BASIC RESEARCH METHODS FOR LIBRARIANS

SECOND EDITION

Ronald R. Powell

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Second Edition

Ronald R. Powell

Wayne State University

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Preface

This text is addressed to the practicing librarian who needs to conduct research and publish. It is intended to provide guidance for any librarian who must be able to read and evaluate research reports critically and assist others with their research. It also is designed to be of benefit to the graduate library and information science student.

The book almost exclusively considers basic research methods, as opposed to applied research methods. Its primary purpose is to help teach the skills necessary for a librarian to conduct rigorous, basic research. Yet many of the methods, techniques, and tenets of basic research are relevant for applied research, and a person conducting applied research should benefit from a solid understanding of basic research methods. The librarian wishing to carry out a cost study, evaluate the performance of his or her library, or survey the library's users will need to be able to apply many of the principles and techniques treated in this book to his or her specific project. The more rigorous the research, the more useful its results, whether it be basic or applied in nature.

The perspective of this work is that library related research should be as sound as any scientific research, and basic concepts are presented accordingly. A second viewpoint is that the conceptual development of a study is as crucial to its success as are the specific techniques employed in its conduct. That too is reflected in the contents of the text. The methods presented are applicable to most social science research, but the illustrations and applications presented throughout the text are specific to library settings. Quantitative, rather than qualitative, methods are generally emphasized throughout the volume.

The book first discusses the role of research in librarianship and then considers the major steps in the development of a research study. Following that, it focuses on three major research methodologies—survey, experimental, and historical—with extra attention given to sampling procedures. Chapters on data analysis, research proposals, and research reports conclude the text.

This text is not intended to be a cookbook for conducting basic research in library and information science, but it does attempt to introduce the researcher to the major issues involved in conducting basic research and to present the basic information needed to conduct research effectively. Neither is the text meant to stand alone. There are a variety of textbooks and other resources which the reader should consult, and referral to standard texts on statistical analysis is recommended. This book is an introductory presentation of basic

research methods, and the reader wishing to become an accomplished researcher should not stop here.

It is not a simple matter to conduct rigorous research, but it can be interesting, enlightening, and rewarding. It is hoped that this book will help and encourage librarians to become more active and productive researchers.

The second edition of *Basic Research Methods for Librarians* represents a general revision and reorganization of the first edition. References to other sources were updated and additional works cited where appropriate. The chapter on historical research was expanded to include sections on "library history" and bibliographical research. Other types of research, such as comparative and qualitative, also receive more attention in this edition.

The author wishes to thank his research methods students, whose reactions and input have helped in the refinement of the material presented in this book. He also is indebted to the research methodologists whose ideas are reflected in this text.

CONTENTS

Chapter 1

Research and Librarianship

THE RESEARCH RECORD

The research record for librarianship is uneven. Those who have assessed the previous research of librarians have been of a consensus that the quantity and quality leave something to be desired. "A little more than a decade ago, Ennis described library research as 'noncumulative, fragmentary, generally weak and relentlessly oriented to immediate practice'" (Grotzinger, 1981, p. 44). But that is not to say that there has not been a substantial amount of good library-related research. In addition, most observers seem to be of the opinion that library-related research of late has shown improvement with regard to its rigorousness, sophistication, and incorporation of statistical analysis. Yet they also seem to agree that there continues to be room for improvement.

This work will concern itself only with the recent record of library research. Readers wishing to learn more about the history of library science research may wish to consult Jackson's (1976) brief history of research in librarianship in the United States and Canada, or Busha's (1981) review of the past status of library science research. For more of a British perspective, one can turn to Lynam, Slater, and Walker's (1982) report on research sponsored by the British Library Research and Development Division.

Definition of Research

There is no one definition of research, in part because there is more than one kind of research. Considering research in the general sense, *Webster's Seventh New Collegiate Dictionary* defines it as "studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical applications of such new or revised theories or laws." Hillway (1964, p. 5), in his introductory text on research methods, defines research as "a method of study by which, through the careful and exhaustive investigation of all the ascertainable evidence bearing upon a definable problem, we reach a solution to that problem." Mouly (1978, p. 12) states that "Research is best conceived as the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis, and interpretation of data."

These general definitions suggest that there are at least two major types of research, one of which is *basic research.* Basic research, also referred to as pure, theoretical, or scientific research, is primarily interested in deriving new knowledge and is, at most, only indirectly involved with how that knowledge will be applied to specific, practical, or real problems. Or, as Vickery (1975, p. 158) stated, "Scientific research...is concerned with elucidating concepts and their relations, hypotheses and theories, and is not necessarily and certainly not directly related to technical and practical problems." It is sometimes labeled as research conducted in order to acquire knowledge for its own sake, but, as will be argued later, that probably is a simplistic viewpoint.

The second major type of research is usually known as *applied research.* Occasionally it is referred to as action research, and it encompasses a variety of specific research techniques such as systems analysis and operations research. In contrast to pure or basic research, applied research emphasizes the solving of specific problems in real situations. Much of the library-related research has been applied research dealing with everything from evaluating book collections to adopting automated circulation systems. (See Chapter 2 for additional information on applied research.)

But in spite of the fact that basic and applied research have tended to be conducted in isolation from one another, they are not necessarily dichotomous. As Shera (1964, p. 143) noted, "Research is no less 'pure' for leading to useful results, though it most certainly does not have to possess immediate applicability to qualify as research." In other words, basic research often leads to practical applications, while applied research frequently acts as a foundation for subsequent theoretical or basic research.

According to Mouly (1978, p. 43), "the distinction between pure and applied research is not very clear. All research findings will be useful and practical—sooner or later—no matter how disinterested in immediate utilitarian goals the pure researcher might be. Both pure and applied research are oriented toward the discovery of scientific truth, and both are practical in the sense that they lead to the solution of man's problems." Perhaps, as Muller (1967, p. 1129) argued, the crucial factor is not whether the research is pure or applied but whether it is relevant.

Types of Previous Library Research

According to Shera (1964, p. 145), Ralph Beals once categorized library literature into the tri-partite classification of Glad Tidings, Testimony, and Research, and noted that there was little of the last. Goldhor (1972), in his text on library research, categorized library literature with regard to research as including: one, a relatively small body of published research as defined in the narrow sense; two, a larger amount of published and unpublished services studies, or applied research; three, an even larger number of reports or descriptions of specific situations, or simply opinions; and four, original data.

Garrison (1980, p. 8) analyzed public library research of the 1970s by type, establishing categories for doctoral research, HEA Title II-B supported research, and "other" research. He also analyzed public library research according to costs, facilitating agency, and subject.

As was noted earlier, and as Busha and Harter indicated in their 1980 (p. 8) textbook, the preponderance of library-related research has been applied in nature. Evidence for this conclusion can be obtained by analyzing reports of completed library research. Coughlin and Snelson (1983, p. 21) analyzed the research content of the papers presented at the 1978 ACRL conference and found that one-third of the papers could be considered research papers, while the remaining papers were primarily reports of "How I do it good."

A 1984 issue of *Library Trends* was devoted to research in librarianship, and it reviewed research as related to the history of library and information science, economics of libraries, political science, sociology, psychology of information use, organization theory, public administration, and operations research. This work thus provided a categorization of library research in terms of both methodology and subject. In the first chapter of this issue of *Library Trends,* Mary Jo Lynch (1984, p. 367) identified her own general categories for describing different research activities as practical research, bibliographical research, scholarly research, and scientific research. She characterized practical research as problem solving with information; bibliographical research as reordering the thoughts of others; scholarly research as the systematic collecting, organizing, and analyzing of data; and scientific research as discovering new knowledge.

Mathews (1989), in a recent article, described research performed by the U.S. Department of Education from 1977 to 1988. Along with analyzing the products of the research, she also discussed recent research agenda efforts of the department and implications for future research. McClure and Bishop (1989) provide a useful summary of reports published from 1976 to 1988 related to the status of research in librarianship. Several of the reports contained analyses of the types of research methods utilized during various time periods.

Limitations of Previous Library Research

Unfortunately, the research record for library and information science is not exemplary. It is easier to find criticism of library research than praise. As Busha and Harter (1980, p. 7) stated, "a large proportion of librarianship's research has been uneven in quality and demonstrably weak methodologically..." Shaughnessy (1976) was even more critical in contending that traditionally, the field has permitted much of what is not actually research to be called research. Cuadra (Converse, 1984, p. 236) identified shortcomings in library and information science research so far as purpose is concerned. He noted "a failure to ask the right questions and to establish a proper theoretical

foundation for later research or application."

On what else do these writers and others base their rather negative evaluations of much of the previous library research? Martyn and Lancaster (1981, p. 193) pointed out that much of the earlier literature of library science was too heavily based on opinion, as opposed to investigation, to be considered research. Shera (1964, p. 147) noted that because of library research's "excessive dependence upon local observations and limited data, more frequently than not it is provincial and parochial rather than general in applicability."

Garrison (1980), while acknowledging that considerable advances had been made in public library research in the last decade, went on to itemize several shortcomings of previous research, including the following:

1. Researchers have not disseminated their results adequately;
2. practitioners have not kept up with research results that have been reported;
3. the profession has been too content with nonresearch reports;
4. the audiences for research journals have been too limited;
5. dissertations have seldom had any relationship to previous or subsequent research;
6. the impact of reported research has been weakened due to poor bibliographic control and inadequate availability of copies.

In short, in spite of some progress, there continues to be a need for more and better library-related research. But the limitations of earlier research are not the only reasons for calling for better conducted research. There are a number of positive justifications that can be made for more rigorous research, and in particular, basic research.

THE RATIONALE FOR BASIC RESEARCH IN LIBRARY SCIENCE

Growth of the Profession

As indicated earlier, one of the major purposes of basic research is to create new knowledge. Or, as stated by Mouly (1978, p. 12), "it is the purpose of science [scientific research] to go beyond experience and common sense, which frequently are quite limited and inadequate—and often quite incorrect,...for advancing knowledge, for promoting progress, and for enabling man to relate more effectively to his environment, to accomplish his purposes, and to resolve his conflicts." "And as Horst Kunge has written: 'Learning to master theoretically and in practical application, the ground rules of research creates the best foundation for continuing growth in a profession'" (Busha and Harter, 1980, p. 6).

But perhaps even more basic to the advancement of the profession "is the need for the field to test the various myths, assumptions, rules-of-thumb, and other conventions by which it has operated for so long a time, to link concepts which have been proven through testing to be valid, and thereby establish theories indigenous to the field itself" (Grotzinger, 1981, p. 45). In addition, the profession needs to advance beyond its heavy dependence on descriptive data and establish principles and theories on which libraries and information systems and services can be based (Vickery, 1975, p. 155).

Those concerned about the status of the library and information science profession have commented on the need for more and better basic research. Shaughnessy (1976, p. 44) notes: "Of the two primary marks of a profession—a service ideal and a body of theoretical knowledge—it has been suggested that librarianship possesses the first, but not the second. Theoretical knowledge, as distinguished from knowledge based on practice, is generally developed or discovered through the process of research; a process in which librarianship has not had much of a tradition."

Busha and Harter (1980, p. 4) argued that "If librarianship is to merit the coveted designation 'science,' a significant number of scholars and research workers must regularly apply scientific method to analyze relationships among the problems which librarians are obligated to explore and which they are qualified to serve." In other words, "A profession that would know itself—that would anticipate or, to use Dennis Gabor's phrase, 'invent the future'—must support and engage in productive research" (Shera, 1964, pp. 148–149).

In short, basic research is crucial if the field of library and information science is "to solve professional problems, develop tools and methods for analysis of organization, services, and behavior, to determine costs and benefits of our services, and most importantly, to establish or develop a body of theory on which to base our practice" (Shaughnessy, 1976, p. 51). Unfortunately, as Busha (1981, p. 2) and others have noted, the development of new knowledge within the library and information science profession has traditionally received a relatively low priority.

Management

As has been indicated earlier, basic research has more to offer than the expansion and refinement of the profession's theoretical underpinnings. Much of the knowledge created as the result of basic research is likely to have practical applications for the improvement of practices in actual library operations (Busha and Harter, 1980). Swisher (1986, p. 176) argued that "there is no more important activity than acquiring new information that may now or someday assist in the goal of improving our professional decision making. Assuming the responsibility of practical research is probably the most important role a librarian can accept."

While most research for decision making takes the form of applied research, it typically draws upon the tenets of basic research. McClure (1988, p. 12) recently observed that "applied research takes the theory and concepts from basic research and by formal methods of inquiry, investigates 'real world' phenomenon." In other words, a solid understanding of the basic research process should better enable one to conduct sound applied research. As Goldhor (1972, pp. 1–2) pointed out, "Once one has learned this method [scientific research] he can understand and use any of the less rigorous methods, but learning the latter will not prepare one really to use the former."

Reading Research Reports

Another benefit of having a reasonable mastery of basic research methods is that it should allow one to understand and critically evaluate the research reports of others. According to Swisher (1986, p. 175) "the reader who understands the process of research will question much more about the literature in general, and correctly identify the working limitations of the literature." Some librarians, particularly special librarians, are expected to evaluate or screen research reports (i.e., serve as research intermediaries) for their clientele. Unfortunately, as Sullivan (1978, p. 511) has contended, not only do librarians who are practitioners tend to be too busy and unskilled to conduct their own research, but, more seriously, "they are also either uninformed or unwilling to accept or unable to judge critically the research of others in the field of librarianship." Until a majority of the field's practitioners can understand and apply the research results of others, the profession is not likely to realize much benefit from its research efforts. Numerous writers, including Busha and Harter (1980) and Grazier (1982) have argued for the need to evaluate and apply published research.

Improved Service to Researchers

Yet another advantage to having a basic knowledge of research methods, at least for those librarians who serve researchers, is the greater understanding of the needs of researchers provided by this awareness. Only when the librarian knows the basic process which a researcher utilizes, can he or she fully anticipate and meet those research needs. Or as Engle (1987, p. 629) stated, "A thorough and continuing personal grounding in the experience of learning and research in an academic setting prepares us to join students and faculty in the creative act which bibliographic research can be." In addition, the librarian's status is likely to benefit from being knowledgeable about the researchers' techniques and from being able to discuss them intelligently with his or her clientele. Grover and Hale (1988) argue that librarians should assume a proactive role in faculty research and be viewed as key players in the process.

Personal Benefits

Perhaps most important among the benefits one could expect to realize from a study of research methods is the ability to conduct research. For many librarians, especially in academic settings, research activities are not only desirable but a necessity. More and more academic institutions are expecting their professional librarians to meet the same requirements for promotion and tenure as do their regular teaching faculty, and these usually include research and publishing. If these librarians, and others, are to conduct the kind of rigorous research that they and their profession need, a thorough understanding of basic research methods is absolutely essential.

An awareness of research methods and design also should prove helpful for those preparing research proposals in order to obtain financial support for their research activities. In addition, it has been pointed out that the study of research methods can improve one's ability to think critically and analytically and that a library's involvement in research can improve staff morale and enhance the library's status in its community.

THE FUTURE OF LIBRARY RESEARCH

As Busha (1981, p. 2) noted, past weaknesses of library-related research can at least partially be explained by the fact "that research in librarianship is still relatively young. Clear conceptions of the goals, objectives, and methodologies of library science research are only now beginning to be solidly formulated." It does appear clear, however, that it will become more and more "necessary to use the methodology of other disciplines—in particular, those of sociology, psychology, economics, linguistics, history—and to employ more generally applicable methodologies" (Vickery, 1975, p. 158) in order to study the many problems facing librarianship today.

But who is going to be qualified to conduct the kinds of needed research, how will they be trained, and how will practitioners be equipped to read and utilize their research? Shera (1964, p. 149) provided at least one answer to these questions when he wrote: "Research is too important to be left to dilettantes and amateurs, and its pursuit should be reserved for those who are qualified for it by aptitude, education, and motivation." In short, education appears to be one key to solving the problem. Not only can education provide the basic skills needed for conducting research, but it can help to shape attitudes and supply motivations.

Logically, the major responsibility for imparting research skills to librarians must belong to the library schools. Unfortunately, this is not a universally held view, and the track record of library schools regarding the teaching of research skills is not outstanding (Busha and Harter, 1980, pp. 5,