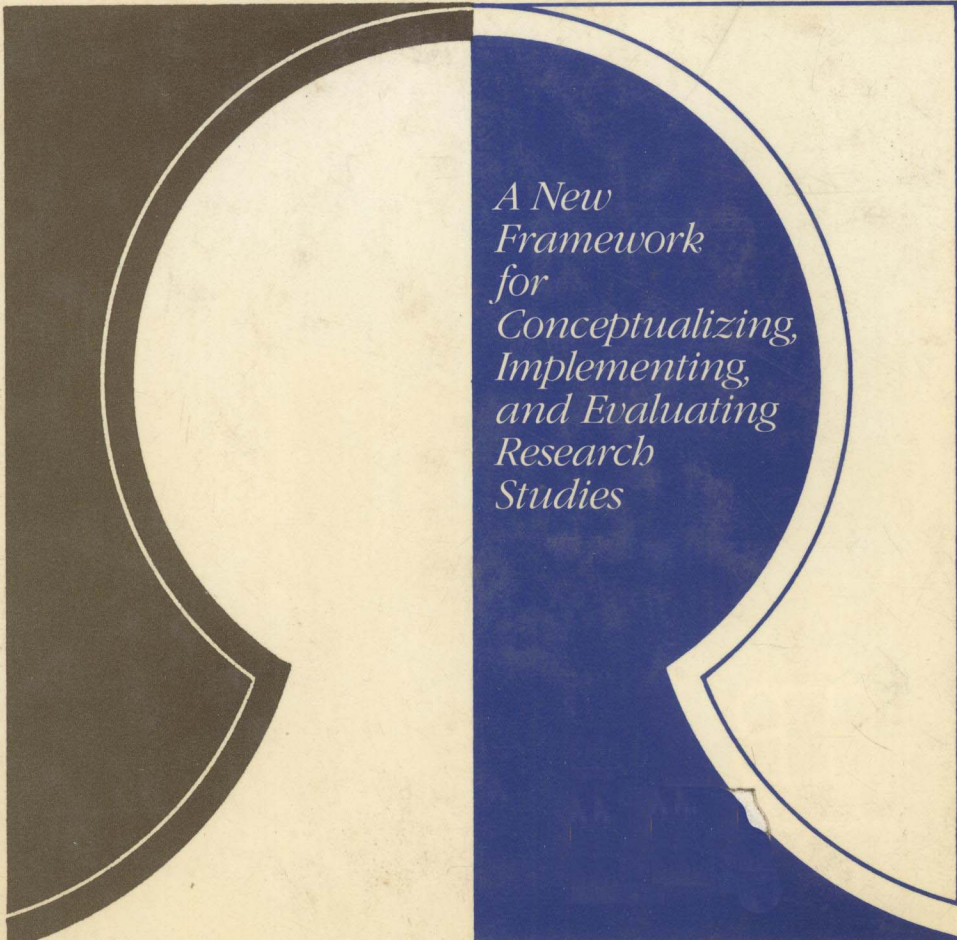# David R. Krathwohl

SOCIAL AND BEHAVIORAL SCIENCE RESEARCH

A New Framework for Conceptualizing, Implementing, and Evaluating Research Studies

Social and Behavioral Science Research

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David R. Krathwohl

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Methodology of Social and
Behavioral Research

Donald W. Fiske
University of Chicago

To my wife,
Helen Jean Abney Krathwohl,
who has so wonderfully increased the level of life's fulfillment
through our shared experiences of family, friends, travel, and work.

Preface

Increasingly, social and behavioral scientists are not just doing research but are also examining the nature of the scientific process itself, and more and more journals are publishing articles bearing on the subject. One index of this growth is the number of references in a given year to Kuhn's *Structure of Scientific Revolutions,* a treatise that did much to spark discussions on "What is science?" First published in 1962, this work was cited 122 times in periodicals indexed in the 1970 volume of *Social Science Citation Index.* The citation rate more than doubled in the 1980 index, and there were nearly 300 citations in 1982. *Science 83,* recognizing this increased attention, described Kuhn's influence in an article titled "Brother, Can You Paradigm," a pun on Kuhn's reference to new paradigms (Pollie, 1983).

There are many possible reasons for this interest. One is the slow accumulation of social and behavioral research knowledge, which has left policy makers underwhelmed by equivocal advice on how to ameliorate social problems. This snail-paced progress has called into question whether our research methods are the best ones for the purpose, whether we adequately understand how to use them, and whether our framework for developing and judging them is adequate. Another reason for the interest is that qualitative research methods are attracting adherents in areas where quantitative methods

have long been dominant. This sparks heated debate on such questions as: Which orientation is better? By what framework of criteria do we judge? Is there more than one standard? Discussions of such basic questions as these make us realize that we have taken much for granted. They drive us to reexamine the bases on which our methods rest, to consider the adequacy of our frameworks for determining what constitutes effective research, and to seek reformulation where inadequacies are found. These questions suggest that there may be alternative views of what the social and behavioral sciences ought to be, with implications for what is considered sound research.

If there are different views of the social and behavioral sciences, one might suppose they would grow out of dialogues about quantitative versus qualitative methods. But since there are positive possibilities inherent in both methods, it is unfortunate that discussions of relative merits have so often sought to extol the virtues of one at the expense of the other. Even when the methods are treated evenhandedly, there has been no unifying framework. Such a framework would do much to put the methods in a single perspective and provide a basis for more productive dialogue about where and how they are best used. That is what this book seeks to do.

The goal of *Social and Behavioral Science Research: A New Framework for Conceptualizing, Implementing, and Evaluating Research Studies* is to contribute substantially to our understanding of how social and behavioral research proceeds—and, therefore, how it can be improved. As the title suggests, the book first *conceptualizes* the process by which findings become knowledge, examining what aspects facilitate acceptance of findings and within what structure decisions are made in planning, doing, and reporting research. The implications of that view for a typology of different research orientations are explored. The implications for *implementing* and *evaluating* research are described as the framework is developed.

The book began as an exploration of such basic questions as "What is knowledge?" and "How do social and behavioral scientists contribute to it?" In seeking answers to these questions, however, an analogy emerged—that of the research report as presenting a chain of reasoning analogous to a metal chain. This thinking led to an analysis of those characteristics that make for strong links in a chain, whether of metal or of the chain of reasoning in the typical research report. Further analysis of the research chain resulted in the formulation of an integrated set of research criteria—the "framework" to which the book's subtitle refers.

This framework, as well as reconceptualizing such previously recognized criteria as internal and external validity, provides an

overview that shows the optimizing decisions involved in research. The framework includes the questions addressed by past conceptualizations but goes beyond them to offer a more complete picture of the critical decisions made in formulating and implementing a study. The criteria in the framework are intended to fit naturally the way researchers think about their work—how they "carve nature at its joints."

The framework has important implications for conceptualizing, for doing, and for improving social and behavioral science research. Researchers make many decisions that may have unforeseen consequences for the chain of reasoning they are trying to construct. By making the entire set of decisions explicit, the framework shows the interdependence of decisions and allows conscious and controlled decision making for the overall benefit of the study. The framework helps one decide where and how to place special effort.

Researchers often do their work "by the numbers," slavishly following what they believe to be the correct steps and lacking the confidence (or maybe not recognizing the need) to adjust their approach to the demands of their problem and situation. A better understanding of the way research findings become accepted as knowledge may put the steps in sufficient perspective to give such researchers enough confidence in their grasp of the overall process that they become free to develop their projects more appropriately.

Additionally, the framework helps make apparent the location and nature of some of the many trade-offs in research as well as the importance of those trade-offs. It gives new emphasis and meaning to some underemphasized aspects of research, provides new tools for analyzing research, and helps develop a sharpened sense of what is important in reporting it.

This book is designed for all social and behavioral scientists, those in basic disciplines, such as psychology, sociology, anthropology, and political science, as well as researchers in applied behavioral science fields. It is intended both for seasoned professionals and for those still studying or just beginning their careers in the social and behavioral sciences.

Beginning professionals will find this book an especially useful adjunct to research methods books. It provides a perspective that is broader and deeper than do books that are more concerned with providing the details and niceties of method. While in draft form, the book's overview has been supplying the conceptual cement integrating three conventional methods texts dealing with qualitative, quantitative, and statistical methods in a two-semester research methods sequence I have been coordinating. This book also includes a discus-

sion of the important concept of causation, another typical casualty of the press of details.

A note about terminology: Although I am addressing all social and behavioral scientists, I have chosen to use the term *behavioral science* by itself throughout the book. The abbreviated form is less cumbersome (the primary virtue of its use); it does not exclude the other social sciences.

Overview of Contents

The book begins with an Introduction that summarizes the major points in a series of twenty statements. These statements orient readers to where they are in the argument as it progresses and also indicates where the argument is going. At two places in the book I suggest a rereading of the introduction as a way of fitting material into the broader context.

Chapter One seeks answers to such questions as "What is knowledge?" "What is science?" "How is it different from other ways of knowing, and how does it contribute to knowledge?" It notes the social character of knowledge building. Although the researcher may make a judgment that the research is new knowledge, its acceptance as knowledge requires a consensus. Therefore the scientist is in the business of creating a consensus about the interpretation of evidence.

Chapter Two takes the process a step further. It contrasts the discovery phase of research—a not-to-be-circumscribed creative act—with the validation, or confirmation, phase. In the latter, the expectations of the scientific establishment very strongly influence how one presents the knowledge claim. Research as a layperson might do it is explored and found to have direct parallels to what a behavioral scientist would do. It is in this chapter that I develop and explore the conception of the research write-up as a chain of reasoning analogous to a metal chain.

Chapter Three begins the process, which extends through Chapter Six, of examining the research chain of reasoning to determine by what criteria the successive links in the chain are judged when a researcher presents a generalizable knowledge claim. Chapter Three explores two key criteria: the characteristics of a study that enable one to demonstrate (1) that variables are linked in a relationship and (2) that the relationship has generality. The power of a study to show the linkage of the variables is its internal validity (linking power). Abbreviated as "internal validity (LP)," it is a relative of, but broader than, the currently used concept of internal validity. Similarly, the power of a study to show the generality of the relationship is its

external validity (generalizing power), abbreviated as "external validity (GP)," which is also similar but not identical to its current criterion namesake, external validity. Each of these broader concepts is shown to depend on a series of five judgments.

Chapter Four develops in some detail the nature of the five judgments that make up internal validity (LP). It shows that they are a set of sequential judgments and explores their practical implications. One of the five judgments consists of four subjudgments, and these are also detailed. Chapter Five provides the same treatment for the five sequential judgments that make up external validity (GP). Chapter Six embeds these two concepts in a larger framework of criteria and describes the constraints within which one must work. This larger framework makes clear that, because of the conflicts among the criteria and the typical shortage of resources to conduct research, one typically finds it impossible to completely satisfy all the criteria simultaneously. Therefore one maximizes or optimizes overall satisfaction across the set: problem formulation, weighting internal validity (LP) and external validity (GP), building audience credibility, information yield, and resource allocation.

Having so far proceeded as though everyone subscribed to the same criteria ignores the differences in method and outlook noted at the outset—differences between quantitative and qualitative methods, for instance. Chapter Seven rectifies this omission by presenting a typology of orientations to what the social and behavioral sciences ought to be and how they are best developed. This typology was stimulated by and is in part based on the work of Mitroff and Kilmann (1978). Each of the types is described in terms of its guiding principle, its view of the nature of behavioral science knowledge, its criteria of excellence, its preferred research method, persons who exemplify the type, the role of values, its strengths, and its weaknesses.

In Chapter Eight the typology is related to the criteria described in previous chapters to show which criteria each orientation emphasizes. Chapters Seven and Eight provide new tools for social and behavioral scientists who have long suspected such differences but may not have had a framework that sufficiently articulated them. These chapters help one understand researchers' criticisms of one another's studies. As perceived by different orientations, the strengths and weaknesses of various methods become more apparent.

Chapter Nine is devoted to causal explanation, a concept routinely used in research methods books but rarely examined in them. The chapter begins by showing why some have suggested that the concept be abandoned, describing some of its complexities. A wide variety of relationships can all be considered causal even though we

usually consider simply that "a cause results in an effect." The discussion of the way some of these different types of relationships show up in data alerts researchers to new possibilities to look for in ferreting out the meaning of data.

Chapter Ten, using the checklist that forms the Appendix, applies the framework to a quantitative and then to a qualitative study. This analysis demonstrates how the criteria apply to both as well as having separate implications for each. It also indicates the applicability of the framework to both causal and noncausal studies. The checklist should be especially useful to individuals constructing research proposals, to those seeking to improve existing ones, and to researchers structuring and presenting research reports.

Chapter Eleven relates the formulation in this book to its predecessors (Campbell and Stanley, 1963, and Cook and Campbell, 1979) and to Cronbach's concept of reproducibility (Cronbach, 1982). Similarities and differences are delineated and the advantages of the proposed formulation are suggested.

A concluding statement summarizes what has been attempted.

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Archimedes is supposed to have said, "Tell me where to stand and I will move the earth." It is hoped that this book can provide a place where readers can stand and from which they can gain a perspective on the research process that provides leverage for improving the social and behavioral sciences.

Syracuse, New York David R. Krathwohl
March 1985

The Author

David R. Krathwohl is Hannah Hammond Professor of Education at Syracuse University. He received his B.S. degree (1943) in psychology and his M.A. (1947) and Ph.D. (1953) degrees in educational and psychological measurement and evaluation, all from the University of Chicago.

Krathwohl's research and writing were in the field of measurement and educational psychology until he became dean of the School of Education at Syracuse University. After leaving the deanship, he has worked largely in the field of research methods, with some writing in evaluation.

He has written a number of journal articles, but his most cited work is the *Taxonomy of Educational Objectives*. He was one of the authors of the *Cognitive Domain Handbook* (1956), edited by Benjamin S. Bloom, and was senior author, with Bloom and Bertram Masia, of the *Affective Domain Handbook* (1964). The handbooks have been translated into seven languages.

Krathwohl is a former president of the American Education Research Association and currently serves as its editor-at-large. He is also a former president of the Educational Psychology Division of the American Psychological Association.

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