Laboratory Experiments in the Social Sciences
Laboratory Experiments in the Social Sciences

Edited by
Murray Webster, Jr. and Jane Sell
We dedicate this book to the memory of Elizabeth G. Cohen (1931–2005):
pioneer, scientist, and gentle humanitarian.
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*Murray Webster, Jr. and Jane Sell*

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This book grew from our love of experimental methods and our frustration with the lack of published work on them. It seemed to us that experimental methods were routinely mentioned briefly and then ignored in most research methods books. In fact, it is not unusual for books that serve as overviews of social science methods to cite the experimental method as the “gold standard” for assessment of causality and then to assert without evidence that many, perhaps most, questions of interest to social scientists simply cannot be addressed through experiments. While there is impressive literature on statistical analysis of data from experiments, there is much less available on the design, development, and actual conduct of experiments. In fact, if someone were to ask where to go to learn about the philosophy, design, and operation of experiments, we would have been hard pressed to offer a practical suggestion.

Yet experiments have been studied, and there is a great deal of useful information on them and how to do them well; it is spread across a wide range of journal articles and unpublished papers presented at professional meetings, as well as countless “working papers” circulated internally at sites where experiments are conducted. That effectively makes it unavailable to anyone who doesn’t already know the main experimental sites and journals. We hope this book will constitute a useful reference for anyone interested in beginning to use experimental methods, as well as offer information for experienced experimenters interested in learning new techniques or expanding their knowledge of what others are doing with this method.

What might lead to neglect of experimental methods in standard books on research in the social sciences? We think it may be because the method is quite new in most social sciences, and it is often misunderstood. Many social scientists
misunderstand the philosophical foundations of experiments, and many others still believe that experiments are the purview of the natural sciences, not the social sciences. When a new methodology is subject to misunderstandings about its uses and value, it is little wonder that social scientists sometimes avoid it. Even those interested in taking a chance and trying out the method, as we noted above, cannot easily find a good place to learn about it. This book is for them.

Undergraduate courses, and even more so graduate courses in research methods, deal mostly with methods of analyzing data. Many such courses are aimed at someone who has already collected or acquired a large data set from a survey and wants to know how to answer questions from it. What's missing? First, there is nothing on the methodology of acquiring data, whether it be data from well-designed surveys, interviews, observations, or experimental methods. Students are unlikely to learn how to actually collect reliable social science data, and they certainly are not going to learn how to get good experimental data. Second, there is little on appropriate uses of different methods, and sadly, one could conclude from many contemporary courses that, while experiments might look good in principle, in actuality social scientists do not use them.

Most students learn that experiments offer a high degree of control over independent variables and control over the research setting to facilitate observations of dependent variables. They learn about control conditions and experimental conditions and the importance of random assignment of individuals to conditions. They learn that a well-designed experiment permits high confidence that changes observed in dependent variables are associated with (maybe even “caused by”) changes in independent variables. So far, so good. At this point they may be excited about learning how to use this design because of its strengths.

Unfortunately, too often there is more, and some of it can be harmful. Students learn about confounding factors such as history, maturation, testing, and many others, which can mislead investigators who wish to impute causality. Those factors often are presented as if they are inevitable and make it difficult if not impossible to know for sure what happened in a study.\(^1\) To make matters worse, some instructors also show a couple of horrible films depicting unethical social science experiments, and they may talk about the infamous Tuskegee medical experiments.\(^2\) Students can conclude that experiments are complicated

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\(^1\) In 1963, Donald T. Campbell and Julian Stanley published a masterful consideration of potential confounding factors as one chapter in a methodology book. Their chapter is so useful that it was reprinted by itself 2 years later, and it is the standard reference on confounding factors. Oddly overlooked is the fact that Campbell and Stanley showed that a true experiment using random allocation, a control condition, and one or two experimental conditions, controls all the confounding factors they identified. Properly understood, their analysis is a strong argument in favor of using experiments whenever possible.

\(^2\) Unethical research of any kind by anyone is unacceptable, as several chapters in this book emphasize.
and really do not show anything because of confounding factors, and that those who experiment on humans are often unethical.

Those are false conclusions, and we hope to clear up those and other misapprehensions about experiments with this book. The authors of these chapters are concerned with explaining how to design and conduct scientifically sound experiments and how to meet the highest ethical standards. It really is not that hard to meet those goals.

We learned to conduct experiments the same way as nearly all experimenters practicing today learned their skills: in mentoring and tutoring relationships. That is, we learned individually by working on research projects under close supervision of someone who watched to see when we needed guidance and was ready to step in if we got too far astray in the work. We and most experimenters remember those years of learning as hard work and immeasurably valuable; most of us enjoy mentoring and tutoring new investigators. While individual learning and mentoring are wonderful in many ways, they are inherently slow and limited to a few individuals who are fortunate enough to form an apprenticeship relation with an excellent laboratory and its practitioners. We believe that much of the knowledge required for experimental work can be taught in classes because some of the chapter authors here already teach superb courses in experimental methods. Someone who first studies experimentation before beginning work may still benefit from guidance and mentoring, but he or she will already have a large store of knowledge to build upon. This can be as useful to someone who has already used other research methods as it is to someone whose entire research career will involve experiments. Between us, we have over 70 years working with, writing about, and thinking about experiments. Still, we learned things from every single chapter in this volume. The chapters are wonderfully filled with knowledge.

In Laboratory Experiments in the Social Sciences, the chapter authors confront many of the misunderstandings about experimental methods, and they go beyond correcting misunderstandings to offer guidelines for how to do experiments well, and still more, they describe some exemplary research programs that have used these methods.

In the first section of the book, authors address the philosophical and methodological foundations for experiments. In this section, researchers address what kinds of questions might be answered through experiments, differences among different approaches, and how experiments relate to theory and evidence.

Section Two provides information to address the myriad of theoretical, methodological, and practical considerations of actually doing research. Initial considerations involved in ethics and the role of Institutional Review Boards, writing effective proposals, training experimenters, and developing the general parameters of the experiment are addressed.

Examples of different experimental programs, different strategies, and different outcomes are offered in the third section. These case studies provide illustrations
of how the power of experimental designs directly feeds into theoretical and applied advancement. These examples reach across different disciplines and illustrate how very different kinds of questions at different levels of analysis can be investigated experimentally.

The fourth section considers common problems that might arise in experimental research and offers some solutions. In addition, researchers in three different disciplines—political science, economics, and sociology—consider how experimental research has affected the growth of theory in their disciplines and assess promising trajectories of research.

This book incorporates experiences and insights of some of the foremost researchers in experimental social science. Some of these researchers have been conducting experiments for many years and offer a wealth of information about what they have learned. Others came to experimentation much more recently. They offer insights into all the aspects of beginning an experimental research program and some of the unexpected things that “nobody told me.” The authors bring different insights and kinds of experience to the chapters. All of them share a commitment to rigorous experimental methods.

This book would not have come into being without the vision of Executive Editor Scott Bentley from Elsevier, who initiated it and who demonstrated that he shares our commitment to it throughout its development. We thank our Development Editor Kathleen Paoni for her efficient responses to our many queries while keeping an eye on the big picture of one book in a heavy production schedule. We thank those who encouraged and nurtured our intellectual interest in experimental methods. In graduate school at Washington State University, Jane was challenged and encouraged by Lee Freese and Louis Gray; at Texas A&M, she was supported by Raymond Battalio who shared his intellectual excitement as well as his laboratory and its resources. Murray began as a research assistant for Bernard P. Cohen and then received extensive training from Joseph Berger. He is grateful to Peter H. Rossi, Ronald W. Maris, Margaret Zahn, and Schley Lyons, who supported him and his experimental research, sometimes mostly on faith that it would all work out somehow. Jane is grateful to her husband Philip Berke and their children LeeAnn and Timothy for sharing their ideas and their laughter; Murray leans on his friends every single day. Finally, we thank the researchers who annually meet at the Group Process meetings, a tradition created by Linda D. Molm. The interaction and intellectual excitement and new ideas at every Group Process meeting renew our energy for our own research and for spreading the word. Those scholars are our Significant Others (as Harry Stack Sullivan used that term), and if this book earns approval in the Looking Glass they embody, we will be deeply, respectfully grateful.

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