

## preface ix

#### 1. overview 1

THE NATURE OF SCIENCE, 2
HISTORICAL ANTECEDENTS, 5
THE DEVELOPMENT OF THE EXPERIMENTAL STUDY OF BEHAVIOR, 6
THE CORRELATIONAL METHOD, 10
THE CASE STUDY APPROACH, 10
REFERENCES, 11

# 2. basic principles of experimental research 13

EXPERIMENTALLY INDUCING COMPLIANCE: AN EXAMPLE, 13 BASIC CONCEPTS, 16
MAXIMIZING SYSTEMATIC VARIANCE, 22
MINIMIZING ERROR VARIANCE, 24
CHOOSING AN INDEPENDENT VARIABLE, 26
CHOOSING A DEPENDENT VARIABLE, 27
TESTING HYPOTHESES, 27
REFERENCES, 34

#### internal validity 35

EXPERIMENTAL INTERNAL VALIDITY, 36
THEORETICAL AND CONCEPTUAL INTERNAL VALIDITY, 41
THE EXPERIMENTER BIAS EFFECT, 45
REFERENCES, 52

#### 4. subject assignment and experimental design 53

RANDOM ASSIGNMENT, 53
EXPERIMENTAL DESIGN, 55
CHOOSING BETWEEN DESIGNS WITH AND WITHOUT A PRETEST, 59
MULTIPLE CAUSATION AND THE FACTORIAL EXPERIMENT, 60
INTERACTIONS, 63
ADDITIVITY, 67
THE EFFECTS OF TREATMENT STRENGTH ON INTERACTIONS, 68
REPEATED MEASUREMENT IN THE FACTORIAL EXPERIMENT, 70
REFERENCES, 74

#### 5. correlational research: basic issues and examples 76

INDEXING THE RELATIONSHIP, 77
REASONS FOR EMPLOYING THE CORRELATIONAL METHOD, 84
IDENTIFYING CAUSAL RELATIONSHIPS, 85
APPLYING THE CORRELATIONAL APPROACH TO THE
PROBLEM OF RELIABILITY, 87
SURVEY RESEARCH, 93
TECHNIQUES OF SURVEYING, 96
REFERENCES, 98

## 6. complex correlational designs 99

A PARTIAL SOLUTION TO THE PROBLEM OF DIRECTIONALITY: TIME-LAGGED CORRELATIONS, 99
SOLVING THE THIRD VARIABLE PROBLEM, 104
DETERMINING CAUSAL RELATIONSHIPS THROUGH PROCESS ANALYSIS, 110
MULTIVARIATE CORRELATIONAL DESIGNS, 113
THE MULTIVARIABLE-MULTIMETHOD MATRIX, 119
REFERENCES, 122

#### 7. mixed designs 124

DEFINITION OF MIXED DESIGNS, 125
USES OF MIXED DESIGNS, 126
INTERPRETING MIXED DESIGNS: FALLACIES IN CAUSAL INFERENCE, 134
FOCUSING ON THE CORRELATIONAL VARIABLE IN A MIXED DESIGN, 135
SELECTING GROUPS FOR A MIXED DESIGN, 138
REFERENCES, 142

## 8. single subject research 143

THE CASE HISTORY, 144
SINGLE SUBJECT EXPERIMENTAL DESIGNS, 151
REFERENCES, 162

### 9. external validity 164

THE PROBLEM OF INDUCTION, 164

REACTIVE ARRANGEMENTS AND AWARENESS OF BEING MEASURED, 165

REDUCING REACTIVITY: THE USE OF UNOBTRUSIVE MEASURES, 173

GENERALIZING ACROSS EXPERIMENTERS, 177

GENERALIZING ACROSS POPULATION, 177

GENERALIZING ACROSS TREATMENTS, 182

GENERALIZING ACROSS MEASUREMENTS, 183

THE FIELD EXPERIMENT, 184

A LOOK TO THE FUTURE, 188

REFERENCES, 189

# problems in behavioral research 192 EMILY S. DAVIDSON and GLENN S. DAVIDSON

author index 221

subject index 224