CHAPTER 1

INTRODUCTION, ACQUIRING KNOWLEDGE, AND THE SCIENTIFIC METHOD

CHAPTER OVERVIEW 1

1.1 INTRODUCTION TO RESEARCH METHODOLOGY 2
Why Take a Research Methods Course? 2
Other Reasons for Taking a Research Methods Course 3

1.2 METHODS OF KNOWING AND ACQUIRING KNOWLEDGE 6
The Method of Tenacity 6
The Method of Intuition 7
The Method of Authority 8
The Rational Method 11
The Empirical Method 14
Summary 16

1.3 THE SCIENTIFIC METHOD 16
The Steps of the Scientific Method 16
Other Elements of the Scientific Method 23

1.4 THE RESEARCH PROCESS 25
Step 1: Find a Research Idea: Select a Topic and Find a Hypothesis 25
Step 2: Determine How You Will Define and Measure Your Variables 30
Step 3: Identify the Participants or Subjects for the Study 30

CHAPTER SUMMARY 34
KEY WORDS 34
EXERCISES 35
OTHER ACTIVITIES 35
WEB RESOURCES 36

CHAPTER 2

RESEARCH IDEAS

CHAPTER OVERVIEW 37

2.1 GETTING STARTED 38
Pick a Topic in Which You Are Interested 38
Do Your Homework 38
Keep an Open Mind 39
Focus, Focus, Focus 39
Take One Step at a Time 40

2.2 FINDING A GENERAL TOPIC AREA 40
Common Sources of Research Topics 40
Common Mistakes in Choosing a Research Topic 43

2.3 FINDING AND USING BACKGROUND LITERATURE 45
Primary and Secondary Sources 46
The Purpose of a Literature Search 48
### Contents

7.6 INCREASING EXTERNAL VALIDITY: SIMULATION AND FIELD STUDIES 212
- Simulation 213
- Field Studies 215
- Advantages and Disadvantages of Simulation and Field Studies 216

CHAPTER SUMMARY 216

KEY WORDS 217

EXERCISES 217

OTHER ACTIVITIES 219

WEB RESOURCES 219

---

CHAPTER 8

EXPERIMENTAL DESIGNS: BETWEEN-SUBJECTS DESIGN 220

CHAPTER OVERVIEW 220

8.1 INTRODUCTION TO BETWEEN-SUBJECTS EXPERIMENTS 221
- Review of the Experimental Research Strategy 221
- Characteristics of Between-Subjects Designs 221
- Advantages and Disadvantages of Between-Subjects Designs 223

8.2 INDIVIDUAL DIFFERENCES AS CONFOUNDING VARIABLES 225
- Equivalent Groups 227

8.3 LIMITING CONFOUNDING BY INDIVIDUAL DIFFERENCES 227
- Random Assignment (Randomization) 227
- Matching Groups (Matched Assignment) 228
- Holding Variables Constant or Restricting Range of Variability 230
- Summary and Recommendations 230

8.4 INDIVIDUAL DIFFERENCES AND VARIABILITY 231
- Differences Between Treatments and Variance Within Treatments 234
- Minimizing Variance Within Treatments 234
- Summary and Recommendations 236

8.5 OTHER THREATS TO INTERNAL VALIDITY OF BETWEEN-SUBJECTS DESIGNS 236
- Differential Attrition 236
- Communication Between Groups 237

8.6 APPLICATIONS AND STATISTICAL ANALYSES OF BETWEEN-SUBJECTS DESIGNS 238
- Two-Group Mean Difference 238
- Comparing Means for More Than Two Groups 240
- Comparing Proportions for Two or More Groups 242

CHAPTER SUMMARY 243

KEY WORDS 244

EXERCISES 244

OTHER ACTIVITIES 245

WEB RESOURCES 245

---

CHAPTER 9

EXPERIMENTAL DESIGNS: WITHIN-SUBJECTS DESIGN 246

CHAPTER OVERVIEW 246

9.1 INTRODUCTION TO WITHIN-SUBJECTS EXPERIMENTS 247
- Characteristics of Within-Subjects Designs 247
- Advantages of Within-Subjects Designs 248
- Disadvantages of Within-Subjects Designs 252
CHAPTER 15

STATISTICAL EVALUATION OF DATA 416

CHAPTER OVERVIEW 416

15.1 THE ROLE OF STATISTICS IN THE RESEARCH PROCESS 417
Planning Ahead 417
Statistics Terminology 418

15.2 DESCRIPTIVE STATISTICS 419
Frequency Distributions 419
Measures of Central Tendency 422
Measures of Variability 424
Describing Interval and Ratio Data (Numerical Scores) 427
Describing Nominal and Ordinal Data 428
Using Graphs to Summarize Data 429
Correlations 432
Regression 435
Multiple Regression 436

15.3 INFERENTIAL STATISTICS 437
Hypothesis Tests 439
Reporting Results From a Hypothesis Test 443
Errors in Hypothesis Testing 444
Factors That Influence the Outcome of a Hypothesis Test 446

15.4 EXAMPLES OF HYPOTHESIS TESTS 448
Comparing Groups of Scores: Statistical Tests for the Experimental, Quasi-Experimental, and Nonexperimental Research Strategies 449
Tests for Mean Differences 449
Comparing Proportions 452
Evaluating Relationships: Statistical Tests for the Correlational Research Strategy 453

15.5 CONCERNS ABOUT HYPOTHESIS TESTS: MEASURING EFFECT SIZE 455
Measuring Effect Size With Cohen's d 456
Measuring Effect Size as a Percentage of Variance (r² and η²) 458

15.6 SPECIAL STATISTICS FOR RESEARCH 459
The Spearman-Brown Formula 459
The Kuder-Richardson Formula 20 460
Cronbach's Alpha 461
Cohen's Kappa 461

CHAPTER SUMMARY 464

KEY WORDS 465

EXERCISES 465

OTHER ACTIVITIES 467

WEB RESOURCES 467

CHAPTER 16

WRITING AN APA-STYLE RESEARCH REPORT 468

CHAPTER OVERVIEW 468

16.1 THE GOAL OF A RESEARCH REPORT 469

16.2 GENERAL APA GUIDELINES FOR WRITING STYLE AND FORMAT 470
Some Elements of Writing Style 470
Guidelines for Typing or Word Processing 473
Manuscript Pages 474
Page Numbers and Page Headers 474
16.3 THE ELEMENTS OF AN APA-STYLE RESEARCH REPORT 475

16.4 SUBMITTING A MANUSCRIPT FOR PUBLICATION 493

16.5 WRITING A RESEARCH PROPOSAL 495

APPENDICES

A. RANDOM NUMBER TABLE AND INSTRUCTION 499

B. STATISTICS DEMONSTRATIONS AND STATISTICAL TABLES 503

C. INSTRUCTIONS FOR USING SPSS 531

D. SAMPLE APA-STYLE RESEARCH REPORT MANUSCRIPT FOR PUBLICATION 553

GLOSSARY 581

REFERENCES 599

NAME INDEX 605

SUBJECT INDEX 607