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Principles and Methods of Social Research

Dedicated to our mentor, Donald T. Campbell

PREFACE

We wrote our first book on research methods fresh out of graduate school. Having both trained at Northwestern University under the watchful eye and, at times, thumb, of Donald Campbell, we were heavily invested in the experimental method, and the particular mindset that Campbell and Stanley (1966) had championed in their classic monograph, *Experimental and Quasi-Experimental Designs for Research.* It seemed to us then that the most certain avenue to advance in the social sciences was via the experimental road. In some ways, we still adhere to this proposition. Despite a host of worthy competitors, we believe the experiment remains the single most certain method to uncover causal relationships. Further, the experimental model provides a useful standard against which to evaluate the quality and utility of research findings based on non-experimental techniques. As a reference point, the experiment is useful even in settings that do not admit to the experimental method.

At the same time that we learned and absorbed the critical importance of experimental techniques, we were learning about the developing quasi-experimental approaches, which Cook and Campbell (1979) elaborated so elegantly, and which in no small measure helped establish the sub-field of evaluation research. In so doing, development of the quasi-experimental approaches also contributed to the developing recognition in the field that applications of our methods in socially relevant field settings was not an unworthy activity. In this book, we discuss the research emphases that have developed on the basis of hard thinking about experiments and their limits, their potential for social good, their application, and their misapplication.

That the experiment is not the *only* method available to social scientists is abundantly clear, perhaps more so today than yesterday. Similarly, the strict conditions that govern the appropriate use of the experiment are perhaps more obvious and accepted than in earlier times in the field. And yes, we recognize more clearly now than before that features inherent in the method itself can cause serious problems in inference, if not controlled. These issues have become increasingly central features of methodological disquiet over the years, and this ferment has been beneficial. The apprehension regarding the proper use of the experiment, its weaknesses as well as its strengths, reflects the developing

sophistication of the research enterprise in the social sciences in general. We would like to think that our earlier volumes on research methods played a role in this process, though there is little evidence, experimental or otherwise, to support this contention.

With new developments over the years, the primacy of the experiment as the central tool of the social researcher has eroded. Now, we are better armed in our quest for scientifically sound understandings, with an ever-greater diversity of methods and techniques. The new methods we can bring to bear on an issue of social-scientific interest have expanded almost exponentially over the years, and this expansion has helped create the avalanche of new knowledge we are attempting to absorb and integrate. In large part, these new approaches and, at times, new ways of thinking about methods, motivated this revision of our methods text. The idea that research methodology is static is simply not supported by any evidence. To be sure, the fundamental principles of logic and proof have not changed much over the last millennia or so, but the methods that translate these principles into action, into trustworthy research data, continue to evolve at a rapid pace. Keeping abreast of the methodological possibilities now available to the social scientist is difficult, but not impossible. This book provides one avenue for such an updating.

Given the continuous development of the field, a feature of this book that may well keep it more current and useful than one might originally assume is our focus on understanding the principles that govern the use of a particular method, rather than on understanding how a given method can be used to answer a specific question. This book is more about *why* than about *how*—it is, as we stated in an earlier volume, a book *about* methods, not *of* methods (Crano & Brewer, 1986). Over the years, it has become obvious to us that researchers who understand the principles governing a particular approach produce better research than researchers who know "how to do it," but do not clearly understand why. It is for this reason that we do not provide detailed statistical computations to accompany each of the many methodological approaches we present. Such presentations focus on the *how*, rather than on understanding fundamental principles. In our experience, students learning a new method are better served by focusing on the method itself, understanding its logic, strengths, weaknesses, and the appropriate contexts for its application. This approach pays greater dividends than one that requires hours in a computer lab performing a series of calculations whose underlying mathematics is not well understood. We do not mean to undervalue proper statistical training. It is indispensable. But in the spirit of first-things-first, we are committed to the proposition that proper methods facilitate proper analyses, which in turn foster proper inference, which may produce better understanding. Using good statistics on methodologically suspect data usually does not accomplish much.[1]

There never has been a single, *right* way to support a position. Today, with the multitude of available methodological possibilities, this proposition is more true than ever. Researchers with a command of their techniques are more likely to be able to act in the methodologically opportunistic manner that is necessary to respond to ever changing research demands and contexts. Sometimes, natural, unplanned occurrences provide important venues for studying important issues. A state's imposing a 3-strikes law on habitual criminals, the rolling electrical blackouts in California, a hurricane, flood, or fire, provide the context to study issues of social importance, if the researcher is creative and opportunistic *and* has the variety of methodological skills necessary to move from one setting

[1] At points in the book we do provide formulae, calculation directions, etc.; however, we do this primarily to enhance the usefulness of a method, or to provide the reader a better picture of a technique, thus allowing for a deeper understanding of the technique itself.

to another without losing track of the question at hand. Understanding the principles that serve as the foundation for various research techniques, which, in effect, are the expression of the principles, allows the researcher to move seamlessly from one context to another without breaking stride. This is why we have stressed principles so strongly, even when discussing particular applications. We do not diminish the value of learning research by doing it. Indeed, we believe strongly that to become a good researcher, one must *do* research. However, in doing research, a continual focus on the principles that underlie the particular research technique in use should always be at the forefront.

Our focus on principles, and the diversity of techniques covered here, of necessity, opens this book to a broad range of social scientists. We created our original book on methodology to help train social psychologists. However, over time, along with the field, we have developed a much broader methodological orientation. Today, social psychologists are fundamentally *social scientists*, and must be conversant with the research techniques that formerly had been the purview of cognitive science, communication research, sociology, and political science. In addition, the widespread participation of social psychologists in more applied areas—evaluation research, marketing, organizational studies, and public health—has required that we expand our coverage appreciably. This expansion reflects the reality of the new demands that are now placed on the competent social scientist. We believe that the broad coverage makes this book appropriate for all of these specialties—that psychologists, communication scientists, evaluators, marketers, even public health trainees will find much of utility in our presentation.

We constructed this book, like our earlier ones, to foster our emphasis on principles. The beginning section of the book is concerned with the process of fitting methodological designs to research aims, and with the fundamental issues of reliability and validity—issues that lie at the heart of all scientific investigations. The material of the first three chapters is elemental; it must be considered in any research endeavor, no matter what method is to be employed.

The second section concentrates on fundamental research design strategies. We first consider the laboratory experiment. Then, using the laboratory experiment as a point of reference, we discuss field experiments, correlational designs, including structural equation models, quasi-experiments, and survey designs. The principles of each method are linked back to those that form the logical foundation of the experiment. In this way, we can illustrate the strengths and weaknesses of each design relative to a common (gold) standard.

We focus the third section of the book on data collection techniques, including systematic observational methods, content analysis, and scaling, along with methods for assessing dyads and groups, and measuring implicit thoughts and feelings—social cognitions. These various data collection techniques are all commonly used in one way or another across the social sciences, and a good understanding of their requirements allows readers both to judge the quality of studies using them, and to design studies of their own.

The final section of the book contains chapters on meta-analysis—the quantitative synthesis of research results across many studies—and on the social responsibility and ethical requirements of the social research methodologist. This last chapter probably should have been the first, because its counsel and requirements must inform all research, from beginning to end. This chapter is meant to sensitize readers to the enormous power the researcher wields, and counsels concerned moderation in its application. We believe that the ethical issues that we face in our day-to-day research lives are relatively consistent across methods. The ethical principles we adopt as researchers, that is, should govern our actions, whether they take place in field or laboratory settings. The details of time and context and research issue are in some ways immaterial to the underlying ethical principles, which should guide

our actions in any venue. To make this point most forcefully, we have written a separate chapter, which should serve as a strong point of reference for the researcher, rather than providing a series of ethical caveats that are spread thinly throughout the various chapters of this book.

There is no doubt that the material we present is at times difficult, but the book's structure will help mitigate the difficulties that otherwise might arise. The first chapters in each section are fundamental to all that follows, and were developed to serve as general introductions to the sections. We have presented this material as clearly as we know how, avoiding unnecessary complications. We believe that conscientious students will not have trouble understanding the material. This is not to say that we have oversimplified the complexities of the information contained here. To have watered-down the presentation would have presented a misleading picture of the dedication needed to produce, even to understand, good research. To assist readers who might wish to delve more deeply into a specific topic, we have appended a list of suggested readings to the end of each chapter. These suggestions enrich the materials presented, and provide a more elaborated treatment of the issues discussed in the chapter.

As in all of our previous methodological writing, we have dedicated this book to our common mentor, Donald T. Campbell. Our dedication represents more than merely a pro forma nod to a good and famous man. Rather, it reflects a true appreciation for a person who made an enormous impact on the social sciences in general, and on our own lives in particular. Campbell conveyed the sense of mission, of the importance of our work as social scientists, while at the same time insisting by deed, more than by word, that the work should be fun. He encouraged us to pursue our individual substantive interests, and enabled those pursuits by providing us a powerful methodological foundation. This foundation has served us well over the years, and we are hopeful that this book might help supply the beginnings of a similar underpinning for at least some of its readers.

Campbell always encouraged us to approach a design or a result with a healthy skepticism. As scientists, it pays to be skeptical, but this sense should not drift into cynicism, a constant danger that must be avoided. As skeptical social scientists, we are aware of the many demands that must be met before a result or method is adopted; as cynics, the problems are always insurmountable, the demands never met, the results never of value. A skeptical methodological mindset fosters progress by motivating us to find better ways to investigate important issues; the cynical mindset prevents us from trying. Not trying is the polar opposite of the sermon Campbell preached.

In addition to Don Campbell, many others—too numerous to mention—have played an important role in the development of this book. We are happy to acknowledge at least some of their contributions. We are especially grateful to Dr. Radmila Prislin and Dr. Michele Alexander, both of whom read and commented on the entire volume and provided valuable suggestions for updating this revision of our text. Their encouragement and at times, challenging observations, helped us develop a better final product. In addition, we are grateful to Lawrence Erlbaum and our editor Debra Riegert for encouraging this project and making room for a new edition of Crano and Brewer in their methodology series.

Finally, and as always, we thank the members of our respective families—Suellen and Christine—whose encouragement and understanding throughout this entire process were a constant part of the psychological landscape.

Principles and Methods of Social Research

Contents

PART

I

Introduction to Social Research Methods

CHAPTER

1

Basic Concepts

When two American astronauts landed on the moon in the summer of 1971, their activities included an interesting and, for some, surprising demonstration. They showed that when the effects of friction are eliminated, a light object (a feather) and a heavy object (a hammer) will reach the ground at the same time when dropped simultaneously from the same height. This verification of a basic principle of high school physics delighted many viewers of the live televised broadcast, but probably few of them considered the fact that for hundreds of years before Galileo (who is thought to have predicted this outcome originally), Western scholars had accepted Aristotle's hypothesis that heavy objects would fall faster than lighter ones. For most of us, Aristotle's assumption seems intuitively correct, even though we know that it is contrary to scientific theory and empirical fact. Not all scientifically demonstrated phenomena contradict "common sense" intuitions in this way, but this case serves to illustrate the difference between science and intuition as bases of understanding the physical and social world.

The emphasis on subjecting all theoretical concepts, hypotheses, and expectations to empirical demonstration—that is, of testing our ideas—is basically what distinguishes the scientific method from other forms of inquiry. And the principles of scientific methodology, which lend structure to the manner in which such inquiries occur, is what this book is all about. More specifically, this book is intended to represent broadly the methods that have been derived from basic principles of scientific inquiry and to show how they apply to the study of human cognition, affect, and behavior in its social context.

Science and Daily Life

It is important to understand that the research principles and techniques presented throughout this text are not reserved solely for the investigation of scientific theories. At issue, in many instances, are questions of a more personal nature—the consensus surrounding one's personal beliefs, the relative quality of one's performance, the wisdom of one's decisions—and in these circumstances, too, the application of the scientific method can prove useful. At first glance, using scientific principles to guide one's own decision-making

processes (or to judge the quality of their outcome) might appear somewhat extreme; however, in light of much current research on human judgment that demonstrates the frailty of our decision-making powers, such an approach makes good sense, especially when issues of personal importance are involved.

The susceptibility of people's judgmental processes to a host of biasing influences is well documented (e.g., Dawes, 1988; Kahneman, Slovic, & Tversky, 1982; Nisbett & Ross, 1980). Research suggests that it is risky to depend solely on one's own opinions or intuitions in evaluating the quality of a judgment or an attitudinal position. If Aristotle could be fooled, imagine how much more likely it is that *we* can be mistaken, especially in situations in which we are highly involved. To develop an intuitive grasp of the difficulties that can affect the quality of even simple decisions, consider the following scenario (adapted from Ross, Greene, & House, 1977):

> Suppose that while driving through a rural area near your home you are stopped by a county police officer who informs you that you have been clocked (with radar) at 38 miles per hour in a 25-mph zone. You believe this information to be accurate. After the policeman leaves, you inspect your citation and find that the details on the summons regarding weather, visibility, time, and location of violation are highly inaccurate. The citation informs you that you may either pay a $20 fine by mail without appearing in court or you must appear in municipal court within the next two weeks to contest the charge.
>
> How would you respond to the following questions?
>
> What % of your peers do you estimate would pay the $20 fine by mail?___%
>
> What % would go to court to contest the charge?___%
>
> What would you do? Would you pay the fine, or contest the charges?___Pay___Contest

Now consider your estimates of your peers' behavior in light of your decision to pay or to contest the fine. Were these estimates influenced by your decision? Although you might not think so, considerable research suggests that they probably were (e.g., Fabrigar & Krosnick, 1995; Marks & Miller, 1987). In actuality, approximately 46% of those posed with the speeding scenario said they would opt to pay the fine, whereas the remainder opted to contest it (Ross et al., 1977). However, if you thought that you would have paid the $20, there is a good chance that you assumed more of your peers would have acted similarly than if you decided to "beat the rap." On the other hand, those who would have gone to court are more likely to have assumed that more of their peers would have done so too.

The *false consensus effect*, as this phenomenon has been termed, is an apparently common, and relatively ubiquitous, judgmental bias. In the absence of direct information, individuals tend to use their own personal perspective on a situation to estimate what others would do or think. Such a bias, of course, can have a substantial influence on the quality of our assumptions and the propriety of our behaviors. What's more, this bias intensifies as a consequence of the decision's importance. Contrary to what you might expect, the more important the decision (or the belief, or the action), the more likely we are to assume that there are many other people who would decide, or believe, or act exactly as we do (Crano, 1983).

Clearly, our decision-making apparatus is far from foolproof. Like Aristotle, we are inclined to rely heavily, perhaps too heavily, on our own insights, feelings, and interpretations and to assume that other reasonable people would feel and act just as we do. There is no simple solution to problems of this type, but there is an available alternative, namely, to test our intuitions, decisions, and opinions, rather than merely to assume that they are

valid or commonly accepted. The means by which we accomplish such tests are the same as those used in the investigation of formal theory, which, as noted, represent the central focus of this book.

The specific purpose of this chapter is to acquaint readers with the fundamentals of scientific research and to introduce several important themes that run throughout the text. There are a number of controversial issues in the philosophy of science—such as the status of induction or the logical framework for theory verification (cf. Bhaskar, 1978, 1982; Kuhn, 1970; Manicas & Secord, 1983; Popper, 1959, 1963; Secord, 1982)—but these concerns are avoided here in favor of a more descriptive presentation of the "ground rules" of scientific inquiry as agreed to by most social scientists.

The common feature of all approaches to the methods of science is the emphasis on observable phenomena. No matter how abstract the generalization or explanatory concept at the theoretical level, the concepts under investigation must be reduced to, or translated into, observable manifestations. So, for example, the very rich and complicated concept of aggression as a psychological state is translated in the research laboratory to a subject's pushing a button that delivers an electric shock to another. Once this "translation" occurs, the very powerful methods of scientific inquiry can be applied to the phenomena of interest. Often, these methods suggest that our understanding of the phenomenon was not correct, and that we should develop alternative hypotheses or generalizations. These alternatives, in turn, are translated into a new set of "observables," and the process is repeated. From this perspective, the conduct of scientific inquiry can be viewed as a cyclical process, which progresses from explanation to observation to explanation. From hypotheses regarding the nature of a phenomenon come deductions, which guide observations, which affect future generalizations, which, in turn, foster the development of new hypotheses, etc. This chapter explores the phases of this cyclical progression most relevant for social psychological inquiry.

FROM CONCEPT TO OPERATION

Figure 1.1 represents pictorially the translation of theoretical concepts into research operations. In the first phase of the translation process, the researcher's general idea is stated specifically in the form of a conceptual hypothesis. There are many ways that such hypotheses are formed, and we consider some of these in the next section.

Hypothesis Generation

The development of hypotheses is one of science's most complex creative processes. As McGuire (1973) observed, we have been reluctant to attempt to teach students this art, believing it to be so complex as to be beyond instruction. However, by following the lead of some of the field's most creative researchers, we can learn something about the means that they employ in developing their ideas.

One of the most important, and certainly the most widely used, methods of hypothesis generation involves the logical deduction of expectations from some established theory. The general form of hypothesis deduction is:

Theory X implies that B results from A.
We hypothesize that if X is true, producing A will result in the occurrence of B.

There are many factors that prompt us to emphasize the importance of theory in the social sciences, and one of the most crucial of these is the role of theory in the development of