Methodology in Research and Applications

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There is no method of research that is unique to the study of librarianship. At best there are only applications to library problems of methods and techniques that have been found useful in other disciplines. Fact-finding, case studies, determination of cause-and-effect relationships, statistical manipulations—all these have long been established procedures, and their contributions and limitations are as applicable in the sphere of the library as they are elsewhere. Historical investigations of the library, too, must obey the rules of evidence which are observed in the study of any other institution or of societies and states.

Probably any piece of investigation can be formalized in the following terms:

1. Statement of the problem: what basic questions are to be answered?
2. What data are necessary to answer them?
3. What procedures are most likely to elicit the data?

Such questions, especially the first, call for clarification, for definition of terms which make possible the collection of evidence with a bearing on them. Let us assume an investigation into the state of reading of a given group of people. The crucial word is "reading:" for the purposes of this study how shall we define it? Shall we limit it to book reading—and if so, shall it be number of books (wholly or partially read); shall we be concerned with kind of book (problem of classification); and shall we limit it to library reading? Merely to state questions of this kind may result in a revision of the concept of the study, and it will certainly affect the nature of the data to be assembled. There are, of course, numerous other problems to be faced; to mention only one, the problem of sampling. Suppose the "given group of people" is defined as college students. Is the reading (how-

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ever defined) of, say, 300 such students to be regarded as typical of the entire student body—to say nothing of student bodies in other institutions? Are we interested in arriving at an answer that may be generally applied, or that may be accurate only for the small sample included in the immediate study? Significant as these considerations are in relation to the relatively simple problem here suggested, they become infinitely more complex as the problem goes beyond mere fact-finding to the determination of causal relationships; for example, what is the effect of television on reading? Here we have all the questions already suggested plus a lot more on television (e.g., amount of time spent viewing it, kinds of programs seen) plus the crucial question of relating one to the other causally or at least statistically.

The nature of any inquiry will of course determine the methods and techniques employed. We may be interested in opinion, in what a group of people think, and what they tell us—granted accurate reporting—may be taken as evidence. The information constitutes the facts about their ideas and impressions. It may not necessarily be trustworthy for other purposes. For example, a group of persons might think that close classification is superior to broad classification and they may even be able to justify their belief by a logically reasoned argument. If what we are interested in is what they think about this aspect of classification, there is no better way of learning it than by getting the information direct from them. If, however, we wish to know whether close classification is actually superior, we shall have to go beyond opinion and raise the question of definition once more: What do we mean by “superior”? Easier location of books (and by whom)? Less costly? Speedier service? Answers to these questions might require elaborate studies of cost, time involved in locating books, and other factors. We may very well find that for some libraries a more costly arrangement is more than balanced by ease of use. For others it may be that their patrons are completely indifferent to classification, particularly if they are denied admission to the stacks. It may even be found that for some libraries, where the catalog serves solely as a means of determining whether or not the book is owned and where it may be located, the fixed location principle is still altogether satisfactory from the standpoint of providing the patron with the book he wants—and is economical in use of personnel and efficient in shelving. Whatever the conclusions, they should be derived from the relevant facts in the case, and these facts must be ascertained in the light of the problem presented.

Library investigations may be of many kinds. In order of complexity
they may range from simple description of a process to a generalization
or even to a law showing the invariable relationship between a cause
and its effect. Between these extremes there are studies which depend
upon the whole panoply of techniques and procedures employed in
any field. These include observation and description, interview, ques-
tionnaire, statistical data from primary or secondary sources, check-
lists, rating scales, and documentary analysis. (Applications of most or
all of these devices are readily apparent in the substantive reports of
research recorded throughout this volume.)

Though a principal aim of research is to arrive at generalization, it
frequently becomes necessary to base a conclusion upon limited evi-
dence; that is, upon sampling. At this point the crucial question is one
of knowing to what extent the conclusions derived from such limited
evidence may be applied to a universe. It is in this sense that the word
"reliability" is used. Data, or a sample, which truly represent a larger,
untapped whole are reliable; the conclusions revealed by the data in
hand are true not only with respect to those data but to the larger
body from which the sample has been drawn. This simple principle is
the basis for opinion polling; and it has been employed in most aspects
of the Public Library Inquiry.

Even before the reliability of evidence is established, however, it
is essential that data satisfy the criterion of validity. Simply stated, this
means that the data tell us what we assume they tell us. An obvious
illustration may be drawn from the field of library reading: Are book
withdrawals equivalent to book reading? We may logically assume
that books withdrawn from a library are meant to be read and in
most cases are read. Therefore we are correct in basing a study of
library reading upon a study of the circulation record. But suppose
we want to know more than this; suppose we want to relate books to
the specific reader; can the borrower be identified with the reader?
Since we know from experience that many borrowers take books for
others to read, it would be hazardous to assume that the borrower
and the reader were synonymous, and the simple data of book borrow-
ing would not bear on the problem. Or to refer to the illustration sug-
gested above, if we want to know whether close classification actually
is superior to broad, opinions as such would not constitute valid evi-
dence. This type of error is not corrected by gathering more evidence
of the same kind, that is, more opinion. It it not a question of too small
a sample but rather a poor one, qualitatively, since it does not bear
on the question at issue. The following comment is relevant:

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It frequently happens that the worker loses sight of the fact that his data are inadequate as to *quantity* and *quality* and applies elaborate statistical methods with the expectation that the final results will be of value. Such procedure, if followed intentionally, has been rightly described as "hiding behind a statistical smoke-screen," and is nothing less than a scientific crime. The limitations of the data employed should always be frankly recognized and the conclusions of the study made with them in mind. No amount of subsequent juggling by complicated formulas can give good results when they are based upon originally faulty data.¹

Since so much investigation in librarianship depends upon information obtained from individuals, either librarians or readers, it is natural that the interview and questionnaire have been widely employed. Both have been criticized, on the grounds that the results are untrustworthy, or that the information sought may be obtained elsewhere and more accurately. Needless to say, such criticism is frequently justified; if data of whatever kind are readily available, particularly in published sources, they should be used; where they are not, the personal approach may be inevitable. But can there be any assurance of accurate responses? In some cases and for some kinds of inquiry the possibility of error is certainly present and should be frankly recognized. The error may be of two kinds: one, deliberate misrepresentation, the other, an honest estimate that does not conform to the facts. Illustrative of the latter is the question: "How many books are in your home library?" The question "How many books have you read in the last x weeks or months?" is frequently difficult to answer accurately, especially if the period for which information is asked is a long one, and if the respondent is a heavy reader. The difficulty is compounded if the question calls for titles of books read in the given period, and the answer, at best, is likely to be incomplete.

It is easy to pick flaws in the interview and questionnaire technique, yet a gigantic investigation based upon it is conducted decennially—the census. Many of its details are faulty and incomplete, yet with all its imperfections the results are invaluable. It is impossible to visualize the compilation of such tools as the various "Who's Who" volumes without the questionnaire. As an instrument for eliciting information the questionnaire is useful to the extent, first, that its questions are clear and unambiguous, so that the subject understands precisely what is asked and the investigator can correctly record the answer; and second, that the questions permit accurate answers and not wild or random guesses. Questionnaires may also be useful for
obtaining opinions or judgments; the results will be useful if the opinion is informed. As someone has said, "A consensus of worthless opinion can be no more than a worthless consensus." But even informed opinion is a far cry from evidence—except as to opinion.

Applications of the questionnaire in library investigation are too plentiful to enumerate. The American Library Association "Survey of Libraries in the U.S." was based almost entirely on an elaborate schedule, and the survey of libraries conducted by the Library Association in Great Britain used a questionnaire as the basis for studying library government and operations in many parts of the world. Though these schedules may be helpful in suggesting types of questions, in the last analysis the individual investigator must develop his own questionnaire in accordance with the requirements of his own problem.

Studies of reading have frequently employed the questionnaire. W. C. Haygood in his study of the New York Public Library readers distributed a form to a large sample of library visitors, and he used their testimony as the basis for his discussion of reading preferences and sources used for acquiring books. Many other studies, cited in B. R. Berelson's The Library's Public, have used a similar technique, though most of them cast a wider net to obtain results. (That is to say, they were not limited to library patrons, since they were aimed at discovering facts about the reader in general rather than the library readers only, as in Haygood's study.)

Another method is that of analyzing library circulation records. This, of course, is regularly done by libraries to break down circulation into adult and children's books and also into the various subject classes. But circulation records may also be used to ascertain the borrowers of specific books and types of books. In C. H. Compton's studies the record was used as the basis of a letter to the borrower and thus the problem of identifying the borrower with the reader was avoided. The advantages in this method over the questionnaire are obvious; nevertheless it has its limitations. For library reading is only part of the pattern of general reading, and the circulation record tells nothing at all about the reading of the great mass who never come into the library; for that matter, it tells nothing about the reading of the library patron beyond the materials borrowed from the library. There is no single technique that will satisfy all types of reading study; each must be developed in accordance with the basic problem under investigation. Thus one might study sales records for establishing book popularity; or the distribution of book club memberships; or the relative popularity of certain magazines in different parts of the country.

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based on subscriptions or newsstand sales. The problem determines the most feasible and appropriate method.

A variant form of the questionnaire is the checklist, designed to simplify the work of the respondent and also to facilitate the compilation of the replies. If one wished to know something about the extent of the reading of best-sellers by a given group, it would be fairly easy to compile the list of books and ask for a simple check to indicate titles read. The checklist has been used as a key to reading interests and very widely in studying library resources. The uses and limitations of lists for the latter purpose have been described in the April 1953 issue of Library Trends.

It is frequently necessary in non-quantitative studies to rely on the judgment either of presumed experts or of persons in a position to make decisions on the basis of personal knowledge. Suppose, for example, that one wished to construct a list of titles in, say, money and banking or Victorian literature that were highly important in their areas of knowledge. Determination of criteria of importance may be all but impossible for the person without more than a superficial acquaintance with the field. He may therefore look to the subject authorities, and he may base his choice of titles to be incorporated on the list on book reviews or on the judgment of authorities. The familiar C. B. Shaw List of Books for College Libraries was compiled at least partially in this way, and other examples of such compilations are numerous. Eugene Hilton's Junior College Book List gives a systematic description of the application of this method. Another example is the compilation of lists in social science used by Douglas Waples and H. D. Lasswell in their National Libraries and Foreign Scholarship. Personal judgment may also be depended upon in rating individual performance on the job. Observation and job-description may indicate what the work consists of and often the judgment of one in a position to know may be crucial in determining how efficiently the work is done.

The interview is quite similar to the questionnaire, and is frequently carried on against the background of such an instrument. Whereas the questionnaire is usually employed to gather information by correspondence, or from a large assembled group, the interview proceeds in an oral, face-to-face conversation. Although the two procedures have much in common, there is at least one important difference methodologically. For the interview, though based on a given set of questions, provides scope for exploring matters that may be mentioned by the respondent, and thus there is opportunity for clarifying, illuminating,
and interpreting certain statements which in a frozen, written form may be vague, ambiguous, or downright inaccurate. Indeed, for some types of investigation the interview is all but indispensable. It would be difficult, for example, to know how the scholar uses the library, how he proceeds from one source to another, and what frustrations and difficulties he encounters, without extended conference. Studies in many aspects of reading and of the administrative process have made excellent use of the interview technique.

Perhaps the simplest approach in any investigation is that of observation—the description of what one sees. Yet observation as a research procedure is never an end in itself. It is undertaken either as the basis for an hypothesis (a guess as to why a situation is as it is) which may then be subjected to further study, or to evaluate a given practice against some criterion or standard or norm. How does the practice compare with what it should be? This approach is particularly helpful in such non-quantitative areas as administration, where a library's procedures and organizational structure may be evaluated in terms of general principles of administration which have been developed in other areas of government or in business and industry.

Another approach to description is through the recording of what goes on by the participants themselves. This is a form of diary, and has been widely used in the job analysis studies that have preceded the construction of classification and pay schedules. Such description may also be used for work simplification or more efficient organization. Again, as with observation, it is plain that description itself is only the first step, and becomes useful only as it is made the basis for further work. Here enters the difficult problem of identifying equivalent tasks, classifying them, and arranging them in a hierarchy of difficulty and complexity.

Experimentation in the scientific sense is difficult in all the social sciences, and no less so in library research. The laboratory approach in its conventional form, with experimental and control groups, does not readily lend itself to the investigation of library problems; however, it may be applied in a before-and-after situation, where all conditions remain constant except one, and also in a comparative situation where all conditions except one are held constant in two communities or libraries. (In point of fact, the two are basically the same, since comparison of results or effects is implicit in both. This is also true of laboratory research in the natural sciences.) Illustrative of the first is the study of the effect of the divided catalog at the University of California. Here the criterion applied was the opinion of a sample
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of the users—faculty and students—on the assumption that they had had an opportunity to use both the dictionary catalog (before) and the divided catalog (after) and could express their reactions to the two. Another illustration is the study of the effect of tilted or sloping shelves on book circulation. Representative of the second, or comparative, approach is the study by J. E. Wert, comparing the effectiveness of the independently housed and the school-housed library branch. Wert realized that the "superiority" of the former had long been taken for granted; that school-housed branches were almost invariably deficient in many respects, but he questioned whether this was inevitable in the fact of school housing. If he could show that it was not inferior in acceptability to its adult community, and if he could further assume that the school-housed branch offered certain advantages in economy of operation and in greater convenience to children, would this not be a strong argument in favor of the much maligned school branch?

Even though Wert's study did not encompass all these factors, it is interesting for its application of method. The problem was to select two communities alike in all major respects, such as education, economic status, general sophistication as shown in magazine reading, and other areas. Each community was served by a library branch, also alike in all respects except the nature of housing. Wert suggested the assumption that if housing made a difference it would be reflected in the community reading pattern and in size of registration. To check the effect on reading, he computed the proportion of all book reading reported in a two-week period that came from a library (i.e., did a community select a larger share of its total book reading from one type of branch or another?) To check registration, he simply computed for each community the proportion of persons (differentiated by age and sex) holding library cards. He found that the school-housed branch proved superior on both counts, even though the differences were not great, and he therefore concluded that a strong case could be, in fact, had been, made for the school-housed branch.

Documentary analysis consists of a study of printed sources or documents to determine the frequency with which certain elements appear. Such elements may be ideas, or words, or symbols; or they may be such matters of form as editorials or footnotes or advertisements. Once more the nature of the inquiry determines the items sought. An early example of the application of the technique is seen in Recent Social Trends, where reading interests at different periods were charted on the basis of a count of the frequency with which certain topics were
treated in the periodical press. (The usual problem of sampling is here encountered.) Waples identifies three types of analysis in this area, seeking

(1) to determine the relative emphasis or importance of the subjects treated in the given publications when classed by date, place, authorship, or other appropriate categories; and sometimes to discover and interrelate the motives or attitudes expressed (sometimes unconsciously) by the symbols employed by writers on a given class of subjects; (2) to determine changes or differences in the styles of selected authors or publications; and (3) to analyze verbal elements for measures of relative difficulty, richness of vocabulary, precision of meanings, and other qualitative differences among publications and their authors.17

Among the studies in this area are those based on footnote citations: the attempt to arrive at the relative importance of different types of publication (books and periodicals), of differences in age, and of differences in language. The studies of H. H. Fussler, C. W. Hintz, Arthur McAnally and numerous others all throw light on these relationships. Additional examples of subject, symbol, stylistic, and verbal analysis are cited by Waples,18 and are regularly reported in Public Opinion Quarterly.

The case-study method pertains to the study of an individual, an institution, a community, or a single group within the community; it may be applied to a library or to a part of it. Yet in science the individual, or particular, is of importance only as it leads to hypotheses of more general application. The biologist studies the frog primarily to determine general characteristics of frogs and, by extension, of physiological structure and process. The physician diagnosing a patient's ills is engaged in case study; such a study is a necessary preliminary to prescription—and the prescription itself is based upon a whole background of medical science. In the same way a library may be studied as a “case” in order to describe its operations; if changes are prescribed or recommended, these flow from judgment based on knowledge of librarianship in general, or of principles found to be applicable and effective in other libraries. The case study itself, however, does not require suggestions for change.

But even mere description implies a selection of the characteristics to be described. How, for example, shall we describe the personnel of a given library? The answer can be given only in the light of what one wants to know. It is altogether feasible to describe physical characteristics; this is not done because the resulting data are not likely to bear on a significant problem. On the other hand, it is quite com-
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mon to describe personnel in terms of their formal education—on the assumption that competence on the job bears a relationship to the educational factor. This assumption itself may be subject to study; one might readily raise the question of this relationship not only in general terms but also in a more restricted (and precise) form; e.g., what kind of education makes for competence in a particular kind of job? Short of stating or implying questions of this kind, description becomes purely fortuitous and can do little more than satisfy curiosity. In relation to Karl Pearson's statement: "The man who classifies facts of any kind whatever, who sees their mutual relations and describes their sequences, is applying the scientific method . . .," E. W. Burgess comments: "There is certainly nothing in this definition to exclude the case-study method from scientific procedure, provided that it involves classification, perception of relationships, and description of sequences." 19

Virtually every investigation in librarianship to some extent uses the case-study method. Whether the method itself results in scientific conclusions depends on what is done with it. If it stops merely with description of a given case, it is description and nothing more; if, however, the description is made the basis for comparison and especially for studying interdependence, the method may be highly significant in arriving at causal relationships and ultimately at basic principles or laws.

Another method long practiced in librarianship is the historical. Library history may be of several kinds. It may consist of the reconstruction of a single institution, tracing its origins and development in time; or it may regard "librarianship" as applied to the general institution, showing how it was brought into being, how it spread, and how it flourished. In either case the history may be a reconstruction of institutional events, or it may relate the institution to the broader social and cultural forces responsible for its creation and evolution. Whatever form it takes, its basic materials are documents. Yet the documents themselves are subject to all sorts of interpretations, touching on their authenticity, limitations, bias, accuracy, and all-round trustworthiness. As Allen Johnson has written: "It is only by resolutely questioning the authenticity and value of sources that a mastery of historical facts can be won. In no field of scholarship does the dead hand of tradition weigh more heavily, for human emotions and passions are often involved in the preservation of this or that interpretation of history." 20

The historical method, as J. H. Shera reminds us, is simply "a system of reasoning whereby the historian proceeds from the inspection
and study of records (or evidence) to an understanding of facts or relationships relevant to the period or problem he is investigating." 21 It may be worth observing that history depends on the existence of such documents; someone recently observed that there must have been numerous wars fought among the ancient Greeks, but only through such accounts as Thucydides' History of the Peloponnesian War are we able to know about them. Many battles lacked their chroniclers, and have been lost to history.

The documents that the historian, including the library historian, uses are of many kinds. Shera lists, as primary sources, artifacts, inscriptions, official public records, official private records, newspapers, and personal sources such as diaries, letters, memoirs, and others. His account of his own investigation is illuminating, showing not only the sources used but the relevance of such materials to his central problem.

The library historian's job essentially is one of immersing himself in the source materials related to his problem, evaluating such materials for relevance and dependability, and establishing relationships. His is the job of reconstructing what actually happened, whether it be library establishment or reading trends.

The survey, either of a single library or of a group of the same general type, is thoroughly familiar and has been especially popular in student investigations. Such surveys employ numerous techniques; they may aim simply at clarifying a situation at a given point in time or they may go beyond to postulate reasons for conditions being as they are, or they may suggest how in future conditions might be changed. The statement of a program for the future, or a series of recommendations or proposals, may result from investigation, but is more likely to be related to a philosophical concept—an idea of how things ought to be. L. R. Wilson's Geography of Reading, 22 for example, examines the state of librarianship nationally, relates this to contemporary social and economic conditions, and concludes with a series of proposals designed to bring about changes in the existing pattern.

Though the approaches to investigation have been considered more or less distinct from one another, many of them are utilized in any large-scale study. The historical approach in particular is frequently employed if only to provide a setting for an analysis of contemporary conditions; the present can be understood only as it is revealed as the culmination of a historical process. Two of the most comprehensive studies of recent years—C. B. Joeckel's Government of the American Public Library 23 and the Public Library Inquiry—devote some attention to historical background, and numerous surveys of individual
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libraries begin with a historical perspective. Joeckel employed legal research as a basis for understanding library structure; documentary analysis to ascertain something of the powers of library boards; and questionnaires and interviews to learn how libraries fare under different modes of governmental regulation. The several elements are logically interwoven, and serve as the basis for certain recommendations concerning a more satisfactory organization of library government than now prevails. The Public Library Inquiry is characterized by its director as falling “into the category of social engineering or applied rather than pure social science research.” And later: “Its task was to organize existing data and to develop relevant new data on libraries, to bring to bear on the library as an institution generalizations derived from the analysis of other social institutions, of social forces and trends, and to evaluate the data for the use of those who play an active role in public library planning.” Since total coverage of all public libraries in the United States was not feasible, and indeed unnecessary, the sampling technique was employed, the sample of sixty libraries being selected to represent institutions of different size and communities of different composition. Beyond this sampling of institutions, the Inquiry sampled the population to learn something of reading habits and library use. The whole study was projected in terms of nineteen distinctive projects, and virtually all the techniques described in this chapter were employed in one or another of them. The major findings, and particularly their implications for the major task of the study—the charting of a logical future for the library in terms of structure and function—are brought together in the synthesizing volume, The Public Library in the United States.

There is obviously no one method of library investigation; indeed, it would be more pertinent to observe that no method utilized in scientific investigation is foreign to research in librarianship. Only as the particular investigation is clearly formulated is it possible to determine what methods are most directly applicable to it. The first responsibility of any investigator, therefore, is to define clearly his aims and objectives, and in the light of such definition to proceed to the collection and analysis of the relevant data. In this process he will employ numerous methods, and his success will depend upon his imagination and skill in using them.

References


18. Ibid., pp. 36-39.


