
DETAILED CONTENTS

About the Author	xiii
Acknowledgments	xv
Preface	xvii
To the Student—How to Use SPSS With This Book	xxv
P.1 Overview of SPSS: What Are You Looking At?	xxv
P.2 Preview of SPSS in Focus	xxix

SECTION I: SCIENTIFIC INQUIRY

Chapter 1—Introduction to Scientific Thinking	3
1.1 Science as a Method of Knowing	4
1.2 The Scientific Method	5
1.3 Other Methods of Knowing	14
1.4 The Goals of Science	18
1.5 Approaches in Acquiring Knowledge	20
1.6 Distinguishing Science From Pseudoscience	22
Chapter 2—Generating Testable Ideas	31
2.1 Generating Interesting and Novel Ideas	32
2.2 Converting Ideas to Hypotheses and Theories	34
2.3 Developing Your Idea: Deduction and Induction	37
2.4 Performing a Literature Review	40
2.5 Ethics in Focus: Giving Proper Credit	46
2.6 The “3 Cs” of an Effective Literature Review	47
2.7 Testing Your Idea: Confirmation and Disconfirmation	51
2.8 Ethics in Focus: Publication Bias	54

Chapter 3—Research Ethics	61
3.1 Ethics in Behavioral Research	62
3.2 The Need for Ethics Committees in Research: A Historical Synopsis	62
3.3 Ethics in Focus: Examples From Psychology	69
3.4 Human Participant Research: IRBs and the APA Code of Conduct	73
3.5 Ethics in Focus: Anonymity and Confidentiality	82
3.6 Animal Subject Research: IACUCs and the APA Code of Conduct	83
3.7 Additional Ethical Considerations: Scientific Integrity	86

SECTION II: DEFINING AND MEASURING VARIABLES, SELECTING SAMPLES, AND CHOOSING AN APPROPRIATE RESEARCH DESIGN

Chapter 4—Identifying Scientific Variables	97
4.1 Criteria for Defining and Measuring Variables	98
4.2 Constructs and Operational Definitions	99
4.3 Types of Variables	102
4.4 Scales of Measurement	104
4.5 Reliability of a Measurement	109
4.6 Validity of a Measurement	113
4.7. Selecting a Measurement Procedure	116
4.8 Ethics in Focus: Replication as a Gauge for Fraud?	121
4.9 SPSS in Focus: Entering and Coding Data	122

Chapter 5—Sampling From Populations	133
5.1 Why Do Researchers Select Samples?	134
5.2 Subjects, Participants, and Sampling Methods	134
5.3 Methods of Sampling: Nonprobability Sampling	137
5.4 Methods of Sampling: Probability Sampling	141
5.5 Sampling Error and Standard Error of the Mean	150
5.6 SPSS in Focus: Estimating the Standard Error of the Mean	151
5.7 Potential Biases in Sampling	153
5.8 Ethics in Focus: Participant Pools	154
5.9 SPSS in Focus: Identifying New Populations Using the One-Sample <i>t</i> Test	155

Chapter 6—Choosing a Research Design	165
6.1 Designing a Study to Answer a Question	166
6.2 Categories of Research Design	167
6.3 Internal and External Validity	173
6.4 Demonstrating Cause in an Experiment	175
6.5 Ethics in Focus: Beneficence and Random Assignment	180
6.6 Threats to the Internal Validity of a Research Study	181
6.7 Threats to the External Validity of a Research Study	189
6.8 External Validity, Experimentation, and Realism	192
6.9 A Final Thought on Validity and Choosing a Research Design	193

SECTION III: NONEXPERIMENTAL RESEARCH DESIGNS

Chapter 7—Naturalistic, Qualitative, and Existing Data Research Designs	201
Naturalistic Observation	202
7.1 An Overview of Naturalistic Observation	202
7.2 The Research Setting: Natural and Contrived Settings	203
7.3 Techniques for Conducting Naturalistic Observation	205
7.4 Ethics in Focus: Influencing Participant Behavior	211
Qualitative Designs	212
7.5 An Overview of Qualitative Designs	212
7.6 Qualitative Research Designs	215
7.7 Ethics in Focus: Anonymity in Qualitative Research	223
Existing Data Designs	224
7.8 An Overview of Existing Data Designs	224
7.9 Existing Data Designs	225
7.10 Ethics in Focus: Existing Data and Experimenter Bias	231
Chapter 8—Survey and Correlational Research Designs	237
Survey Designs	238
8.1 An Overview of Survey Designs	238
8.2 Types of Survey Items	238
8.3 Rules for Writing Survey Items	243
8.4 Administering Surveys	248
8.5 Surveys, Sampling, and Nonresponse Bias	250
8.6 Ethics in Focus: Handling and Administering Surveys	252
Correlational Designs	253
8.7 The Structure of Correlational Designs	253
8.8 Describing the Relationship Between Variables	254
8.9 Limitations in Interpretation	260
8.10 Correlation, Regression, and Prediction	264
8.11 SPSS in Focus: Correlation and Linear Regression	265

SECTION IV: QUASI-EXPERIMENTAL AND EXPERIMENTAL RESEARCH DESIGNS

Chapter 9—Quasi-Experimental and Single-Case Experimental Designs	277
Quasi-Experimental Designs	278
9.1 An Overview of Quasi-Experimental Designs	278
9.2 Quasi-Experimental Design: One-Group Designs	280
9.3 Quasi-Experimental Design: Nonequivalent Control Group Designs	282
9.4 Quasi-Experimental Design: Time Series Designs	285

9.5 Quasi-Experimental Design: Developmental Designs	290
9.6 Ethics in Focus: Development and Aging	295
Single-Case Experimental Designs	296
9.7 An Overview of Single-Case Designs	296
9.8 Single-Case Baseline-Phase Designs	297
9.9 Validity, Stability, Magnitude, and Generality	304
9.10 Ethics in Focus: The Ethics of Innovation	307
Chapter 10—Between-Subjects Experimental Designs	315
10.1 Conducting Experiments: Between-Subjects Design	316
10.2 Experimental Versus Control Group	316
10.3 Manipulation and the Independent Variable	319
10.4 Variability and the Independent Variable	323
10.5 Ethics in Focus: The Accountability of Manipulation	327
10.6 Comparing Two Independent Samples	328
10.7 SPSS in Focus: Two-Independent-Sample t Test	330
10.8 Comparing Two or More Independent Samples	334
10.9 SPSS in Focus: One-Way Between-Subjects ANOVA	337
10.10 Measuring the Dependent Variable	341
10.11 Advantages and Disadvantages of the Between-Subjects Design	343
Chapter 11—Within-Subjects Experimental Designs	351
11.1 Conducting Experiments: Within-Subjects Design	352
11.2 Controlling Time-Related Factors	353
11.3 Ethics in Focus: Minimizing Participant Fatigue	359
11.4 Individual Differences and Variability	360
11.5 Comparing Two Related Samples	363
11.6 SPSS in Focus: Related-Samples t Test	367
11.7 Comparing Two or More Related Samples	369
11.8 SPSS in Focus: One-Way Within-Subjects ANOVA	372
11.9 An Alternative to Pre-Post Designs: Solomon Four-Group Design	376
11.10 Comparing Between-Subjects and Within-Subjects Designs	378
Chapter 12—Factorial Experimental Designs	387
12.1 Testing Multiple Factors in the Same Experiment	388
12.2 Selecting Samples for a Factorial Design in Experimentation	389
12.3 Types of Factorial Designs	390
12.4 Ethics in Focus: Participant Fatigue and Factorial Designs	394
12.5 Main Effects and Interactions	395
12.6 Identifying Main Effects and Interactions in a Graph	400

12.7 Including Quasi-Independent Factors in an Experiment	404
12.8 Reasons for Including Two or More Factors in an Experiment	405
12.9 Higher-Order Factorial Designs	408
12.10 SPSS in Focus: General Instructions for Conducting a Factorial ANOVA	410

SECTION V: ANALYZING, INTERPRETING, AND COMMUNICATING RESEARCH DATA

Chapter 13—Analysis and Interpretation: Exposition of Data 423

13.1 Descriptive Statistics: Why Summarize Data?	424
13.2 Frequency Distributions: Tables and Graphs	426
13.3 Measures of Central Tendency	429
13.4 Measures of Variability	433
13.5 SPSS in Focus: Central Tendency and Variability	438
13.6 Graphing Means and Correlations	439
13.7 Using Correlation to Describe Reliability	442
13.8 SPSS in Focus: Cronbach's Alpha and Cohen's Kappa	444
13.9 Ethics in Focus: Deception Due to the Distortion of Data	450

Chapter 14—Analysis and Interpretation: Making Decisions About Data 459

14.1 Inferential Statistics: What Are We Making Inferences About?	460
14.2 Types of Error and Power	464
14.3 Parametric Tests: Applying the Decision Tree	466
14.4. Nonparametric Tests: Applying the Decision Tree	469
14.5 SPSS in Focus: The Chi-Square Tests	472
14.6 Effect Size: How Big Is an Effect in the Population?	477
14.7 Estimation: What Are the Possible Values of a Parameter?	482
14.8 Confidence Intervals, Significance, and Effect Size	483
14.9 Issues for Interpretation: Precision and Certainty	484
14.10 Ethics in Focus: Full Disclosure of Data	486

Chapter 15—Communicating Research:

Preparing Manuscripts, Posters, and Talks 495

15.1 Elements of Communication	496
15.2 Writing a Manuscript: Writing Style and Language	500
15.3 Elements of an APA-Style Manuscript	505
15.4 Literature Reviews	516
15.5 Reporting Observations in Qualitative Research	518
15.6 Ethics in Focus: Credit and Authorship	519
15.7 Presenting a Poster	519
15.8 Giving a Professional Talk	521

Appendix A: APA-Style Writing, Sample Manuscript, and Posters	527
A.1 Essentials for Writing APA-Style Research Papers	527
A.2 Grammar, Punctuation, and Spelling (GPS) Writing Guide	532
A.3 Sample APA-Style Manuscript	561
A.4 Poster Template and Sample Poster	577
Appendix B: Instructions for Randomizing and Counterbalancing	581
B.1 Random Numbers Table	581
B.2 Constructing a Latin Square	585
Appendix C: SPSS General Instructions Guide and Statistical Tables	589
C.1 General Instructions Guide for Using SPSS	589
C.2 Statistical Tables	601
Glossary	609
References	629
Index	643