



2
EDITION

An Applied Guide to
Research Designs

Quantitative, Qualitative, and Mixed Methods

W. Alex Edmonds | Thomas D. Kennedy



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An Applied Guide to Research Designs

"This text is intellectually stimulating and challenges students to take a comprehensive approach to their understanding of research designs and concepts."

—**Rebekah Cole**, Old Dominion University

"I find this text to be especially clear in its approach, while the use of examples and sample exercises would be highly effective for practical, in-class learning."

—**Jennifer E. Dalton**, University of Toronto

"The research study examples provided in connection to each research design reflect an additional strength to this text. What I like about this text is that it contains a comprehensive view of designs, without bias regarding one paradigm being better than the other."

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"This is a very useful, practical, and well-devised textbook."

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A clear and comprehensive overview of research designs

The **Second Edition** of **An Applied Guide to Research Designs** offers researchers in the social and behavioral sciences guidance for selecting the most appropriate research design to apply in their study. Using consistent terminology, the authors visually present a range of research designs used in quantitative, qualitative, and mixed methods to help readers conceptualize, construct, test, and problem solve in their investigation. The Second Edition features revamped and expanded coverage of research designs, new real-world examples and references, a new chapter on action research, and updated ancillaries.

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Edmonds | Kennedy Applied Guide to Research Designs



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Second Edition

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Nova Southeastern University



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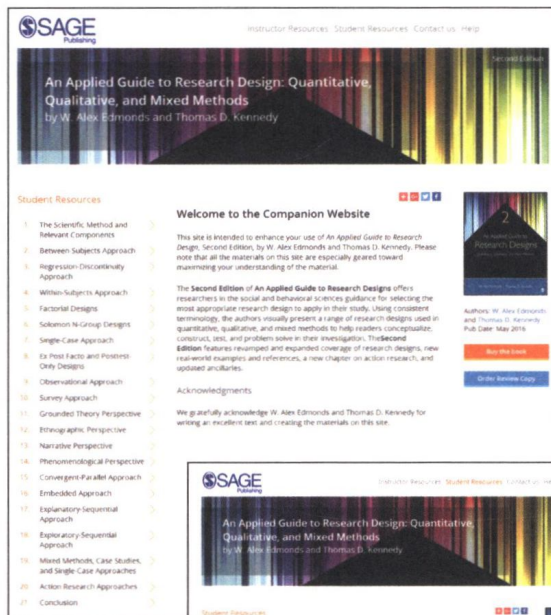
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An Applied Guide to Research Designs

Second Edition

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Foreword

Research methods in the social sciences (I include behavioral sciences and education under this broader term) are quite varied, as the number of settings and situations in which our investigations occur are immense. Furthermore, concerns about research ethics and potential harm inflicted on human subjects put severe limits on what is feasible, requiring social scientists to have at their disposal a plethora of possible approaches to apply to a given problem. Social scientists, particularly those who do nonexperimental research and those who conduct field research in naturalistic settings, must be well versed in many varied methods in order to be prepared to apply optimal approaches to address their research questions in specific settings. Although different disciplines within social science have developed some of their own approaches and practices, there is a great deal of overlap among disciplines in the methodologies utilized.

One can classify methods according to whether they are qualitative or quantitative. Although there are a variety of approaches, qualitative methods are distinguished by their collection and synthesis of information in a largely nonquantitative way. For example, individuals might be interviewed about their experiences living in a college dormitory. The researcher will review and synthesize the responses, looking for meaningful themes. Quantitative methods, on the other hand, tend to involve defining variables in advance and then quantifying observations of those variables. Thus, one might ask college students to complete a survey in which questions ask for ratings about various aspects of the dormitory experience, such as how much they liked the food on a 1-to-5 scale. Different disciplines within social science tend to favor one approach over the other—for example, anthropologists make frequent use of qualitative methods whereas psychologists mainly use quantitative methods, although there are exceptions on both sides.

The quantitative methods training in social science often divides methodology into assessment, design, and statistics. Assessment concerns

techniques for measuring or operationalizing variables largely using multiple-item psychological tests and scales. Design is the structure of an investigation that defines the sequence and nature of both the conditions subjects are exposed to and the observations taken on those subjects. Statistics concerns the mathematical procedures used to analyze the quantitative data produced by the study once the design is implemented. Assessment, design, and statistics are all important elements in any quantitative investigation, so students must develop expertise in all three. Certainly one must have sound measurement to be able to draw conclusions about the underlying variables of interest, and one must analyze data using appropriate statistics, but it is the *design* of the investigation that is most important in being able to draw inferences from an investigation.

This book deals primarily with design, including both designs for experimental and nonexperimental research. It is perhaps unique in providing a balanced treatment of both qualitative and quantitative methods that are integrated at the end when mixed methods are discussed. The book begins with a general discussion of basic principles of the scientific method in social science, including topics such as validity and control. It then covers quantitative methods, including experimental, quasi-experimental (in Part I), and nonexperimental (in Part II) research. Part III discusses a variety of qualitative methods, including grounded theory, ethnography, narrative, and phenomenological approaches. The book concludes (Part IV) with a treatment of mixed methods and action research that involves elements of both qualitative and quantitative methods.

This book includes both basic and advanced designs, making it useful as both a textbook for students in a course that covers design and as a guide to experienced researchers. The book provides an example from the literature for every design covered. A brief overview is provided of each example study's research question and procedure, as well as recommended statistical approaches for data analysis. The citation is provided from widely available journals, so each article can be consulted for more details. Thus, the reader can easily see how each research team was able to use each design and how those researchers handled data analysis and interpretation.

Although not every social scientist will use all of these designs, the serious student of social science research methodology needs a basic understanding of how design features inform appropriate inference. Such a student should have a working knowledge of qualitative and quantitative methods, as provided in this book. It can provide an introduction to design that can later serve as a reference to details of specific designs that can be applied to a particular problem. The development of the computer over the

past three decades has shifted much of the focus of social scientists, especially those who do quantitative studies, from design to statistics as increasing computing power has allowed the development of increasingly computationally complex statistical methods. Thus, in graduate programs we find many classes on statistics but few on design. It is important to remember that it is the *design* and *not* the statistic that is the basis for inference, making the study of design of vital importance, and this book is an invaluable resource for both social scientists and aspiring social scientists.

Paul E. Spector
University of South Florida

Preface

The objective of this reference book is to visually present, with consistent terminology, quantitative, qualitative, and mixed methods research designs in education and the social and behavioral sciences in a way that students and researchers can readily understand and accurately apply in their own investigations. Through our experience and research for this guide, we realized there are many inconsistencies and variations of terminology, both within and between research texts in education and the social and behavioral sciences, especially with the use of the terms *method*, *research*, *approach*, and *design*. We believe that the terminology should be clearly distinguished with the appropriate nomenclature. The interchange of terminology creates confusion among consumers of research, particularly students. We attempt to resolve the confusion by breaking down each aspect of the research terminology into its components in a hierarchical fashion to provide clarity for the reader. As seen in the chart that follows, the resulting nomenclature is thus used throughout the text for the quantitative and the qualitative method.

QUANTITATIVE	
<i>Level</i>	<i>Explanation</i>
METHOD ₁	The <i>method</i> provides the theoretical, philosophical, and data-analytic stance (e.g., a quantitative method ₁).
▼	▼
RESEARCH ₂	<i>Research</i> refers to the systematic process of control (e.g., group assignment, selection, and data collection techniques). Research can be experimental, quasi-experimental, or nonexperimental (e.g., a quantitative method ₁ and experimental research ₂).

(Continued)

(Continued)

QUANTITATIVE	
<i>Level</i>	<i>Explanation</i>
▼ APPROACH ₃	▼ The <i>approach</i> is the first step to creating structure to the design, and it details (a) a theoretical model of how the data will be collected and (b) if one case, one group, or multiple groups will be associated with the process (e.g., a quantitative method ₁ , experimental research ₂ with a between-subjects approach ₃).
▼ DESIGN ₄	▼ The <i>design</i> is the actual structure or framework that indicates (a) the time frame(s) in which data will be collected, (b) when the treatment will be implemented (or not), and (c) the exact number of groups that will be involved (e.g., a quantitative method ₁ , experimental research ₂ with a between-subjects approach ₃ and a pre- and posttest control group design ₄).

QUALITATIVE	
<i>Level</i>	<i>Explanation</i>
METHOD ₁	The <i>method</i> provides the theoretical, philosophical, and data analytic stance (e.g., a qualitative method ₁).
▼ RESEARCH ₂	▼ Research for the qualitative method is nonexperimental (e.g., a qualitative method ₁ and nonexperimental research ₂).
▼ PERSPECTIVE ₃	▼ The <i>perspective</i> is the first step to creating structure to the design, and it details the theoretical perspective (or lens) of how the researcher(s) will approach the study (e.g., a qualitative method ₁ , nonexperimental research ₂ with an ethnographic perspective ₃).
▼ DESIGN ₄	▼ The <i>design</i> is the actual structure that indicates (a) if one case, one group, or multiple groups will be associated with the process and (b) when the data will be analyzed (e.g., a qualitative method ₁ , nonexperimental research ₂ with an ethnographic ₃ and a case study design ₄).

This book is designed to improve one's ability to conceptualize, construct, test, problem solve, and acquire knowledge, all of which are characteristics of scientific inquiry and the creative process required when

conducting research. We have discovered, in teaching research methods courses and supervising dissertation committees, that students often have a difficult time conceptualizing the most appropriate research design, en route to collecting the data and answering the stated research questions or hypotheses. Based on this observation, we sought to find the best text that could help resolve this critical issue. We found that most research methods texts are more broad, covering the entire spectrum of the research process while devoting only a single chapter or a few sections embedded throughout (often incomplete) to research designs. Furthermore, the authors of these texts often present the research designs without quality visual representations and sound real-life examples. The issue is further confounded when investigators omit from the Methods portion of published manuscripts an accurate description of the research design that was employed.

We also discuss the issue of inconsistent terminology; for example, it is not unusual to see authors use the following terms interchangeably: a *correlational method*, *correlational research*, a *correlational approach*, or a *correlational design*. Although this may not be entirely wrong, it is not entirely accurate (or specific) and can lead to confusion. It would be more accurate to say all together in sequence, a quantitative method, nonexperimental research, an observational approach, and a predictive design (and then, of course, the correlational statistic or regression analysis is applied to the observational data). These inconsistencies, at best, can lead to confusion and difficulties when attempting to conceptualize and choose the design that best fits the research problem and subsequent questions or hypotheses; at worst, they can render findings invalid. Considering these aspects, students often find themselves lost at that critical part of the research process while attempting to (a) choose a design that will allow for the acquisition of data best suited to answer their research questions or examine their hypotheses and (b) incorporate a design into the Procedures section of their Methods chapter of their dissertation.

Although we cover a variety of practical research designs in quantitative, qualitative, and mixed methods, this book is not intended to be a complete reference guide for individuals conducting program evaluations. We briefly address this issue at the end of this guide. We revealed through our research for this book that many of these sound research designs presented within are underused in education and the social and behavioral sciences. We hope the presentation of these materials will continue to strengthen research in the area through the application of sound methodological techniques. These designs can be applied in field, laboratory, and even web-based settings. Although this book does not go into great detail regarding the theory or philosophy of qualitative or quantitative methods

and the associated research designs, we do provide recommended texts and articles for the reader who is interested in a more thorough understanding of a particular approach, method, or design. The intent of this book is seemingly paradoxical, in that we attempt to give students and researchers a dense (no filler) yet quick reference guide for conceptualizing and creating a design that best fits the primary research question. Thus, this is an applied text, using visual aids and real-world examples, rather than covering foundational and theoretical issues.

Visually delivering the information coupled with relevant examples may optimize the learning process and subsequent application of learning. The reader will notice that we often state that further decisions about the applications of particular research designs should be based on “theoretical and logistical considerations.” Although we attempt to apply linear logic and black-and-white elements to scientific methodology, there are many instances in which “rules of thumb” and old laws do not apply. Research in the field of social sciences is still relatively new, and the vast and varied contexts in which we investigate create a level of complexity and sophistication that often requires subjectivity and interpretation.

As mentioned earlier, this book is meant to cover the most practical and common research designs currently used in educational and the social and behavioral sciences. Referring to these research designs as “common” or “practical” is somewhat a misnomer, and it does not imply that the designs are less powerful or the results have less meaning. In reviewing many articles over the years, we have noticed that, all too often, researchers use unnecessarily complex research designs that complicate the application and subsequent statistical analyses, leaving much more room for error. *Parsimony* is a favorable word in science; that is, a design should be as complex as it needs to be and, at the same time, as simple as it needs to be.

♦ AUDIENCE

The target audience for this book is the researcher in the fields of education, sociology, psychology, nursing, and other human service fields. More specifically, this book is written for undergraduate students working on honors theses and for graduate students working on theses or dissertations. This book will assist all students who (a) have a basic understanding of research methods, (b) are in the process of conducting research, or (c) plan on conducting research at some point during their careers. Furthermore, it can also be used as a tool by professors who are either teaching research courses or supervising students on theses and dissertations. Specifically, professors will

find this reference guide useful in assisting and guiding students interested in improving their understanding of how research is set up and conducted. We have attempted to create a visual system in the form of a practical, easy-to-follow reference guide to help in the conceptualization and development of many of the common research designs. We offer examples of this visual system “in action” for each of the designs presented with the use of published studies. In addition, further recommendations and suggestions are provided for those interested in acquiring a more comprehensive understanding of basic research designs. The book includes the core designs that are used by quantitative, qualitative, and mixed method researchers.

FEATURES ♦

We have maintained a singular focus on research designs and have provided an example for each chosen research design with a relevant peer-reviewed article. We have incorporated a number of features throughout the book that will assist students in designing their own studies. In each example, we summarize the procedures and include the relevant variables in a design notation model. In many cases, the research article examples include multiple research questions or hypotheses. However, for the sake of clarity, we attempt to present one overarching research question that summarizes the major goal of the study. In some instances, for research in qualitative methods, we include a research aim. Research using mixed methods usually contains an additional research question to answer the inquiry associated with combining quantitative results and qualitative findings. In addition to the example research designs, we also include brief discussions on (a) the relevant aspects of research, (b) different types of designs, (c) the scientific method, and (d) a list of recommended readings pertaining to each area. Also, located in the appendices, we present many examples of rarely applied research designs, as well as case study designs, with brief notations on the intended use and effectiveness.

UNIQUE FEATURES ♦

We have summarized and condensed over 140 articles and books included in this reference guide. In addition, there are many unique features associated with this guide. These features were included to enhance the understanding of the concepts and designs presented:

- An array of relevant references and sources for the reader
- Consistent terminology, which is emphasized throughout (a standardized taxonomy)
- Discussions on the differences between within- and between-subject approaches
- The use of the k -factor design as a means to distinguish multiple-treatment groups
- Inclusion of both within-subjects and between-subjects k -factor designs
- Diagrams of factorial designs
- Examples of the Solomon N -group designs as an extension of the four-group design
- Diagrams of single-case approaches
- Diagrams of nonexperimental research such as observational (correlational) and survey approaches
- Visual models for qualitative methods
- Proposed designs for mixed method single-case approaches and the action research approach
- Appendices covering examples of rarely used, but relevant, research designs for experimental and quasi-experimental research, case studies, and mixed methods
- An appendix covering statistical analysis by design and a brief guide to reporting statistics
- An appendix devoted to coding qualitative data

♦ NEW TO THE SECOND EDITION

For the second edition of this book, we have expanded and added upon the already extensive coverage of research designs for qualitative, quantitative, and mixed methods. Many of the additions were included based on feedback from students, researchers, reviewers, and our own personal experiences using the text in classes and in our research endeavors. As a result, the coverage of research designs is more complete and includes topics not previously addressed. In addition, in many cases, we were able to update critical references in relation to a specific design or approach discussed within the text.

This is a general list of the topics and areas included in the second edition:

- Explanations and examples of conceptual and operational definitions for independent variables