) Add these two numbers horizontally and enter in the first Total column.

(d) The number of adult titles chosen that are on the shelf for each of the date categories.

(e) The number of juvenile titles chosen that are on the shelf for each of the date categories.

(f) Add these two numbers horizontally and enter in the second Total column.

(g) Add all the columns vertically and enter the sums in the Total columns at the bottom of the form.

Having done these tabulations, you may determine the following probabiliites:

(a) Probability of adult availability by date = the number in column 4 divided by the number in column 1 for each date category.

(b) Probability of juvenile availability by date = the number in column 5 divided by the number in column 2 for each date category.

(c) Total probability of availability (both adult and juvenile) by date = the number in column 3 divided by the number in column 6 for each date category.

In order to determine the date distribution of your collection, divide each number in column 3 by Total c. For example, if Total c = 500 and the number in column 3 beside 1974 = 100, then 20% or 100/500 of your collection has publication dates of 1974.

Enter the results for your library on Title Availability Sample: Summary Sheet II.

Name of Library _____

TITLE AVAILABILITY SAMPLE: FORM II

Column #	1	2	3	4	5	6
Dewey Class	Number of Titles in Sample		Total	Number of Titles Available		Total
	Adult	Juvenile		Adult	Juvenile	
000-099						
100-199						
200-299						
300-399						
400-499						
500-599						
600-699						
700-799						
800-899						
900-999						
Biography						
Fiction						
TOTAL	a	b	c	d	e	f

Name of Library: _____

TITLE AVAILABILITY SAMPLE:SUMMARY SHEET I

Probability of Availability by Dewey Class

Dewey Class	Adult Availability*	Juvenile Availability**	Total Availability***	Proportion of Collection****
000-099				
100-199				
200-299				
300-399				
400-499				
500-599				
600-699				
700-799				
800-899				
900-999				

* Column 4/Column 1
** Column 5/Column 2
*** Column 6/Column 3
**** Column 3/Total c

Total Adult Availability
(Total d/Total a) _____

Total Juvenile Availability
(Total e/Total b) _____

Total Availability
(Total f/Total c) _____

Name of Library: _____

TITLE AVAILABILITY SAMPLE: FORM III

Column #	1	2	3	4	5	6
Date of Publication	Number of Titles in Sample		Total	Number of Titles Available		Total
	Adult	Juvenile		Adult	Juvenile	
1974						
1973						
1972						
1971						
1970						
1965 - 1969						
1960 - 1964						
1955 - 1959						
1950 - 1954						
Pre-1950						
No Date						
TOTAL	a	b	c	d	e	f

Name of Library: _____

TITLE AVAILABILITY SAMPLE: SUMMARY SHEET II

Probability of Availability by Date

Date of Publication	Adult Availability*	Juvenile Availability**	Total Availability***	Proportion of Collection****
1974				
1973				
1972				
1971				
1970				
1965-1969				
1960-1964				
1955-1959				
1950-1954				
Pre-1950				
No Date				

* Column 4/Column 1
** Column 5/Column 2
*** Column 6/Column 3
**** Column 3/Total c

Periodical Ownership:

The purpose of investigating the ownership of periodical titles in a public library is to assess the relative probability that a patron entering the library has of obtaining titles indexed in eight commonly used indexes . The central concept underlying this phase of investigation has been one of assuming that patrons and librarians use these indexing tools and that some estimate of the library's ability to supply listed titles and articles of interest is an indicator of the strengths and weaknesses of a library's periodical holdings.

To fully explore this concept would call for an investigation of the actual articles indexed in the eight indexes. This assumes that the patron is usually more interested in a specific article than in an entire issue. However, the practical problems of selecting a random sample of articles from each of these indexes is formidable, given the multiple citations that may arise for a given subject and/or author. While such a sample could be drawn and updated annually, the expense would be considerable and the sample size would have to be quite large to be representative .

Thus, for the New Jersey Study, periodical titles rather than articles were randomly selected from each of the eight indexes. A

total of 320 titles were drawn and alphabetically listed on forms that were included in the procedures manual. Each library was asked to check their list of holdings to determine whether the title was owned and if owned, the length of the run. While this procedure for collecting the information is quite simple, the resulting data are only a rough measure of the ability of a library to provide indexed articles. It does, however, indicate what proportion of titles listed in each of the indexes can be obtained at a particular library. This same figure could also be ascertained by checking actual holdings against those listed in the indexes owned, but this procedure would be much more time consuming.

Given the rapid rise in the price of periodical subscriptions, it goes without saying that the ability of many libraries to provide direct and immediate access to periodicals listed in owned indexes will be difficult to maintain at present levels. During the course of the study, we were frequently informed that many libraries make decisions regarding periodical subscriptions on a cooperative basis. We suspect this will increase as will efforts to inform other libraries of current subscriptions and substantial backfiles of periodicals. In such cases, cooperating libraries must be considered together, not individually.

In summary, the sample of titles from eight indexes gives a general indication of the ability of a library to supply articles to

the patron. When used on an area, regional or statewide basis it could supply information as to the relative strengths and weaknesses of coverage and provide impetus for cooperative acquisitions plans, reciprocal photocopying agreements, and the need for union lists.

Data Gathering

Step 1:

On the Periodical Availability Sample: Form I, indicate which of the periodicals listed are owned by your library by placing a checkmark beside those titles on the left hand side of the form.

For the periodicals checked, indicate the run on the right hand side of the form.

Step 2:

On the Periodical Availability Sample: Form II, place a checkmark beside the indexes that your library owns.

For those indexes that your library owns, indicate the date the subscription began. If there has been a break in your subscription, indicate that as well.

Tabulation

Step 1:

In order to determine the probability that a user will be able to obtain a periodical listed in the indexes mentioned above, add up the number of periodicals owned by your library and divide by 320 (the number of periodical titles listed).

Periodicals are a third major part of a library's collection. In order to get an idea of the types of periodicals that your library owns and their availability we have provided you with a list of periodical titles randomly selected from the following eight commonly held indexes:

Readers' Guide
Social Science and Humanities Index
Business Periodicals Index
Biological and Agricultural Index
Applied Science and Technology Index
Education Index
Art Index
Public Affairs Information Service.

The purpose of this randomly selected sample of periodicals is not to describe the periodicals that your library holds, but to determine the probability that a user would be able to find a periodical indexed in any of these indexes. THESE ARE NOT TO BE CONSIDERED AS "RECOMMENDED" PERIODICALS IN ANY SENSE. They are merely a random sample of indexed periodicals and we expect that your library will own a fraction of those listed.

For example:

If your library owns 96 of the periodicals, 96/320 = 0.30
Thus, a user has 3 chances in 10 of finding any periodical he finds listed in one of the eight indexed in your library.

Step 2:

If you would like to determine the probability that a user could find a periodical listed in a particular index, add up the number of periodicals that you own from that index and divide by 40 (the number of periodical titles drawn from each index). The index that the periodical title was drawn from is indicated beside that title on Periodical Availability: Form I.

Name of Library_____

Periodical Availability Sample: Form I

ABCA (Am.Bus.Communication Assc.) Bulletin	PAIS
AV Guide	EI
Acad. of Sciences of USSR Proceed., Bio. Sci.Sec	B&AI
The Accounting Review	BPI
Administrative Management	BPI
Administrative Science Quarterly	BPI
Adolescence	EI
Advertising Age	BPI
African Review	PAIS
Ag Chem & Commercial Fertilizer	B&AI
Aging	RG
The Agriculatural Education Magazine	EI
Agricultural Engineering	B&AI
Agriculatural Science Review	B&AI
Air Polution Control Association Journal	AS&T
Air University Review	PAIS
Albright-Knox Art Gallery. Gallery Notes	AI
American Anthropologist	SS&HI
American Art Journal	AI
The Am. Assoc. of Colls. for Teacher Ed. Yrbk	EI
American Concrete Institute Journal	AS&T
American Dyestuff Reporter	AS&T
American Economic Review	PAIS
American Journal of Botany	B&AI
American Journal of Philology	SS&HI
American Journal of Physics	AS&T
American Jounal of Veterinary Research	B&AI
American Literature	SS&HI
American Machinist	AS&T
American Speech; A Quarterly of Ling.Usage	SS&HI
American Zoologist	B&AI
The Americas;Quart.Rev.of Inter-Am.Cult.Hist.	SS&HI
Applied Physics	AS&T
Architectural Forum	AS&T
Architectural Record	AI
Architecture. Canada	AI
Archivo Espanol de Arte	AI
Arnold Arboretum Journal	B&AI
Art and Artists	AI
Art Education	EI
Art News	RG
Artforum	AI
Arts & Activities	EI

Name of Library_____ Periodical Availability Sample-8

Own	Title	Index	Run
	Water Research	B&AI	
	Weatherwise	RG	
	Welding Journal	AS&T	
	Welfare in Review	PAIS	
	Werk	AI	
	Western Horseman	B&AI	
	Wilson Library Journal	RG	
	World Politics	SS&HI	
	Writer	RG	
	Yale French Studies	SS&HI	

_____ = Total Owned

Total Owned/320 = Probability of Availability_____

SECTION II: MATERIALS USAGE

The use of library materials takes place both inside and outside of the building. This distinction is known to anyone using a library. Generally, however, materials that are borrowed for use outside the building are reported. This section of the study provided procedures for collecting, tabulating, and analyzing information on both uses of materials. The result is the availability of instruments to measure TOTAL CIRCULATION.

The need for instruments to get at in-the-building use of materials as well as for out-of-the-building use is based on the fact that librarians and the public can use the data to illustrate more completely the types of library use and to assist in internal decision-making in the area of collection development, physical arrangement of materials, and budget preparation.

These indicators, however, can be used not only to measure the volume of use of different types of material within the building as opposed to those that circulate but also to describe certain types of libraries. For example, libraries with a high ratio of outside the library ciruclation may be considered "Circulating" libraries while those with a high ratio of inside the library circulation may be considered "Reading" libraries. Whether a particular library falls into one category or the other depends on a number of factors including clientele, physical arrangement of the building, location, and the goals and objectives of the library itself. The resulting information, however, does indicate differences between libraries, differences that may or may not be known to exist.

In-Library Circulation:

The term In-Library Circulation, in this study, describes the amount and type of material used by patrons during their stay in the library, materials that are not borrowed for use outside the building.

The procedure for data collection begins with the posting of signs throughout the library asking patrons not to reshelve any materials they use while in the library. On the day or days that In-Library Circulation is to be checked, shelvers, pages, volunteers or other staff members collect all material that is found lying about, categorize it according to type of material, record the information on an appropriate form and return the material to its proper location on the shelf, rack, file cabinet or other location. The routine was repeated throughout the day -- every hour on the half hour in this study -- providing information on the type of material that was used, at what times of the day, and the total amount of material used within the building. The categories of type of material used in the data collection process included the following: reference, fiction, non-fiction, periodical, newspaper, document, telephone books, microfilm, micro-card, slides, filmstrip, tape, vertical file and other.

In the initial phase of the study, those collecting the data were also instructed to record the date of publication of each item but this was found to be too time-consuming and of minimal value to the participating libraries. The subsequent elimination of the date of publication for this material eased the data collection process considerably.

Calculations allowed each library to determine the number of items used in the building for each hourly period of the day and the percentage of items that were used by type of material. Where it seemed warranted, juvenile material could be differentiated from adult material. This was done by a number of the participating libraries.

When the results of the count of materials used inside the building is compared to materials charged out, the variations in library use from library to library as well as from day to day became evident. Total circulation that occurs within the library varied widely especially in library branches. Even within individual libraries, there is variation from day to day. One library collected the information for a complete week and showed a pattern of diversity from day to day with Sunday being the highest day for use of materials inside the building, although it was open the shortest length of time. The amount of In-Library Circulation by type of material also ranged considerably from day to day.

It must be mentioned that the count of materials used inside the library is probably a conservative estimate of the true amount of In-Library Circulation. Patrons -- despite signs that ask that material not be reshelved -- do so anyway. Browsing activity in the stacks is not accounted for. Magazines and periodicals when available on easily accessible shelves might be returned to their place as a

force of habit. Finally, material might be used extensively inside the library and then charged out for outside the library use. In summary, the In-Library Circulation figures deal strictly with materials that do not leave the building but are used by patrons during their stay in the building.

The time periods when materials are tallied can be modified to meet the needs of the individual libraries. At certain times of the day, reshelving of material should take place more frequently than once an hour; at other times, less frequently. Such changes will necessarily alter the summarization of data by time of day but can be usable and useful nonetheless.

One obvious use of this information would be in reporting to Trustee Boards and the general public on the type and amount of materials that are used within the library itself. With figures to illustrate in-the-building use, the oft repeated purposes of library patrons such as "I use the library to read or consult materials" or "..... a place to study" become real in terms of the library's reporting. And, based on the data collected in this study, in-the-building use of materials represents a sizable percentage of total circulation as we define total circulation.

Before a clear picture of what the percentage of In-library circulation means for a particular library, it would be wise to

examine it in relationship to a number of other factors

-- circulation policies: Does low volume of use of non-circulating materials indicate low demand or a lack of time on the part of the patron to fully consult the non-circulating item?

-- out-of-the-library circulation: Are they by nature certain materials that are not considered for borrowing even though policies allow for borrowing?

-- number of patrons who enter the building: Is in-the-building circulation lowest at peak attendance periods because of lack of space, noisy conditions, personal needs for privacy and the like?

-- number of patrons who do not own cards: If restrictive borrowing policies are in force, persons entering the building without borrowing privileges obviously have in-the-building use in mind. Can one then project higher in-the-building circulation figures based on non-cardholder patterns?

-- length of stay of patron: Patrons who stay in the building for relatively long periods of time may affect in-the-building use in a number of ways such as: blocking access to materials wanted by others with consequent low item use; consultation of many materials with consequent high item use; and, other behaviors that affect use.

There are but a few examples of aspects of in-the-building use that could be used in interpreting the percentage of the total circulation that is in-the-building. Many other questions can be raised that would affect policies of the library:

-- Where should certain materials be placed in the library?

-- Where is seating most needed for patrons who are using materials?

-- Which areas of the library are most in need of frequent reshelving during open hours?

-- Can the budget be cut for a particular type of material based on its frequency of use?

-- Should selection policy be changed with regard to a particular type of material?

-- If policy or procedure is changed in matters such as the above, is the desired direction of change actually achieved?

The instrument devised for counting in-the-building use of materials can assist in answering these questions. Again, ingenuity and knowledge of local goals, objectives and constraints will pinpoint which, if any of these questions and others might need to be answered.

In-Library Circulation

Data Gathering

Step 1:

Shelvers and pages must be informed in advance that no items used within the library on the monitored days are to be reshelved until the analysis is completed.

If it is necessary to gather books from table tops to make space, that is allowable provided that the information is recorded before the books are reshelved. No item is to be returned to its place until full information is taken. Items patrons are using when a count is taken should not be included in the count.

Step 2:

Every hour on the half hour during the day, gather up all materials lying on tables, desks, trucks, etc. - in other words, all materials which are not in their proper places. It is not necessary to reshelve materials at this time but do remove them onto a book truck.

Step 3:

For each item, place a 1 in the appropriate type of item category by date of publication on In-Library Circulation: Form I. (If the item used does not fit any of the named categories, place it in the "Other" category.)

Use a New Form for each hourly check.

Tabulation

Step 1:

Add each vertical column on Form I to find total use by date of publication for that hour.

Add each horizontal row on Form I to find total use by type of item for that hour.

Step 2:

Gather the hourly tally sheets together (In-Library Circulation: Form I). Enter the numbers in the vertical total column on Form I under the appropriate hour on In-Library Circulation: Form II.

Add each vertical column on Form II to find total In-Library circulation for each hour.

Add each horizontal row across to determine total In-library circulation for each type of item.

Name of Library: _____

In-Library Circulation: Form I

	'74	'73	'72	'71	'70	'65-69	'60-64	'55-59	'50-54	pre-50	Hrly Total
Reference											
Fiction											
Non-Fiction											
Periodical											
Newspaper											
Document											
Telephone Book											
Microfilm											
Micro-card											
Slides											
Filmstrip											
Tape											
Vertical File											
Other											
TOTAL											

_____ Hour

Name of Library: _____

IN-LIBRARY CIRCULATION: FORM II

Type of Material	9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30	TOTAL
Reference														
Fiction														
Non-Fiction														
Periodical														
Newspaper														
Document														
Telephone Book														
Microfilm														
Micro-card														
Slides														
Filmstrip														
Tape														
Vertical File														
Other														
TOTAL														

Outside The Library Circulation

Indicators measuring the number of items borrowed for outside-the-library use -- the traditional "circulation" statistic -- are one of the bulwarks of data collection efforts in libraries. They have commonly been used to indicate to others the output of library services and, in some libraries, have been the major justification for budget increases, more staff, and enlarged facilities. The degree of sophistication of this type of data gathering activity ranges from a simple count of total items borrowed through elaborate systems that allow for the identification of the individual borrower, and the number, type, and frequency of items borrowed, and length of loan for each borrowed title for that individual.

The indicator used in this study provides most of this information. That is, this indicator, in association with other of the indicators, can provide information not commonly collected by many of the non-automated circulation systems prevalent in New Jersey's public libraries.

The data elements that were collected included: number of items borrowed per borrower; number of persons borrowing material by hour of the day; number of items borrowed by hour of the day; type of material borrowed (adult and juvenile fiction, nonfiction and AV material) per borrower per hour and, two computed figures using information derived from other indicators. First, the proportion of outside the library circulation as a percentage of total circulation, and second, the proportion of persons borrowing materials who entered the library.

The procedures for data collection were rather simple. Forms were prepared that indicated the six general types of materials that could be charged out (i.e., adult fiction, nonfiction, and AV and juvenile fiction, nonfiction and AV). These forms were provided for each charge-out desk. Staff charging out books were asked to tally the number of each type of material that each individual charged out. In addition, they noted the hour of the day in which the transaction took place.

Tabulation of the information involved subtotaling the number of transactions for each hour for each type of material borrowed and then totaling these figures for a volume count for the whole day. A total count of types of items borrowed for the day could also be determined. Finally, the average number of items borrowed per borrower was computed from the raw data tallies.

The resulting data available for analysis included a profile of the peak periods of borrowing activity, and an assessment of the variation in the types of items borrowed by time of day and type of material. As noted above, the total out of library circulation figure was added to the total in-library circulation figure to arrive at what is termed Total Circulation. Thus, the proportion of Total Circulation in Outside the Library Circulation could be determined.

In that the total number of persons entering the building is known from the count of User Questionnaires (see User Characteristics),

the percentage of persons borrowing materials could easily be determined and was oftimes quite surprising.

This method of data collection was found to be quite simple to apply in practice. If the breakdown of material categories are not considered necessary by a particular library, a much simpler form that only records the number of items borrowed per patron by hour of the day could be easily constructed. Finally, some of the automated circulation systems provide a wealth of information about borrowing habits of patrons and the procedures described here would, in all likelihood, be unnecessary. However, for the smaller libraries that are not in an automated mode, the procedure described above could be incorporated into a plan for collecting information on borrowing behavior.

As with all the other indicators described in this report, sampling at random periods is advocated. The collection of this information over time provides additional information for local decision-making. First, the percentage of circulation activity per hour could help in determining when or if the circulation desk should be staffed with additional personnel. Knowledge about the average number of items borrowed per person might assist in developing plans for speedier check-out procedures. Perhaps even the acquisition of new machinery might be considered for this purpose. When viewed as

part of a total library activity information system -- i.e., in combination with In-Library Circulation, User Characteristics, Title Availability, Peak Hours of Use, and the like, it assists in developing answers to questions such as:

* Do we need to spend more money children's materials?
* Should we buy more or less fiction?
* Do we need to purchase more duplicators?

Outside the Library Circulation

Data Gathering

Step 1:

Place a copy of Circulation Distribution: Form I next to each charging machine or other circulation station and inform all circulation desk personnel about the form and the following instructions:

Record each borrower as a separate entry as follows:

(a) Number each borrower consecutively from 1.

(b) Write the hour of the transaction. For example, 2:15 would be written 2.

(c) Distinguish between adult and juvenile materials. If a borrower checks out both types write them separately on the same line. Count newspaper and periodicals and vertical file materials as adult non-fiction. Count both hardware and software as A-V.

(d) Record the number of items in each class by fiction; non-fiction or audio-visual.

(e) Count renewals as new circulations.

Tabulation

Step 1:

Subtotal the number of transactions per hour for each type of material circulated, i.e., adult fiction, juvenile A-V, etc. Enter this information on Circulation Distribution: Form II.

Step 2:

On Circulation Distribution: Form II, add each horizontal row across in order to determine total circulation by hour. Then add each column vertically in order to determine total circulation for each type of material.

Name of Library____

CIRCULATION DISTRIBUTION: FORM I

Borrower #	Hour	Adult			Juvenile		
		Fiction	Non-Fiction	A-V	Fiction	Non-Fiction	A-V

Name of Library: _____

CIRCULATION DISTRIBUTION: FORM II

Total Number of Borrowers _____

Hour	Adult			Juvenile			TOTAL
	Fiction	Non-Fiction	A-V	Fiction	Non-Fiction	A-V	
9-10							
10-11							
11-12							
12- 1							
1-2							
2-3							
3-4							
4-5							
5-6							
6-7							
7-8							
8-9							
TOTAL							

Interlibrary Circulation

Requests received from other libraries for materials were considered to be an area for exploration in this study. Given the direction of this study's efforts toward determining the demands on and use of a particular facility, a simple recording sheet was developed to tally the requests received by a library from other libraries on the day the library monitored its activities. It did not include a count of requests initiated by the library in question. It was recognized that requests for materials from the participating library, would, in many cases , be a substantial activity given the pattern of vertical requesting pattern outlined in the State Plan. However, this aspect of the study concentrated only on requests made of the participating library.

Participating libraries were asked to list each library that requested materials of them on the monitored day and to indicate how many items were requested in the following categories: Adult fiction, Adult non-fiction, AdultAV material, Juvenile fiction, Juvenile non-fiction, Juvenile AV material. Totals were computed for each requesting library and for each type of material.

After analysis of the returns received from the first phase of the study, discussions with Project Coordinators and further consideration of the problem the research team was convinced that this method of data collection was not adequate to give a picture of library-to-library interaction. Even if it were used daily or on

selected days throughout the year, it lacked the power and precision desired by libraries. It was thus eliminated in the Small Library Phase of the study.

As a measure of outcome for the patron at the local library, a different approach is suggested. First, the library as requester of material for a patron should maintain records as to the success it has in obtaining both "known item" requests and "subject" requests. These should be broken down by (a) libraries to which the request was sent, (b) time span from day of request to day of delivery or notification of non-availability, and (c) notation of second and third level referrals, (e.g., area library as first level referral, research library as second level referral, NYPL as third level referral). Much of this information is presently available to local libraries and reported in some fashion. However, a change in focus is seen since the local library would be assuming a part of the responsibility for obtaining items on ILL for its own patrons. At the very least, the local library can view the success rates and time span of delivery or notification of non-availability as indications as to whether they can get requested materials in reasonable time periods from their suppliers, namely, other libraries.

From this local focus, area, regional and statewide implications can be drawn. Documentation from the local level of performance at the upper levels might assist in planning more adaptable system configurations.

Inter-Library Loan Circulation

Data Gathering

Step 1:

Distribute copies of Inter-Library Loan Circulation: Form I to all staff members who will be dealing with ILL's during the day monitored in your library. These forms are to be filled out in the following manner:

(a) Each horizontal row represents one library from which you receive requests on the day monitored.

(b) When a request is received make a tally mark in the appropriate category, e.g., adult fiction, juvenile non-fiction, beside the name of that library.

Tabulation

Step 1:

Add up each vertical column in order to determine the total number of items loaned in each category, e.g., juvenile A-V, adult non-fiction, and enter it on Form I.

Step 2:

Add each horizontal row to determine the total number of requests from each library and enter these totals on Form I.

Step 3:

In order to determine the proportion of ILL requests from a particular library, divide the total number of requests from that library by the number at the bottom of the vertical TOTAL column.

Step 4:

In order to determine what proportion of the requests are for certain types of materials, divide the total number of requests for those materials, e.g., adult fiction, by the number at the bottom of the vertical TOTAL column.

Name of Library: _____

INTER-LIBRARY LOAN CIRCULATION: FORM I

Name of Requesting Library	Type of Material Requested						TOTAL	
	Adult			Juvenile				
	Fiction	Non-Fiction	A-V	Fiction	Non-Fiction	A-V	#	%
TOTAL								
PERCENTAGE								

SECTION III: FACILITY AND EQUIPMENT USAGE

The library as a building is used in many different ways by many different types of people. The measures embodied in this section of the manual include those pertaining to the use, satisfaction and observable activities of patrons while they are in the building. As such, it touches on the characteristics of the people using the facility, the time entered and length of stay in the facility and the use they make of the library's seating space and equipment.

Equipment Usage:

In addition to providing materials for consultation both inside and outside the building, and personnel to assist patrons, libraries also provide pieces of equipment, table seating and lounge chairs, a public catalog, meeting rooms, and the like for patron use and comfort. The extent to which these facilities are utilized could have a direct bearing on expansion or contraction of their availability by purchase, rental, or withdrawal.

The procedure for determining utilization of the equipment and other facilities involved (a) an inventory of all items owned, that were in working order and available to the public, and (b) hourly counts by a staff member of the actual use of these items by the public. While the list of available equipment varied from library to library, the following basic list of items was found to exist in a large proportion of the libraries:

table seats
lounge chairs
meeting room
photocopier
microfilm and card readers
record players
tape recorders
cassette recorders
card catalog
typewriters

Every hour on the half hour a staff member toured the building and recorded the actual number of people each of these items. People in transit, standing in the stacks, and the like were not recorded.

The participating libraries were then instructed to calculate a "utilization factor" for each equipment category. By multiplying the number of hourly counts by the number of pieces of equipment and dividing this product into the total number of users the utilization of equipment could be determined for the entire day.

This figure resulted in some misunderstanding. The main problem was that an overall utilization factor combines highest and lowest incidences of usage resulting in an average somewhere in between that did not fully indicate the library's ability to provide facilities during peak usage periods. Thus, although the utilization factor for each equipment category gives an indication of average use, it must be examined along with figures for peak usage in order to determine the adequacy or needs of a library in this area.

Another problem arose in regard to the method of measurement. First, there is some question as to whether twelve observations during the day is a representative sample of facilities usage. Increasing the number of counts per hour, in most cases, should not change the utilization factors. On the other hand, making observations at different points within the hour intervals might give a broader view of usage by avoiding turnover times on the hour and half hour when patrons might be more likely to be moving into or out of the library rather than sitting or using equipment. Second, certain types of equipment do not lend themselves to this type of measurement.

Specifically, equipment that can be used by only one patron at a time, e.g., photocopy, cassette recorder, is always either in use or not in use. These figures give no indication of overall volume of usage. It is suggested that other measures be used in these cases. For example, libraries might consider tallying information on equipment use that requires the intervention of a staff member such as phonograph earphones or cassette recorders. Photocopy machines could possibly be monitored by asking users to note the number of copies made on a form attached to the machine or keeping hourly records from the machine's counter.

The concept of availability of seating and items of equipment for patron use has practical significance. It might answer questions such as:

- Are there certain times of the day when we should open the meeting room to increase seating space?
- Might we make the meeting room a study hall after 3:00 p.m. to provide space for those interested in studying while leaving other seating free for patrons using materials?
- Do we need another photocopy machine, cassette recorder, etc. in order to meet the demand?

If usage information is collected by area of the library, it might also suggest a rearrangement of those items available:

- Should there be more seating in the periodical section?
- Are those couches not used because they are next to the photocopy machine or in a high traffic area? Would they be more used in a quieter area of the library?

Data Gathering

Step 1:

On the day that you will be monitoring use of your library, count and record on the following form the number of items for each category in current working condition which are available for use inside the library only. Do not include any equipment which circulates outside the building. You will be given two copies of Equipment and Facilities Usage: Form I. Mark one Adult and one Juvenile.

(a) The juvenile form should include only equipment housed in the Children's Department on a permanent basis.

(b) Seats at tables should not include those accompanying equipment such as microfilm readers or typewriters.

(c) Couch seats-- count by number of persons the couch will accomodate (2, 3, 4).

(d) If you have other equipment which does not appear on this list, write the type of equipment on the bottom of the forms and give the number of pieces owned.

(e) Do not list software items such as pictures files, tapes, records and films.

(f) The results should be listed on Equipment and Facilities: Form I.

Step 2:

Make a complete canvass of the public reading area and every other place where seats are located as well as the equipment stations every hour on the half hour.

(a) Include the meeting room in this canvass if you allow patrons to sit there when no meeting is being held.

(b) If a meeting is in progress, and if you can enter the room please count the number of persons at the meeting. If it is impossible to enter the room, or to count the people because a film is being shown, and the room is dark, please write "meeting in progress" in the appropriate place on the form.

(c) The information to be collected includes the number of persons seated and the number using the various pieces of equipment. It is not necessary to count the total number of people in the building.

(d) Ignore the stack area completely unless they contain seating facilities or equipment.

(e) The results should be listed on the Equipment and Facilities: Form II.

NAME OF LIBRARY: _____

EQUIPMENT AND FACILITIES: FORM IV

Type of Equipment & Facilities	Number Available for Use in Library
No. seats at tables	
No. lounge chairs and couch seats	
No. seats in meeting room	
Record players	
Tape recorders	
Cassette Recorders	
Photocopiers	
Microfilm readers-reader printers (include microfiche equipment)	
Slide projectors	
Film projectors (16 and 8 mm)	
Typewriters	
Other (Please specify):	

Name of Library _____

EQUIPMENT AND FACILITIES: FORM II

(Indicate number of persons using)

	9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30
Table Seats													
Lounge Chairs couches and benches													
Meeting Room													
Photocopier													
Microfilm Readers and Reader Printers													
Micro Card Readers and Reader Printers													
Record Players													
Tape Recorders													
Cassette Recorders													
Typewriters													
ers													

Tabulation

Step 1:

On Equipment and Facilities: Form III record the number of pieces of equipment and the number of users of that equipment during the sampling period.

Step 2:

In order to determine the overall utilization factor for each equipment category divide the number of users by the product of the number of counts and the number of pieces of equipment. For example:

Number of Users = 50
Number of Hourly Counts = 5
Number of Table Seats = 40

Therefore the utilization factor for table seating = 50/(5x40) = 50/200 = 0.25

Record the information on Equipment and Facilities: Form III and repeat for each of the pieces of equipment and facilities listed.

Step 3:

In order to determine an hourly utilization factor, simply divide the number of users by the number of table seats available. For example:

Number of Users at 9:30 = 20
Number of Table Seats = 40

Therefore the utilization factor for table seating at 9:30 = 20/40 = 0.50

This would allow you to determine peak usage levels for each piece of equipment or facility.

Name of Library _____

EQUIPMENT AND FACILITIES: FORM III

Type of Equipment or Facilities	# Available	# Counts	# Users	Utilization Factor
Table Seats				
Lounge Chairs, couches & benches				
Seats in Meeting Rooms				
TOTAL SEATS				
Record Players				
Cassette Recorders				
Tape Recorders				
Photocopiers				
Microfilm Readers				
Micro Card Readers				
Film Projectors				
Slide Projectors				
Filmstrip Projectors				
Typewriters				
Other (Specify)				
TOTAL EQUIPMENT				

User Characteristics:

Knowledge of the types of people who come into the library is too often expressed in terms of stereotypes based on impressionistic data. In order to determine who actually does come in to the library as well as what they do while in the library, a short questionnaire was developed that was handed to each person entering the building and retrieved upon their exit. The brevity of the questionnaire was intentional as it was designed to be completed in less than one minute. Although short, it does provide the library with a basic profile of who the users are, when they enter the library and how long they stay, their sex, occupation or grade level in school, and whether or not they (a) asked for assistance, (b) possessed a borrower's card for the library, and (c) found what they wanted. A multitude of interrelationships can be studied with only these items and they can be compared to aspects of materials usage, facilities usage, and personnel usage.

The procedure for distributing the questionnaires specified that a person be stationed at each entrance to personally hand a questionnaire to each person entering the building. The staff member or volunteer was instructed to mark the arrival time of each patron on the questionnaire within 15 minute intervals and, as the patron left the building to mark the departure time. The procedure of physically handing out questionnaires to patrons is recommended to assure a high response rate and to control the reliability of entrance and exit times. The procedure was reported to work quite smoothly in the

participating libraries with minor problems associated with non-response or non-cooperation. There was some slippage in the resulting figures, however, because of patrons who failed to return the questionnaires. Thus, a method of sequentially numbering the questionnaires is recommended. This would confirm the response rate and give an accurate count of the total number of people entering the building.

In general, patrons were reported as being pleased that the library was conducting a study, and in some cases feedback about service was delivered by persons usually reticent on this point. Volunteers were effectively used in many cases to distribute the questionnaires and often these volunteers reported surprise at the variety of persons entering the building. Board members, service club members, and other types of volunteers were pressed into service by various libraries.

The tabulation or counting procedures that were suggested caused one of the major difficulties in the study. This was due to two major problems: First of all, more calculations were suggested than most libraries would find immediately useful. Tabulations should be suggested in a two-stage sequence. First, and in all cases, a count on each of the variables should be completed. Further, tabulations should be completed only if indicated by the results of the first stage. For example, if a library found that a large proportion of those who used the building did not own library cards, it might want to know more about these people - their sex, age, occupation or student status - in

order to direct information towards these groups and inform them of broader privileges they are entitled to.

Secondly, the number of questionnaires presents a problem in larger, busier libraries. The time spent by many of these people on this task was far beyond their expectations and was tedious in execution. Manual or hand sorting of hundreds of questionnaires into various categories is inefficient for any number over 200 given the data requested, and it is recommended that some sort of mechanized processing system be used in such cases. McBee edge-notched cards might also be considered as an alternative.

The data that was subsequently collected included the following:

- Total number of patrons entering the building
- For each hour the library was open:
  - number of patrons entering the building
  - number of students and non-students
  - number of male and female
  - number of patrons asking for assistance
  - number of patrons reporting (a) found what they wanted, (b) partially found what they wanted, and (c) did not find what they wanted.
  - number of professional, other white collar, blue collar, housewives, retired, unemployed, and not determined.
  - number of elementary, junior high, senior high, and college students
  - number of patrons with borrower's card.

- In 15 minute increments, the total duration of stay in all the categories given above.

- For each grade level and occupational category, the total number of people who were satisfied, partially satisfied, dissatisfied, (b) held a borrower's card, and (c) reported that they asked for assistance.

- For male and female respondents, the number who were (a) satisfied, (b) held a borrower's card, and (c) asked for assistance.

These tabulations and, in fact, the questions asked, are not the only ones possible. Depending on the particular information a library is seeking from its patrons, the questions may vary and the depth of analysis may be more or less intricate. Each library should determine the minimum basic information it desires about its patrons.

Apart from describing the characteristics of users, the questionnaire provides useful types of information. For example, when time of arrival and duration of stay are cross-tabulated against the other information listed above, a number of indicators for local decision making result. For example, peak hours of usage can be quite helpful in determining staffing schedules, type of staff on duty, opening and closing hours, and so on. The length of time that people stay in the library affects the number and type of questions asked, use of material in the building, use of equipment such as microfilm readers and so on. One can even calculate what has been termed "effective user hours"[5] by dividing the number of hours open into the total number of hours spent by patrons in the building.

This can further be broken down by type of user (student, non-student, male-female, etc.). The resulting "Statistic" indicates in hourly equivalents the demand that is placed on the library and its staff and comparisons of this demand can be made from group to group.

In summary, an analysis of user characteristics can provide very useful information for the local library in assessing its demand patterns and determining who it is serving in the community. For a complete picture of the pattern of persons served by the library over time, sampling is obviously necessary. An over time administration of the questionnaire is bound to be costly but the benefits in terms of assessing patron use of the library would be worth the cost.

User Characteristics

Data Gathering

Step 1: (Distributing Tickets)

(a) Station a person at each entrance and exit for the entire sampling period.

(b) Each person entering the building except library employees and delivery men is to receive a ticket.

1) Small children who come with adults should be counted. Give the child's ticket to the accompanying adult.

2) For school groups ask the accompanying teacher for the number of boys and girls and the grade level.

(c) If a person uses the library more than once within the same day, he is to be given a ticket for each visit.

Step 2: (Marking the arrival time)

(a) Each ticket has a time chart divided into 15 minute segments.

(b) Note in which of the 15 minute intervals each person arrives by drawing a line with red pen in the approximate box. For example, if someone enters at 7:50 put a line between 7:45 and 8:00.

(c) Ask the patron to complete the ticket and return it when he leaves the building.

Step 3: (Marking Departure Time)

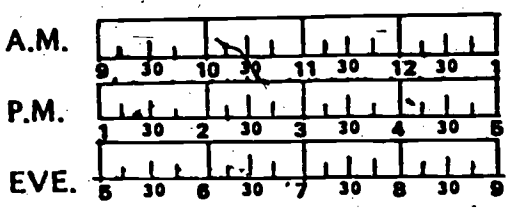
(a) Tickets are to be collected from everyone exiting and the time of departure noted by drawing a line through the appropriate 15 minute interval.

(b) For those persons who arrive and leave within the same 15 minutes draw an X through that segment.

(c) If someone has mislaid his ticket, ask if he remembers what time he arrived.

1) Take another ticket and record the estimated arrival and departure time.

2) If he cannot remember, note the departure time and write D beside the time.



1. Male_____ Female_____

2. Student_____ Grade_____
   Non-Student_____

3. Occupation_____

4. Did you ask for assistance from the library staff?
   Yes____ No____

5. Do you have a library card for this library?
   Yes____ No____

6. Did you find what you wanted in the library?
   Yes___ No___ Partially___

Tabulation

Step 1:

Count the number of tickets collected and record the total number in User Characteristics: Form I.

Step 2:

Sort the tickets into piles by time of arrival. From the portion of the ticket completed by the patrons count and record the following information on User Characteristics: Form I for each time period.

(a) How many users in that time period were students and how many non-students.

(b) How many of the users in that time period were male and how many were female.

(c) How many asked for assistance and how many did not.

(d) How many were satisfied, not satisfied, or partially satisfied.

To relate occupation to time of arrival use User Characteristics: Form III. (Examples of occupations included in each of the categories given can be found at the end of this section.)

To relate grade level of students to time of arrival use User Characteristics: Form IV.

To relate requests for staff assistance or ownership of a library card to time of arrival use User Characteristics: Form V.

Step 3:

Sort the tickets by <u>length of stay</u> according to 15 minute intervals. From that portion of the ticket completed by the patrons record information (a) through (d) listed in step 2 on User Characteristics: Form II according to the number of time intervals stayed in the library.

To relate occupation to length of stay use User Characteristics: Form III.

To relate grade level of students to length of stay use User Characteristics: Form IV.

To relate requests for staff assistance and ownership of library card to time of arrival use User Characteristics: Form V.

Step 4:

To relate satisfaction to user characteristics sort the tickets by grade level and occupation. Each grade level and occupation pile is to be resorted into three piles relating to satisfaction -- yes, no, and partially. Count each of the piles for each grade level and occupation and record this information in User Characteristics: Form VI.

To relate requests for assistance with user characteristics, sort each grade level and occupation pile into those that requested assistance and those that did not. Count the number of tickets in each pile for each grade level and occupation and record the information on User Characteristics: Form VII.

To relate ownership of a library card to these user characteristics sort each grade level and occupation pile into those that own library cards and those who do not. Count each pile for each grade level and occupation and record the information on User Characteristics: Form VII.

Step 5:

To relate sex to satisfaction, requests for assistance, and ownership of library cards, make the initial sort into male, female, and no response.

Then sort each pile on the basis of satisfaction, then requests for assistance, and finally ownership of a library card. Record the information on User Characteristics: Form VI and VII.

Name of Library: _____

USER CHARACTERISTICS: FORM I

No. of tickets collected _____

	Student Status		Sex		Assistance		Satisfaction		
Arrival Time	No. of Students	No. of Non-Students	Male	Female	Yes	No	Yes	No	Part.
9 - 9:59									
10 - 10:59									
11 - 11:59									
12 - 12:59									
1 - 1:59									
2 - 2:59									
3 - 3:59									
4 - 4:59									
5 - 5:59									
6 - 6:59									
7 - 7:59									
8 - 8:59									
TOTAL									

User Characteristics: Form II

	Student Status		Sex		Assistance		Satisfaction		
Length of Stay	No. of Students	No. of Non-Students	Male	Female	Yes	No	Yes	No	Part.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20+									
TOTAL									

Name of Library: _____

USER CHARACTERISTICS: FORM III

	Occupation							
Arrival Time	Professional	Other White Collar	Blue Collar	Housewife	Retired	Unemployed	No Response	TOTAL
9 - 9:59								
10 - 10:59								
11 - 11:59								
12 - 12:59								
1 - 1:59								
2 - 2:59								
3 - 3:59								
4 - 4:59								
5 - 5:59								
6 - 6:59								
7 - 7:59								
8 - 8:59								
TOTAL								
Time Interval								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
TOTAL								

USER CHARACTERISTICS: FORM IV

Student Status						
Arrival Time	Elementary	Junior High	Senior High	College	Unknown	
9 - 9:59						
10 - 10:59						
11 - 11:59						
12 - 12:59						
1 - 1:59						
2 - 2:59						
3 - 3:59						
4 - 4:59						
5 - 5:59						
6 - 6:59						
7 - 7:59						
8 - 8:59						
No Response						
TOTAL						
Length of Stay						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12 +						
No Response						
TOTAL			97			

Name of Library: _____

USER CHARACTERISTICS: FORM V

	Request Staff Assistance?			Own Library Card?		
	Yes	No	NR	Yes	No	NR
9 - 9:59						
10 - 10:59						
11 - 11:59						
12 - 12:59						
1 - 1:59						
2 - 2:59						
3 - 3:59						
4 - 4:59						
5 - 5:59						
6 - 6:59						
7 - 7:50						
8 - 8:59						
TOTAL						
Length of Stay						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
TOTAL			98			

Name of Library: _____

USER CHARACTERISTICS: FORM VI

STATUS	SATISFACTION			
	Yes	No	Partially	No Response
Elementary				
Junior High				
Senior High				
College				
No Response				
Total				
Professional				
Other White Collar				
Blue Collar				
Housewife				
Retired				
Unemployed				
No Response				
Total				
Male				
Female				
No Response				
Total				

Name of Library: _____

USER CHARACTERISTICS: FORM VII

Status	Request Staff Assistance?			Own Library Card?		
	Yes	No	NR	Yes	No	NR
Elementary						
Junior High						
Senior High						
College						
No Response						
Professional						
Other White Collar						
Blue Collar						
Housewife						
Retired						
Unemployed						
No Response						
Male						
Female						
No Response						
TOTAL		100			7	

Examples of the Jobs in each Occupational Category
(Adapted from the U.S. Census Classification)

Professional

Accountant
Artist
Author
Clergyman
Doctor
Engineer
Lawyer
Librarian
Registered Nurse
Pilot
Teacher

Other White Collar

Bank Teller
Bookkeeper
Businessman
Cashier
Insurance Agent
Postal Employee
Real Estate Agent
Salesman
Secretary

Blue Collar

Bus Driver
Carpenter
Cook
Electrician
Farm Worker
Fireman
Foreman
Laborer
Mechanic
Painter
Policeman
Railroad Employee
Repairman
Taxi Driver

Housewife, unemployed, and retired should be indicated as such on the ticket.

SECTION IV: STAFF AVAILABILITY

The availability of personnel to assist the patron in using resources of the library is an important aspect of library service - an aspect of library service that is seldom measured. The Procedures Manual was designed to measure both (a) the availability of public service personnel and (b) patterns of staff assistance and usage. It should be noted that a variety of techniques have been attempted in a variety of settings in an effort to tap this important service. The innovative aspect of these techniques is that they consider "Staff" to be all library personnel in view of the patron - not just professionals or those assigned to public service. It is the feeling of the research team that all staff, from shelvers to professionals are likely to be, and often are, asked for assistance and thus should be counted as available to, or having given service to, patrons.

Public Service Personnel Availability:

This section of the study represents an attempt to develop procedures that would begin to answer the question "What are the chances that a patron can enter the library and find a staff member free to answer a question or otherwise assist the patron?" The national measurement study (DeProspo et al.) had used staff schedules in determining this probability. That is, they requested the libraries to keep records of the number of persons -- professional and non-professional -- who were assigned to public service functions for for a week prior to the implementation of the daily activity measures. This technique has its limitations in that personnel assigned to public service duties may be called away from their assigned posts or may, at any given point in time, be unabvailable because they are assisting another patron.

For the Large Library Phase of the New Jersey study, an observation technique was tested as a possible alternative to that of staff scheduling. The procedure was to have a person survey the library personnel in view of the public in the various departments of the library each hour on the half hour and record all library personnel in view of the public in the various departments of the library and determine whether they were (a) actively assisting a patron or (b) available to the public for assistance. By dividing the total number of personnel in public areas of the library into the latter of these two categories, the probability of obtaining immediate assistance could be determined.

In libraries with five or less staff members, this procedure is less useful. For example, if there are only two staff members on the desk, there are only three possible probabilities of availability: (1) 1.00 or both staff members are available, (2) .50 or one staff member is assisting a patron, or (3) 0 or both staff members are assisting patrons. Thus, in the Small Library Phase, the scheduling procedure for data collection was used.

Several other problems were mentioned in connection with the observation method. First, some of the participants felt that there should have been a larger number of counts during the monitored day. A large increase in number of counts, however, is not likely to change the results significantly although the time of the counts may. If counts are made every hour on the hour, periods of high turnover rather than high staff usage may be measured. For example, observations made at 12:00 noon and 1:00 o'clock may catch the movement in and out of lunch time users, rather than their actual use of the library and staff. Such factors must be taken into consideration when determining the sampling points and intervals.

Another problem area concerns the definition of who should be observed. The question can be raised as to whether staff members who are not assigned to public service functions, but who are in public view, should be counted toward the total personnel available. The point of view taken by the research team was that all staff in public

view are likely and often asked for assistance. Those not in public view cannot be approached. Others feel that only public service personnel should be considered, including those who are "on call" but not visible. This difference in views creates problems in data collection which must be resolved if resulting figures are to be compared. This measure of library service has implications largely in the area of staffing. It enables the local library to determine the availability, or conversely the utilization, of staff members throughout the day. Thus, staff can be more effectively assigned during periods of high utilization and involved in other duties during periods of high availability.

Public Service Personnel Availability

Data Gathering

Step 1:

On the Public Service Personnel: Form I, indicate the name of each department and/or area in the library that is staffed with individuals who come into contact with users: areas such as circulation or information desks should be included as well as departments such as reference or children's.

Step 2:

On the same form, collect the following information hourly on the half hour for each of the departments and/or areas listed:

(a) The number of staff members actually assisting patrons

(b) The number of staff members available to patrons: that is, not engaged by a patron at that time.

Tabulation

Step 1:

In order to determine an availability factor for public service personnel, total all those staff members found to be available at each hour and in each department or area and divide by the total of all those assigned to public service at that time, i.e., both those available and those assisting. For example:

Total number of public service personnel available or those on duty but not engaged with a patron during each hour in each department = 30

Total number of staff members actually on duty (i.e., both assisting and available) at each hour in each department = 60

Your availability factor = 30/60 = 0.50

Therefore the availability factor is 50% indicating that a user would have a 50% probability of finding someone on public service duty available without having to wait.

Step 2:

In order to determine peak usage periods, you would follow the same procedure for each hour. For example:

Total number of public service personnel available at 11:30 A.M. in each department = 4

Total number of staff members actually on duty at 11:30 A.M. in each department = 12

Your availability factor at that hour would be 4/14 = 0.33

Therefore the availability factor would be 33% by 11:30 indicating that a user would have 1 chance in 3 of finding public service personnel available, slightly lower than the overall.

Step 3:

Finally, an availability factor could be determined by department by following the same basic procedure but counting those available and those on duty within departments only.

Step 4:

Record the results of your tabulations on the back of Public Service Personnel Availability: Form I.

NAME OF LIBRARY: _____

PUBLIC SERVICE PERSONNEL AVAILABILITY: FORM I

Name of Department		9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30
	Available													
	Assisting													
	Available													
	Assisting													
	Available													
	Assisting													
	Available													
	Assisting													
	Available													
	Assisting													

Patterns Of Staff Assistance

The Patterns of Staff Assistance measure was designed to monitor two aspects of interaction between library staff and library users who request assistance: (1) the volume of activity by hour of the day and (2) the nature of the assistance given. Of all the measures used in this study, this received the most attention from the research team.

Forms and procedures used in New Jersey were a refinement of those developed to measure "Patterns of Reference Usage" in the national study. This change in title represents a change in focus as well as a change away from a concentration on "reference" assistance to a broader concept including all types of assistance provided by the library staff. This change was necessary because of two factors: (1) there is very little agreement on just what constitutes "reference service" and (2) it is very difficult to separate "reference" assistance from all other types of assistance, a distinction that is not made by the user in any case.

In the Large Library Phase, the procedures used required all staff who answered questions on the day studied to record the following for each question asked: (1) hour of the day, (2) type of question (substantive or directional), (3) complexity of the question (simple or compound), and (4) the type of answer given (answer, advice, referral, not answered). If a question was referred, the staff member was to record whether that source was another department, another

library, or another agency.

Two problems arose from these procedures. First, the form was too complex for efficient data collection. As a result, in too many cases, complete information on each question was not recorded. Second, definitions for "types of question" and "complexity" were not detailed enough. This led to confusion on the part of staff members and ultimately a lack of reliability and comparability in the data collected.

Thus, for the Small Library Phase of the study, several modifications were made. First, "complexity" and "type of answer" were eliminated from the forms. Second, "type of question" was more rigorously defined and the number of categories was expanded to three: Substantive, Holdings, and Directional. An abbreviated definition of each category is given below:

1. Directional - This category includes several types of questions all of which are of an elementary and routine nature and call upon the staff member's general knowledge of where things are and how things operate in a particular library building.

2. Holding - This category includes requests for information about what specific materials might be owned by the library or available through interlibrary loan. For example, a specific book, journal, or film may be requested or the patron may ask if the library has material by a specific person. You consult some record, e.g., card catalog or list of periodicals, and tell the patron what the library has or does not have.

3. Substantive - This category includes requests for such things as a fact or facts which can be found in some resource owned by the library or by contacting some outside source, information on what is available on a particular subject, suggestions as to what to read on a topic. You find the information requested, give the patron advice on where to find it, or help select the appropriate material.

Finally, within each category space was provided to record whether the question was delivered in person or by phone. This modified form was used successfully in the smaller libraries as well as in three of the large libraries.

The resulting data has many uses. For example, data on volume of activity by day of the week and by hour of the day, considered in connection with measures of other library activities by day of the week and hour of the day, and especially staff availability, can help a library answer such general questions as:

- If we must close one day a week, which day should it be?
- Should the staff meeting be held on Monday morning or Friday afternoon?
- Does the volume of activity justify opening on Sunday?
- If we have to open at 10:00 one morning a week instead of at 9:00, which day shall it be?

Within a specific department, data on the kind of assistance given on a daily and hourly basis can help provide answers to questions as:

- Should we have two professionals or one clerk and one professional on the reference desk on Sunday?
- Should the children's librarian visit a school on Thursday morning or Thursday afternoon?
- Do we need two clerks at the information desk on Friday night?

The information on type of assistance given (Directional, Holdings, Substantive) can be very useful in arranging and staffing the library. It must be looked at very carefully, however, in the light of the local situation. For example, what may seem to be a disproportionate number of directional questions in a department may indicate that there should be a different mix of professional/clerical on the staff. Or it may mean something else depending on local circumstances. Information on mode of assistance can help a library answer such questions as:

- Do we need to advertise the fact that telephone service is available?
- Do we need to have a second phone installed in the department?

Some of the information on patterns of staff assistance might be included in the periodic report which the library makes to the board or to the public. Often such reports do not include information on the amount and kind of assistance given to users which consumes a large amount of staff time. Although this measure does not account for

assistance the library staff gives to groups through programming or assistance given through outreach activities, it does provide a way to report In-library staff services. Telephone assistance should also be reported. Persons who contact the library by phone may never enter the building, or take out a book. Yet they are given service not taken into account in traditional reporting systems.

Patterns of Staff Assistance

Data Gathering

Step 1:

At least several days before the study begins distribute copies of the "Instructions for Public Service Personnel" and "Patterns of Staff Assistance: Form I" to all staff who will be answering questions asked by patrons on the day studied. Suggest that they read the instructions carefully and try to use the data collection form for a few hours in order to see if they are clear. Meet with all these people individually or in a group in order to discuss any questions that they might have. If the instructions are not sufficiently clear, decide which interpretation of them is most meaningful to your library. Please record that decision and make sure that all those who use the form are aware of it. Be sure to keep these decisions in mind while interpreting the data.

Step 2:

On the day that the library is being monitored, distribute copies of "Patterns of Staff Assistance: Form I" to the reference desk staff as well as to staff in other departments and/or areas of the library that are likely to be dealing with questions from patrons, e.g., Adult Services Department, Audio/Visual Department, Childrens Room, Circulation Desk, Information Desk.

Step 3:

During the monitored day, check with each department and/or area to deal with any problems that might arise during the data collection.

Tabulations

Step 1:

Add each horizontal row on Patterns of Staff Assistance: Form I. in order to determine the total number of questions asked per hour. Enter this figure in the TOTAL column under #. Add this column vertically in order to determine the total number of questions asked in that area or department for the whole day. Percentage these figures by dividing the number of questions asked in a given hour by the total number of questions asked on that day. For example, if 10 questions were asked between 1 and 2 in the afternoon out of a daily total of 70 questions the percentage of questions asked during that hour is 14% or 10/70.

Step 2:

Add up each vertical column and enter the sum in the TOTAL row at the bottom of the form. Calculate the following figures:

a. Number of Directional Questions = TOTAL a + TOTAL b
b. Number of Holdings Questions = TOTAL c + TOTAL d
c. Number of Substantive Questions = TOTAL e + TOTAL f
d. Number of In Person Questions = TOTAL a + TOTAL c + TOTAL e
e. Number of By Phone Questions = TOTAL b + TOTAL d + TOTAL f

Record these figures on Patterns of Staff Assistance: Summary Sheet I for that department or area , and calculate the percentages.

Step 3:

If your library has more than one department or area where data was collected, you will have to add all the figures for the separate departments or areas together to get a picture of the total activity within the library on the day monitored. This can be done by using Patterns of Staff Assistance: Forms II and III.

In order to get a picture of total staff-patron activity in your library on the day monitored, use Patterns of Staff Assistance: Form II. Across the top of the form, enter the name of each department or area for which information was collected on staff assistance. In the vertical column under the name of each department or area listed enter the figure for each hour on the number of questions asked which can be found on Patterns of Staff Assistance: Form I for that department. When you have entered the figures for each department on Form II, add each horizontal row across in order to determine the total number of questions asked within the library by hour. These figures may be percentaged as described in Step 1 above. Secondly, to determine the activity in any department or area relative to that in others, total the figures for each department vertically and enter the figure beside TOTAL at the bottom of the page. Then percentage across the bottom by dividing the number of questions asked in each individual department by the total number of questions asked in your library on the day monitored.

In order to determine the relative proportion of different types of questions asked within your library, use Patterns of Staff Assistance: Form III. Along the left hand side of the form, enter the name of each department or area for which information on staff assistance was collected in the spaces provided. In the horizontal row beside the name of each record the number of the different types of questions as listed on Patterns of Staff Assistance: Summary Sheet I. When all the information for each department or area is entered, total the column vertically and enter the sum in the TOTAL row at the bottom of the page beside #. Enter these figures on Patterns of Staff Assistance: Summary Sheet II beside the appropriate labels. Calculate the percentages for each type of question by dividing the total number of questions of that type, e.g., directional, by the total number of questions asked in your library on the monitored day.

Name of Library _____ Department or Area _____

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Patterns of Staff Assistance: Form I

Hour	Directional		Holdings		Substantive		TOTAL	
	In Person	By Phone	In Person	By Phone	In Person	By Phone	#	%
9								
10								
11								
12								
1								
2								
3								
4								
5								
6								
7								
8								
TOTAL	a	b	c	d	e	f		

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Name of Library_____ Department or Area_____

Patterns of Staff Assistance: Summary Sheet I

Type Question	#	%
Directional		
Holdings		
Substantive		
TOTAL		
In Person		
By Phone		
TOTAL		

Name Of Library_____

Patterns of Staff Assistance: Form II
(Whole Library)

Hour	Department or Area								TOTAL	
									#	%
9										
10										
11										
12										
1										
2										
3										
4										
5										
6										
7										
8										
TOTAL #										
TOTAL %										

Name of Library_____

Patterns of Staff Assistance: Form III
(Whole Library)

Department Or Area	# of Directional Questions	# of Holdings Questions	# of Substantive Questions	# of In Person Questions	# of By Phone Questions
TOTAL #					

Name of Library_____

Patterns of Staff Assistance: Summary Sheet II
(Whole Library)

Type Questions	#	%
Directional		
Holdings		
Substantive		
TOTAL		
In Person		
By Phone		
TOTAL		

Instructions for Public Service Personnel

On the day that your library is monitored, you will be asked to record your activity on Patterns of Staff Assistance: Form I so that the library will have a measure of the amount and kinds of assistance given to patrons. The information that you will collect will enable the library to determine how much of the assistance given to patrons is of an elementary or DIRECTIONAL nature, how much concerns the HOLDINGS of the library, and what proportion deals with the SUBSTANTIVE nature of library materials. You will also be able to determine how much of this activity occurred in which areas of the library by time of day and whether it was in person or by phone. To ensure that the information you will be recording is consistent with that recorded by others, please read the following instructions and definitions carefully.

Types of Questions:

Each time a patron asks you a question on the day your library is monitored, you will be asked to classify the questions as directional, holdings, or substantive in nature. The following are definitions of what is included within these categories along with examples of each type.

1. Directional - This category includes several types of questions all of which are of an elementary and routine nature and call upon the staff member's general knowledge of where things are and how things operate in a particular library building. The following kinds of questions are included under the general heading of 'directional':

   a. Building - A patron may ask where to find a particular type of material within the building, where to find a particular room, where to find a specific type of equipment. You indicate where the requested thing is and/or how to get there. In most cases it will not be necessary to consult any records or sources except, perhaps, a handbook for staff or a map of the building.

   Examples:

   Where are the newspapers?
   Where are the Hemingway novels?
   Where is the Childrens' Room?
   Do you have a photocopy machine?

b. Local Area - A patron may ask for directions to some specific place or thing outside the library building.

Examples:

Where do I park near the library?
Where is the police station?

c. Policy - A patron wants to know something about general regulations governing the operation of the library. You give an answer based on some written statement of policy.

Examples:

What are your hours on Sunday?
Do your periodicals circulate?

d. Access - A patron asks for a specific item(s) which is kept at a particular desk ,e.g., back issues of periodicals, heavily used reference books.

e. Bookings/ Reserves - A patron asks that a particular item be put aside for use at a particular time or as soon as it is available.

f. Mechanical - A patron asks for assistance in using some piece of mechanical/electrical equipment available in the library, e.g., a microfilm reader.

g. In-Building Referral - A patron asks for some kind of assistance that is normally given at some other place in the library and is directed to that area for assistance, e.g., a patron asks at the circulation desk for assistance that usually handled by the reference department.

2. Holdings - This category includes requests for information about what specific materials might be owned by the library or available through interlibrary loan. For example, a specific book, journal, or film may be requested of the patron may ask if the library has material by a specific person. You consult some record, e.g., card catalog or list of periodicals, and thell the patron what the library has and does not have. RECORD THE QUESTION EVEN IF THE LIBRARY DOES NOT HAVE WHAT IS REQUESTED. If you then check the holdings of another library, this further step should be considered as a separate 'holdings' question.

Examples:

Do you have The Bankers?
Do you have any records of Beethoven symphonies?
Do you have Partisan Review?

A request for material on a subject rather than for a specific material should be recorded as a 'substantive' question.

3. Substantive - This category includes requests for such things as a fact or facts which can be found in some resource owned by the library or by contacting some outside source; information on what is available on a particular subject, suggestions as to what to read on a topic. You find the information requested, give the patron advice on where to find it, or help select the appropriate material. Record the question even if a completely satisfactory answer is not found or if you refer the patron to some other person or place for the answer, e.g., another library, a government agency, a local expert.

Examples:

Do you have any books about retirement?
What is the melting point of gold?
How many people voted in the last city election?
What do psychologists say about gambling?

If a question is first posed as a request for directional or holdings information, but an interview reveals that the real need is substantive record the question as substantive.

Examples:

Patron asks "Where are your periodicals?" but the interview reveals that the patron really needs help using periodical indexes to find articles on a specific subject.

Patron asks "Do you have Exploring with Elephants by J.H. Jungle?" but the interview reveals that any material on African wildlife would be sufficient.

Data Gathering:

1. Decide whether the request is directional, hodings, or substantive according to the definitions given above.

2. On the line next to the hour in which the question was asked, place a tally or slash (/) under the appropriate type of question indicating whether it was asked in person or by phone. If a question is asked at 3:14 in the afternoon it would be recorded on the line next to 3.

3. If the same patron makes several requests during each day, each separate request should be recorded. Calls from another library should be considered as calls from a patron.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

PURPOSE OF STUDY

The New Jersey Measurement Study had a number of specific objectives. A full understanding of the study cannot be achieved unless the reader takes these objectives as the contextual basis of the study. These objectives were:

1. to test, refine and monitor the performance measures developed from the national performance measurement study;
2. to test, refine and monitor the techniques of data gathering developed from the national study;
3. to utilize a greater range of public library involvement than the national study, e.g., the small public library operating with budgets under $100,000.00; and
4. to provide less direct supervision over data collection and data analysis than the national A.L.A. study, i.e., to find out to what extent the techniques of data collection, manipulation and analysis could be made self-directional.

The research team is sufficiently satisfied that these objectives were reached.

It is a relatively easy task for any individual, group, association or state agency to raise significant questions and establish operational guidelines for satisfactory library performance. However, it is quite another task to gather and intelligently interpret information which will provide a reliable and acceptable basis for answering those questions and "measuring" the guidelines. The absence of that information tends to create an essentially unhealthy environment, one in which decision-makers

may appear, at best, arbitrary, and, at worse, unjust.

The philosophical premise behind the development of the performance measures methodology for public libraries was, and is, to address itself to the monumental problem of generating reliable management information wisely interpreted for judicial purposes. Such a premise does not intend to promise instant resolution but rather to provide a logical means for a systematic reduction of this problem over time. The measures developed and further modified through this study are not offered as (1) panacea (2) innovative or (3) complete. They are intended to provide a sound and basic description, albeit incomplete, of what the library is doing through its key on-going programs. They attempt to look at the public library through the eyes of the patron who has decided to utilize the facilities, collection, staff and/or equipment. The underlying question remains: since the public library seeks to provide accessibility to the information it acquires and preserves how does it hold itself accountable to the people who pay for its existence?

The indicators reviewed in this report, and the overall success which libraries of various sizes and circumstances enjoyed in employing the techniques and manipulating the data, support the conclusion that local libraries, and potentially the State, have the ability to show what services are actually provided to patrons beyond a mere circulation count. The methodology developed and now tested once again allows a library or a series of libraries to demonstrate the ability to supply recently published material (books and periodicals), various items of equipment and space, and personnel. The methodology enables a library or series of

libraries to describe who used the library and what is used while the library is open.

SUMMARY OF RESULTS BY PERFORMANCE

The results of the study, in summary, for each performance measure are as follows:

1. BPR -- This measure has relevance on two levels, local and state. At the local level, the measure is designed to suggest the likelihood of an individual library owning and having available any given book published within the last five years. The measure correlates highly with book expenditure and as such reflects expenditures more than the quality of the library.

On the second or state-wide level, BPR is a very interesting measure of potential network capabilities although not its use. The research team has hypothesized that, if fully studied, the probability of obtaining any book published within the last five years with the state library network would be 90 percent - a very concrete measure of effective library service.

BPR measure does have some serious shortcomings. In addition to the psychological handicap which many librarians have of seeing the BPR sample as a "recommended list" (despite all of the disclaimers), the collection of this information is time-consuming the more so the fewer personnel available.

2. Title Availability -- This measure provides extensive information for the relatively small effort of work required. It gives the library a reasonably accurate picture of its collection in terms of date and classification that has only been achieved in the past by costly, inefficient and often inaccurate inventories. In addition, this measure provides a picture of which segments of the collection are most used. The Title Availability measure can be employed as a basis of the determination of book loss rate. Needless to say, a thorough knowledge of a library's collection and its usage have implications for weeding and book selection policies, especially at the local level.

3. Periodical Availability Sample -- The Periodicals Ownership Sample, while easy to apply, is limited in its usefulness. A union serials record would be much more useful. The concept of the availability of articles indexed in commonly held indexes should be re-explored although the problems of sampling will be difficult.

4. Outside The Library Circulation -- The research team believes that it is inappropriate, for public libraries of any size, to attempt to count every circulation transaction much less every item circulated. A sampling procedure, such as the one employed in the methodology developed, should be used. An appropriate sampling procedure would be both much less costly and much more accurate than the current practice of trying to take total counts.

5. Inside The Library Circulation -- Potentially, Inside The Library Circulation is one of the most important measures developed for

it provides a much more balanced account of library activity than the simplistic reporting of outside circulation only. The fact that up to 80 percent of a library's materials used never leave the building suggest the absolute importance for a public library to measure this particular activity.

6. Inter-Library Loan Circulation -- Phase I of the study, involving large libraries only, examined inter-library loan activity as a rough gauge of total library activity. Analysis of the results confirmed the suspicion of the researchers that this library service is a very complex area that requires in-depth study.

7. Facilities Availability and Usage -- Conceptualization for this particular measure remains weak and considerable attention to the methodology is still needed. Except for those situations in which a particular library or library system is contemplating expansion or a new facility and/or extensive purchase of new equipment, the research team does not recommend that the measure be used.

8. Staff Availability -- In this period of short budgets and constant pressure to reduce staffs, this measure holds potential importance for library decision-makers. Since staff constitutes the highest single expenditure for the library, often up to 80 percent of the total operating budget, the question of the most effective staff utilization is obviously one holding very pragmatic implications.

9. Patterns of Staff Assistance -- This measure is undoubtedly the most controversial one. At the same time it is one measure which most directly centers on a service output. The emotion and mystique surrounding the reference activity significantly impedes efforts towards some kind of logical assessment. In addition, there is no clear definition of what really constitutes this reference activity.

This measure takes the point of view that any question asked by a patron to a staff member involves an important service on the part of the library -- not just questions asked of "reference" librarians. Therefore, all questions asked of staff members, be they the director or pages, should be counted as staff assistance.

The pattern of staff assistance measure developed for the New Jersey Measurement Study makes no claim to measuring the total complexity of the types of assistance requested or the complete accuracy of the responses to these requests. However, this approach is a first step toward systematic measurement that can be adapted to all levels of the library and can be applied on a sampling basis.

10. User Characteristics -- In all but the very smallest public libraries information about who the users are is usually sketchy, if not largely guess work. Use of the "user ticket" within public libraries not only has proved to be the most positively received measure but one which has often proved enlightening to the administration. It has provided library decision-makers with extremely accurate profiles of who is using the library and also with the volume of its use by specific time periods. The measure of user characteristics can easily be applied on a sampling

basis and easily modified for collecting different and/or additional kinds of information. Finally, the volume of library use has proven to be much larger than decision-makers anticipated and could become an extremely useful bargaining indicator.

GENERAL CONCLUSIONS

The following constitutes the general and overall conclusions of the research team:

1. The study confirms that the data collection and tabulation can be performed within public libraries regardless of size. However, the smaller libraries must make the same commitment of time as the large libraries in the collection and tabulation of data on materials availability. This factor may make it overly costly for smaller libraries to perform this part of the study.

2. The resulting data collected is generally reliable. That is, without extensive workshops and with mainly written instructions, librarians within New Jersey were able to collect and tabulate the data with a minimum of error or misunderstanding.

3. As a result of this study, New Jersey has a cadre of librarians who know more about their libraries and research than most other states. Not only did these librarians successfully implement and analyze the indicator data, but also, in many cases, developed an inquisitiveness about their organization. This result is especially important because the Project Coordinators were generally not Directors with the result that there has been a broadening of the base of awareness of the uses of research.

4. The New Jersey State library requires that each public library report annually on over 180 different items of information. Only one data category requests direct use of the library by individuals -- "number of persons attending programs". The data dealing with circulation is only a proxy of individual use in that it reports on the number of items borrowed and not the number of individuals borrowing. If the use of libraries by individuals is important for either state or local purposes, data collection methods must be developed to tap this important dimension.

RECOMMENDATIONS

The New Jersey Measurement Study has clearly demonstrated that public libraries, from large to small, from single building operation to multi-unit can, with limited direction, collect a variety of sophisticated information which will measure aspects of their library operation. In addition, and more importantly, data can be collected on a sample basis while both validity and reliability are maintained. This further study of the performance measures methodology, supported by the findings of the similar project for the State of Illinois by the Illinois Library Research Center -- MEASUREMENT AND EVALUATION OF PUBLIC LIBRARY SERVICES by Ronald R. Powell and Lucille M. Wert, 1975 -- has convinced the research team that any further argument over "feasibility" begs the question. Moreover, the results of the study provide only one reasonable conclusion. The methodology generates extremely useful information at very acceptable cost levels -- particularly given the kinds of request for management information being made on public libraries and given the inherent responsibility of public library decision-makers to be accountable to those who support its operation.

It is equally clear from this project, and supported by similar efforts with the performance methodology, that the State Library has a crucial leadership role to play if the majority of public libraries within the state are to incorporate major portions of the measures as part of their regular operating procedures. This leadership role falls into the following three categories and constitutes the primary recommendations of the research team.

1. Research -- It is extremely important that the distinction between "counting" and "measurement" is made. That is, unlike the mere counting of numbers, measurement requires a scale, magnitude or "norm" as the basis for interpretation. Until some beginning magnitude or norms are established for the performance measures for the various categories of public library, e.g., by size, by location, by function, and so forth, the information collected is vulnerable to faulty interpretation and dangerous -- if not devious -- manipulation. The research team recommends further research to analyze specifically the extensive measurement data collected thus far so that tentative norms can be provided as guidelines for those at both the state and local level.

2. Regulatory -- It is clear, given the assessment of statistical data now being collected by public libraries, that changes are needed. It is equally clear that the majority of public libraries will not, and cannot, on their own initiative, incorporate the performance measures as part of their routine management data system. The research team recommends that the State Library require, as part of the statistical reporting system for public libraries, the inclusion of those measures identified in the study as generating necessary and useful information.

3. Continuing Education -- While the methodology for collecting the data for the performance measures has been sufficiently refined, much in the way of on-going assistance is needed. The research team recommends that the State Library support through various means available, e.g., workshops, field work and consultation, publications, and so forth, periodic continuing education in the use of the methodology which should include guidance in both data collection and data interpretation.

NOTES

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2. Childers, Thomas: "Statistics that Describe Libraries and Library Services" in ADVANCES IN LIBRARIANSHIP. v.5, N.Y., Academic Press, 1975, p. 107-122.

3. Clark, P.M. et al.: NEW JERSEY LIBRARIES AND THE STATE PLAN, New Brunswick, Rutgers University, Graduate School of Library Service, November, 1974, p. 41-47.

4. Rowell, R.R. and Wert, L.M.: MEASUREMENT AND EVALUATION OF PUBLIC LIBRARY SERVICES, Urbana, Illinois, Library Research Center, 1975.

5. DeProspo et. al.: Op. cit., p. 38.

Appendix I

College Library Phase:

Although the measures used in this study were developed for use in public libraries, the Bureau agreed to investigate the use of college libraries by the public. Although this is an area that demands study in and of itself, the team developed a methodology for the first step in determining the volume and types of use college libraries receive from the general public. During October through mid-December, 1975, college libraries monitored their patrons for 3 or more days. This monitoring was accomplished through the use of an expanded user ticket which not only requested information on who the patrons are but also on what they did in the library.

THE PRE-TEST OF AN INSTRUMENT FOR MEASURING PUBLIC USE OF ACADEMIC LIBRARIES

I. The Problem

This pilot study attempted to get at one large question:

> What sort of questions and instruments best measure the use of academic libraries by the public?

Our answer to this question consisted of the development of an instrument, which we submitted to a pre-test in three different libraries. First we had to define operationally the descriptive terms under investigation. By 'public' was meant non-affiliated users, i.e., visitors who were not students, faculty, or staff (who comprised the affiliated users) at the respective supporting institutions. We also included in this group those with a relatively loose affiliation, specifically the alumni and the families of affiliated users. By 'academic library' we meant any library directly supporting any form of higher education.

II. The Procedure

We developed the primary data-gathering instrument in the form of a self-administered questionnaire for the library user, accompanied by a brief explanatory sheet that narrowed the meaning of some of the terms (see copies of these two hand-outs on the next page). For feasibility reasons the study had to be run locally, so we also developed a self-instruction package, explaining to the library staff how to administer the survey. This package included a secondary

Time Entered_____

Time Departed_____

Exhibit 1.

Primary data-gathering instrument.

1. Male_____ Female_____

2. Student_____ School_____

   Faculty_____ School_____

   Other _____ Occupation_____

3. Please indicate how many of each of the following you used in the building during this visit to the library:

   _____ Newspapers
   _____ Magazines
   _____ Circulating Materials
   _____ Reserve Materials
   _____ Other Non-Circulating Materials
   _____ A-V Hardware (e.g. Film Projector)
   _____ A-V Software (e.g. Film)
   _____ Study Space

Exhibit 2.

Accompanying explanatory sheet.

4. How many items did you check out during this visit to the library? _____

5. Did you ask for assistance from the library staff? Yes_____ No_____

TWO TRICKS FOR COMPLETING THE CARD

1. Note the following special definitions of options in Question 3:

   "Circulating Materials" -- means -- BOOKS THAT CAN CIRCULATE

   "Other Non-Circulating Materials" -- means -- REFERENCE BOOKS, GOVERNMENT DOCUMENTS, RARE BOOKS, MAPS, MANUSCRIPTS

   "Study Space" -- means -- CHAIRS USED

2. If you have any problems or questions concerning this card, note them on the back, and tell the SURVEYOR as you leave.

Thank You For your Care And Cooperation

****
*****

data-gathering instrument called a "Circulation Distribution Form," which a staff person at the circulation desk was to fill out whenever items were checked out, as a cross-check on the information gathered by the questionnaires from the users.

Three different types of libraries served as testing sites for this pilot study, chosen to gain experience and information from a geographical and institutional variety of academic libraries. Library A in a university has a large collection serving undergraduate and graduate students' needs, in the urban, industrialized, northeastern part of the state. Library B represents the smaller, private, four-year colleges, and is located in the hills of northwestern New Jersey. And Library C is a recent public facility near Atlantic City. With this institutional spread we hoped to obtain a preliminary representative sample of academic libraries in the state.

In order to check for the compatibility of our data with other findings, and to get perspective on the instruments, we conducted a short review of some related literature. The most closely related work was done by Mount and Fasana at Columbia University Libraries.[1] In their "User Survey" they also used a self-administered questionnaire.

III. The Validity of the Instruments

A. The sample

The sample consists of 754 visits to the three chosen libraries (see Table 1.). Each library had its own particular difficulties in administering the survey, but the intent was to distribute the questionnaire during periods when non-affiliated users were most likely to come--

Table 1.

Responses to the questionnaire by affiliated and non-affiliated users, compared with the estimated total number of users in the libraries at the time of the surveys.

Library	Date of Survey	No. of Responses from non-affiliated users	No. of Responses from affiliated users	Total No. of Responses	Non-aff. R. as % of total R.	Estimated total no. users during survey	Response rate of estimated total
Library A	10.25.75	24	124	148	16%	292[b]	51% ?
	10.26.75	46	225	271	17%	383[b]	71% ?
	11.01.75	14	71	85	16%	380[b]	22% ?
	(TOTAL)	(84)	(420)	(504)	(17%)	(1075[b])	(47% ?)
Library B	various hours over 18-day period	39	144	183	21%	188[c]	97% ?
Library C	one day, date unknown	15	52	67	22%	?	?
Entire survey	Fall 1975	138	616	754	18%	?	?

a) These are estimates based on independent counts at two of the three libraries tested.
b) These are the figures from the door-checker's count.
c) This figure is based on numbering that Library B's staff put on the questionnaires and the "Circulation Distribution Form."

evenings and weekends, generally. Thus the sampling technique was intentionally biased to favor non-affiliated users, by means of the special times it was conducted.

We cannot be sure what the response rate for the entire survey was, but based on door-counts at Library A apparently 47% of the users of the library completed the questionnaires, during the three days that the survey was run. Based on annotations appearing on the "Circulation Distribution Form" from Library B we may guess that all of 97% of the library's visitors completed a questionnaire. The reason for the discrepancy between the two response rates is twofold--the larger number of visitors to Library A and the presumed greater meticulousness in administering the survey at Library B. These figures compare with an approximate 38% response rate to the Columbia "User Survey."[2]

The coding of the responses involved grouping all users with any direct affiliation with the supporting institution into the category of 'affiliated' users, per our operational definition. The remainder of course fell into the other category, 'non-affiliated' users, who accounted for 138 responses, or 18% of the total sample (Table 1.). Of this non-affiliated group, 68 (50%) indicated that they were male, and 69 (50%) that they were female, one person not responding. Approximately half (67, or 49%) were students at other academic institutions, and 20% (27) were professionals (Table 2.). And of the 27 professionals and 2 alumni, 13 stated they were either teachers or faculty elsewhere. These figures, combined with the 12 students in high school or under, show that a substantial majority, 92 (67%), of the non-affiliated users of academic libraries are themselves directly related to another educational institution, either as students or as teachers.

Table 2.

Occupational categorization of the non-affiliated library users in the sample (Question 2).

Category	Library A	Library B	Library C	Entire Survey	% of total Non-aff. users
Alumni	2	–	–	2	1%
Non-affiliated academic students	36	20	11	67	49%
High school students, or under	1	9	2	12	9%
Professionals	19	6	2	27	20%
Other white collar	8	2	–	10	7%
Blue collar	2	–	–	2	1%
Homemakers	2	–	–	2	1%
Retired, unemployed	1	–	–	1	1%
Unspecified 'other'	13	2	–	15	11%
TOTAL	84	39	15	138	100%

B. The measuring of separate uses of library materials

One of the hopes of this pilot study was to count the number of individual uses of individual items. Question 3 was designed to analyze use within the library of different information forms and materials. On the other hand Question 4 asked simply how many items, of whatever form, were borrowed for use outside the library. Question 3 proved too demanding for most of the library users: only 254 (37%) of the 687 respondents to Question 3 gave a specific number in their responses (see Table 3.). The rest, 433 (63%), merely indicated their use with a check mark. By contrast, the very direct and simple form of Question 4, "How many items did you check out during this visit to the library?", elicited a numerical response from 226 (99%) of the 229 respondents to the question. But a tiny number apparently misread even this question, responding 'once', perhaps thinking that the question asked, "How many times did you . . . ?" Generally speaking, simpler

Table 3.

Quality of response to a complex and demanding question (Question 3).

School & Survey	Non-affiliated responses: Check Mark R.	Numbered Responses	Total R.	Numbered R. as % of total R.	Affiliated responses: Check Mark R.	Numbered Responses	Total R.	Numbered R. as % of total R.
Library A --1	10	13	23	57%	69	47	116	41%
--2	29	10	39	26%	136	65	201	32%
--3	8	5	13	38%	34	32	66	48%
(TOTAL)	(47)	(28)	(75)	(37%)	(239)	(144)	(383)	(38%)
Library B	16	20	36	56%	90	44	134	33%
Library C	7	5	12	42%	34	13	47	28%
Entire Survey	70	53	123	43%	363	201	564	36%

(Table 3. is continued on the next page.)

Table 3. (Continued)

Quality of response to a complex and demanding question (Question 3).

School & Survey	All responses to Question 3			
	Check-Mark R.	Numbered Responses	Total R.	Numbered R. as % of total R.
Library A --1	79	60	139	43%
--2	165	75	240	31%
--3	40	37	79	47%
(TOTAL)	(286)	(172)	(458)	(38%)
Library B	106	64	170	38%
Library C	41	18	59	31%
Entire Survey	433	255	687	37%

questions appear to produce better data than involved ones.

Looking at the breakdown of the data in Table 3., we may notice that on the average, the non-affiliated users tended to number their responses to Question 3 more often than the affiliated users (43% versus 36%). Further, the percentages of the sub-groups giving numerical responses varied from 26% to 57%, both extremes from non-affiliated sub-groups. Such variation is hard to account for, yet in the main we might conclude that the non-affiliated users were slightly more cooperative in filling out the questionnaire than the affiliated users, which could mean that the response rate for non-affiliated users was better than that for the others. This would then be a second factor biasing the entire sample of 754 toward over-representation of non-affiliated users.

Yet even when the estimated response rate is high, as the 97% at Library B, and when numbered responses are the rule, as for Question 4, we still cannot completely trust the data. Table 4. gives a comparison of the data collected by the two separate instuments, the questionnaire and the "Circulation Distribution Form" filled out by library staff at two libraries. In the case of Centenary, the questionnaire indicated that 120 items were checked out, but the "Form" itemized 145, a difference of 25 items--and this at a library where the staff has been meticulous and the sample small! If we assume that the "Form" has the correct figure, then the questionnaire measured only 83% of the external circulation that actually took place during the survey period.

But we have difficulties even assuming that the "Circulation Form" represents an accurate picture. In fact we are sure that it doesn't, in the case of the second day's survey at Library A, when the "Form" noted only 83 external circulations, yet the questionnaires provided a total of 161! So at times, not only do some questions ask too much of library users, but also some forms expect too much of library staffs. The third library did not return the "Circulation Distribution Form." The problem of the inaccuracy of both instruments is a function of their self-administered nature.

A further cross-check of the two instruments is shown in the part of Table 4. entitled "Visitors who checked items out." For the two reporting libraries, if we look at the number of visitors who said they checked something out (as opposed to looking at the number of things they checked out), we see that overall 186 (72%) of the 260 borrowers listed in the "Circulation Form" were picked up by the questionnaire. This gives us a rough idea of the accuracy of the questionnaire, in general confirming our earlier estimate

Table 4.
(Question 4)

Comparison of data from user's questionnaire/ with data recorded by library staff on the "Circulation Distribution Form".

School & Survey	Items checked out			Visitors who checked items out		
	1. Number (from quest.)	2. Number (from "Circ.")	No. "1" as % of no. "2"	1. Number (from quest.)	2. Number (from "circ.")	No. "1" as % of no. "2"
Library A --1	86	193	45%	41	68	60%
--2	161	83	194%	63	29	217%
--3	64	281	23%	28	97	29%
(TOTAL)	(311)	(557)	(56%)	(132)	(194)	(68%)
Library B	120	145	83%	54	66	82%
Total of Library A and Library B	431	702	61%	186	260	72%

of an overall response rate of a little better than 50%.

If we divide the number of items borrowed by the number of borrowers for each instrument, the quotient derived from the questionnaire's data is 2.3 items per borrower, and from the "Form's" data is 2.7. In comparison the average figure in the Columbia study was 2.1.[3] For a figure for just the non-affiliated user, we can only turn to the questionnaire. Thirty-five non-affiliated users said that they took out seventy-six items, for an average of 2.2 items per borrower, compared with 2.1 for "Non-Columbia" borrowers at the Columbia libraries.[3] Turning now directly to individual users, let us cautiously compare affiliated and non-affiliated users by type of library resources that they use, bearing in mind the caveats we have just discovered.

C. The non-affiliated user

Table 5. shows the number and percentage of non-affiliated and affiliated users that used the materials and services polled in Questions 3 through 5. For example, we see that more than half of each group used at least one chair during a visit. Generally the percentages are similar for each group, showing that in terms of patterns of use during a given visit, non-affiliated users do not differ much from affiliated users. The only really noticeable difference is in the use of reserve materials, and a slight difference in proportions using circulating materials in the library, and checking out materials.

For the ninth category in Table 5., users that checked out materials, by simple arithmetic we can calculate that the 35 non-affiliated users represent 15% of all the users who checked out materials. In the Columbia study, "Non-Columbia" users constituted only 10% of those checking things

Table 5.

Comparison of the use of library materials, etc. (Questions 3, 4, and 5) by affiliated and non-affiliated users.

Materials, etc.	Non-Aff. Users (TOTAL=138) No. using Material, etc.	% of Non-Aff. users	Aff. Users (TOTAL=616) No. using Material, etc.	% of Aff. users
1. Newspapers	19	14%	81	13%
2. Magazines	36	26%	140	23%
3. Circ. materials (books)	49	36%	181	29%
4. Reserve materials	7	5%	168	27%
5. Other Non-Circ. Mat.	20	14%	98	16%
6. A-V Hardware	5	4%	17	3%
7. A-V Software	6	4%	16	3%
8. Study Space (chairs)	78	57%	383	62%
9. Checking out mat.	35	25%	194	31%
10. Asking for assistance	33	24%	181	29%

out.[3] Perhaps this is because Columbia has stricter regulations concerning outside borrowing than the three New Jersey libraries surveyed. Performing the same calculation for the tenth category, "asking for assistance", the 33 non-affiliated users that asked, represented 15% of the 214 total askers in the sample, whereas the 880 "Non-Columbia" askers represented 17% of the total of 5,128 who received reference assistance there.[3] Perhaps the greater research depth at Columbia accounts for the greater interest in and need for assistance there.

IV. Summary

Two factors can partially improve the accuracy of our primary instrument, the self-administered questionnaire. Committment by library staff to the surveying effort, and the luxury of taking a small sample from a small population, in combination seem to improve response rate to the questionnaire, and the correlation between circulation statistics and users' testimony. But generally more than half of the academic library users are unwilling to answer detailed questions involving systematic monitoring of their own behavior. But even with these imperfections, library researchers can get fairly reliable answers to simple and direct questions, and can get a sample that will be approximately reflective of a particular category of user. Although this pre-test does not permit us to draw conclusions per se, we can make some fairly sure guesses: the bulk of non-affiliated users are using academic libraries as a function of their educational affiliation elsewhere, and they tend to use the academic library in very much the same way as affiliated users do, with the exception of reserve books, and to some extent circulating materials. These are the 'propositions' that conclude this pilot study.

NOTES

1. Elias 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" (College and Research Libraries, v. 33, May 1972, pp. 199-211).

2. Ibid. Taking their statement on p. 199 that "On a typical day, more than 10,000 patrons enter these libraries," along with the total number of "usable survey forms . . . 15,302" for four days (p. 200), gives an average of 38 usable forms per 100 patrons.

3. Ibid., p. 211. "Appendix 5."