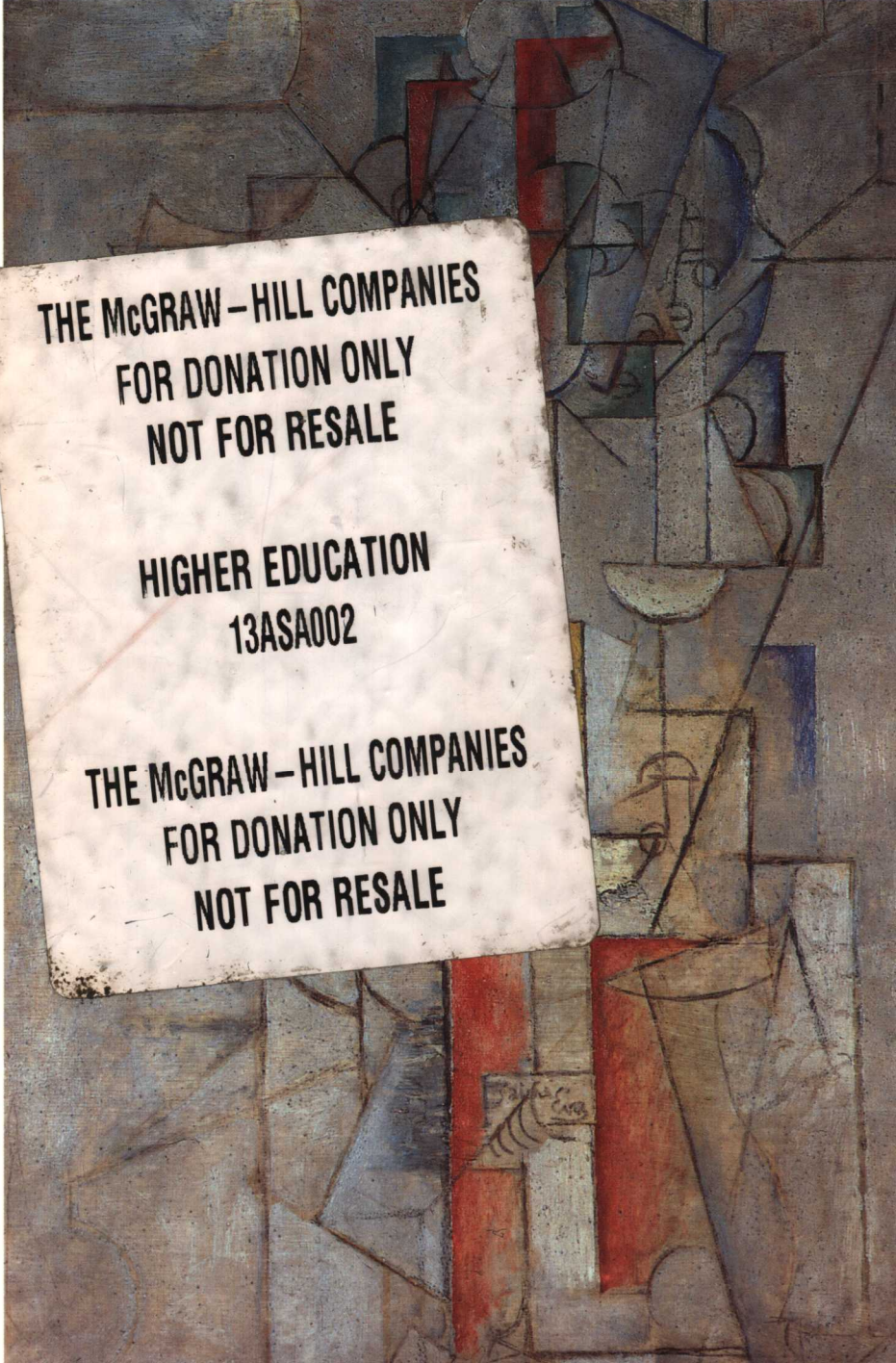


PSYCHOLOGICAL RESEARCH

Methods for Discovery and Validation

Arlene C.
Vadum

Neil O.
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Psychological Research

METHODS FOR DISCOVERY
AND VALIDATION



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PSYCHOLOGICAL RESEARCH: METHODS FOR DISCOVERY AND VALIDATION

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Preface



This textbook, written for undergraduate courses in research methods, covers basic issues, advanced topics, and practical concerns in designing and conducting research. Our treatment of these issues is comprehensive, using classical and up-to-date examples of research to illustrate the methods discussed.

The first section of the book presents the fundamentals: scientific method, a classification of research designs, experimental control, measurement, correlation, randomized experimental designs, and ethics. The second section considers more advanced topics: factorial designs, single-case experimental designs, and field research, including quasi-experimental designs, observational techniques, and survey research. The last three chapters focus on practical concerns: finding a research problem, planning the study, and writing a research report in the APA style.

What distinguishes our text from others is how we present this material. In our book we tell the stories of how modern research methods, ethical principles, and procedures for communicating research developed and led to later advances. This approach highlights the logic of the methods and the kinds of research questions to which they apply, helping students to get the “big picture” of research methods in an understandable and memorable way. Explaining the context in which the methods developed naturally stresses their novel features, separating important ideas from less important ones. Because the innovators were fascinating people with brilliant ideas about how to do research, their stories also give students a sense of the challenges and excitement of science.

Our narrative, contextual approach allows us to use the originators’ own words and examples to explain the methods. Their presentations are clear and compelling. When students are introduced to the ingenious logic of randomization as Fisher presented it (see Chapter 6), they can understand why his work revolutionized experimental design. When they learn how Galton developed the concepts of correlation and norm-based measurement (Chapters 4, 5), they can see why these methods are indispensable in modern psychology. When they read about the empirical studies that led to the Nuremberg Code and the Belmont Report (Chapter 7), they can appreciate the need for the ethical code and research review procedures used in psychology today. When students learn how scientists became a global community through shared writing

in scientific journals, they can better appreciate the noble tradition they are joining when they write their own reports.

We have tried to organize the book to allow instructors flexibility in assigning the readings. Because later chapters build on ideas presented in earlier ones, the first six chapters are best read in order. The chapter on ethics, seventh in the book, does not have to be assigned in this position. We chose to present ethics in the middle of the book so that students would have an understanding of the basics of research design before reading it. We think this helps them to better understand the ethical dilemmas facing researchers. We also find that discussing ethics at mid-semester provides a welcome break from focusing on the more technical aspects of research. The sections of Chapter 12 on debriefing, applying to the IRB, and writing consent forms can be read in conjunction with the chapter on ethics, as can Chapter 13's discussion of the ethics of analyzing data and reporting results. The Belmont Report, which the federal government states researchers and members of IRBs should consider as a required reference work, is reprinted in its entirety in Appendix A.

Each of the advanced chapters can stand alone, so instructors can assign all of them or select from among them. Chapter 8, Factorial Designs and Interactions, is an extension of the material in Chapter 6, Randomized Designs. If both Chapters 9 and 10 are used, we recommend assigning them in order. The discussion of $n = 1$ designs (Chapter 9) introduces the notation used in Chapter 10's discussion of quasi-experimental designs. There also is overlap between the $n = 1$ designs and time series quasi-experimental designs, discussed in Chapter 10.

Students can read the three chapters on practical concerns, Chapters 11, 12, and 13, at any time during the course. We recommend that they study Chapter 11, Finding a Research Problem, early in the semester. The chapter is filled with examples of research illustrating strategies that students can use to come up with ideas for projects. The chapter also teaches students the how-tos of doing library research, including the use of tools like *PsycINFO* and *PsycLIT*. Chapter 12, Planning the Study, and Chapter 13, Communicating Research, can be assigned whenever students need to know the particulars of doing research and writing the report. Chapter 12 offers practical advice on recruiting participants, randomly assigning them to groups, finding or developing measures, dealing with demand characteristics and experimenter expectancies, applying to the IRB, and debriefing participants. Chapter 13, which instructs students on the basics of writing APA style research reports, includes examples of leads, rationales, and closes to serve as models for students in their writing. As a further guide for students, we have included a published research paper, reprinted in APA manuscript form, in Appendix B.

In addition to these pedagogical features of the book, many of the chapters include boxes presenting concrete illustrations or extensions of ideas discussed in the narrative. The boxes contain documents, ethical codes, information on how to do computerized searches of the literature, computer programs for randomization, formats for questions, APA style rules, etc. As a further aid to students, important ideas are reviewed at the end of each chapter in a section on key concepts, key people, and review questions.

We also have set up a Website

(<http://www.assumption.edu/html/academic/users/avadum/index.html>)

that can be used with the text. The site has programs for randomly assigning subjects to groups, random sampling, and doing basic statistical calculations, such as the mean, standard deviation, and *t*-tests. These statistical applets, written in Java, can be run online from any computer with an Internet connection and a Web browser compatible with Java 1.0, such as Netscape Navigator 3.0. The Website also links to the Websites discussed in the text (e.g., APA and Buros Institute).

A complete statistical program, *Student Statistician*, and its manual (Rankin, 1986) also can be downloaded from our Website. *Student Statistician* runs on IBM compatible computers using the MS-DOS or Windows operating systems. This program does all the basic statistical tests usually encountered in student research (nonparametric and parametric through two-way analysis of variance), and it has an easy-to-learn graphical interface. Instructors using this text may distribute the program and manual to their students without charge, so students can take copies home to run on their own computers.

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Casey Rankin helped debug *Student Statistician* and shared his expert knowledge of how to navigate in cyberspace. Hal Kiess and Doug Bloomquist, both at Framington State College, tested *Student Statistician* in their classes, making the program easier for students to use. Kamal K. Mittal and others at the Office for Protection from Research Risks (OPRR), National Institutes of Health, offered us valuable advice and educational materials on the ethics of doing research with human and animal subjects. Carolyn Gosling of *PsycINFO* User Services, APA, generously read and corrected our discussion of *PsycINFO*, *PsycLIT*, and *Psychological Abstracts*. The friendship of Laura Menides and Leena Osteraas encouraged us during the many years we worked on this project.

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Brief Contents



BASIC ISSUES

- CHAPTER 1 SCIENTIFIC METHOD 1
CHAPTER 2 CLASSIFYING RESEARCH 29
CHAPTER 3 CONTROL IN EXPERIMENTATION 57
CHAPTER 4 MEASUREMENT 83
CHAPTER 5 CORRELATION 108
CHAPTER 6 RANDOMIZED EXPERIMENTAL DESIGNS 128
CHAPTER 7 ETHICS OF RESEARCH 156

ADVANCED TOPICS

- CHAPTER 8 FACTORIAL DESIGNS AND INTERACTIONS 182
CHAPTER 9 SINGLE-CASE EXPERIMENTAL DESIGNS 203
CHAPTER 10 FIELD RESEARCH 228

PRACTICAL CONCERNS

- CHAPTER 11 FINDING A RESEARCH PROBLEM 260
CHAPTER 12 PLANNING THE STUDY 287
CHAPTER 13 COMMUNICATING RESEARCH 317
APPENDIX A 353
APPENDIX B 367
REFERENCES 393
ACKNOWLEDGMENTS AND PHOTO CREDITS 401
NAME INDEX 407
SUBJECT INDEX 411

Contents



CHAPTER 1 SCIENTIFIC METHOD 1

THE APPEAL OF SCIENCE 2

DISTINGUISHING FEATURES OF SCIENCE 3

Appeal to Evidence 3

Rules of Evidence 4

Cycles of Discovery and Validation 5

Progress 6

THE PROCESS OF SCIENTIFIC RESEARCH 6

Identifying a Research Problem 6

From Observation to Explanation 6

Hypotheses 9

Designing a Test of the Hypothesis 10

Drawing Conclusions 16

Evaluation by the Scientific Community 17

A CASE STUDY IN PSYCHOLOGICAL RESEARCH 18

The Cycle of Discovery: Mesmer and Animal Magnetism 18

The Cycle of Validation: King Louis XVI's Royal Commission 21

KEY TERMS 27

KEY PEOPLE 27

REVIEW QUESTIONS 27

CHAPTER 2 CLASSIFYING RESEARCH 29

THE EXTENT OF RESEARCHER MANIPULATION
OF ANTECEDENT CONDITIONS 33

Stage of the Inquiry 33

Laboratory versus Field Research 34

Research Interests of Psychologists 35

THE EXTENT TO WHICH THE RESEARCHER LIMITS RESPONSE
ALTERNATIVES 41

Surveys 41

Archival Research 42

<i>Participant Observation</i>	43
<i>Phenomenological Research</i>	46
NATURALISTIC RESEARCH DEFINED	47
IDIOGRAPHIC VERSUS NOMOTHETIC RESEARCH	49
<i>The Single-Case Experiment</i>	51
<i>The Case Study</i>	51
<i>Psychobiography and Life Narratives</i>	53
THE VALUE OF DIVERSITY	54
KEY TERMS	55
KEY PEOPLE	55
REVIEW QUESTIONS	55
CHAPTER 3 CONTROL IN EXPERIMENTATION	57
A LIFE DEVOTED TO EMPIRICISM	58
A BOLD EXPERIMENT	59
MILL'S METHODS: A DEFINITION OF CONTROL	60
<i>Two Steps of Research</i>	61
<i>Method of Difference</i>	62
<i>Method of Concomitant Variation</i>	65
<i>Method of Agreement</i>	69
THE LANGUAGE OF VARIABLES	71
<i>Independent and Dependent Variables</i>	71
<i>Quantitative and Qualitative Variables</i>	71
LIMITATIONS OF MILL'S EXPERIMENTAL METHOD	72
<i>Internal Validity</i>	72
<i>External Validity</i>	73
<i>Construct Validity</i>	74
APPLYING THE METHODS	75
<i>Within-Subjects Design</i>	76
<i>Between-Subjects Design</i>	77
APPROACHES TO DEALING WITH UNCONTROLLED VARIABLES	79
<i>The Within-Subjects Design with Virtually Total Control</i>	79
<i>Statistical Control: Measure the Uncontrolled Variables and Remove Their Effects</i>	80
<i>Randomized Experiments</i>	80
KEY TERMS	81
KEY PEOPLE	81
REVIEW QUESTIONS	81
CHAPTER 4 MEASUREMENT	83
THE VARIETY OF MEASURES IN PSYCHOLOGICAL RESEARCH	84
SCALES OF MEASUREMENT	87
STANDARD AND NORM-BASED SCALES	90

THE BEGINNINGS OF NORM-BASED MEASUREMENT	91
DESCRIBING INDIVIDUAL DIFFERENCES	93
Percentiles	93
The Normal Distribution	95
Percentiles and the Normal Curve	98
Why the Normal Distribution Is So Common	99
Galton's Scaling Method	100
NORMAL OR NON-NORMAL? THE LOGIC OF STATISTICAL TESTS	101
KEY TERMS	106
KEY PEOPLE	106
REVIEW QUESTIONS	106

CHAPTER 5 CORRELATION 108

THE DISCOVERY OF REGRESSION	109
The Concept of Regression	110
The Regression Coefficient	111
THE SCATTERPLOT: THE GRAPH OF CORRELATION	112
THE CORRELATION COEFFICIENT	115
The Independence of Variables	115
z Scores	116
<i>r</i> , an Index of Correlation	117
Calculating <i>r</i>	118
<i>r</i> and the Reliability and Validity of Measures	118
CORRELATION AND PREDICTION: THE METHOD OF LEAST SQUARES	119
Nonlinear Relationships	120
Statistical Control	121
CORRELATION'S BAD REPUTATION	122
Causal Relationships	123
Noncausal Relationships	124
KEY TERMS	126
KEY PEOPLE	126
REVIEW QUESTIONS	127

CHAPTER 6 RANDOMIZED EXPERIMENTAL DESIGNS 128

A MEASURE OF ERROR	130
THE RANDOMIZED BLOCKS DESIGN	133
Replication	133
Random Assignment	133
Determining the Measure of Error	134
The Null Hypothesis	135
The Significance Probability, <i>p</i>	136
Interpreting <i>p</i>	136
The <i>t</i> Test	137

COMPLETELY RANDOMIZED DESIGN AND THE LATIN SQUARE DESIGN	138
FISHER'S DESIGNS IN PSYCHOLOGY	140
<i>Completely Randomized Design: Evaluating Cognitive Therapy</i>	143
<i>Randomized Blocks Design: Stimuli Necessary for Perceptual Development</i>	144
<i>Latin Square: High Sugar Diet for Children</i>	145
POWER ANALYSIS: DECIDING ON THE NUMBER OF SUBJECTS	146
<i>Type I and Type II Errors</i>	146
<i>The Treatment Effect Size</i>	148
<i>How to Estimate the Effect Size in Your Own Research</i>	150
<i>Other Strategies to Increase Power</i>	150
STATISTICAL CONCLUSION VALIDITY	152
<i>Low Statistical Power</i>	153
<i>Violation of Assumptions</i>	153
<i>Error Rate Problem</i>	153
<i>Instability</i>	153
FINAL COMMENT	154
KEY TERMS	154
KEY PEOPLE	155
REVIEW QUESTIONS	155
CHAPTER 7 ETHICS OF RESEARCH	156
THE NUREMBERG CODE	159
<i>Informed Consent</i>	162
<i>Risk/Benefit Analysis</i>	163
THE NEED FOR LEGISLATIVE CHANGE	165
THE BELMONT REPORT	166
<i>Respect</i>	167
<i>Beneficence</i>	167
<i>Justice</i>	167
CODE OF FEDERAL REGULATIONS FOR THE PROTECTION OF HUMAN SUBJECTS	168
AMERICAN PSYCHOLOGICAL ASSOCIATION (APA) CODE OF CONDUCT FOR RESEARCH	170
ETHICS IN ANIMAL RESEARCH	175
<i>Animal Welfare Act of 1985</i>	176
<i>APA Code of Conduct: Care and Use of Animals in Research</i>	177
FINAL COMMENTS	179
KEY TERMS	180
KEY PEOPLE	180
REVIEW QUESTIONS	180

CHAPTER 8 FACTORIAL DESIGNS AND INTERACTIONS 182

THE FACTORIAL DESIGN	185
<i>Assigning Subjects to Treatments</i>	186
<i>Comparisons between Conditions</i>	187
<i>The Interaction between Factors A and B</i>	187
<i>Main Effect of Factor A</i>	189
<i>Main Effect of Factor B</i>	189
<i>The Analysis of Variance</i>	190
VARIATIONS IN FACTORIAL DESIGNS	190
<i>Between-Subjects Factors</i>	191
<i>Within-Subjects Factors</i>	193
<i>Subject Factors</i>	194
<i>The Number of Factors</i>	198
ADVANTAGES OF THE FACTORIAL DESIGN	199
<i>Efficiency</i>	199
<i>Comprehensiveness</i>	200
<i>External Validity</i>	200
THE GENERAL LINEAR MODEL	200
KEY TERMS	201
KEY PEOPLE	201
REVIEW QUESTIONS	201

CHAPTER 9 SINGLE-CASE EXPERIMENTAL DESIGNS 203

THE O X O SINGLE-CASE DESIGN	206
LIMITATIONS OF RANDOMIZED CONTROL GROUP DESIGNS	208
<i>Getting Enough Subjects</i>	208
<i>Misleading Summary Statistics</i>	208
<i>Relevance</i>	211
SKINNER'S BASIC EXPERIMENTAL DESIGN	211
REPLICATION IN MODERN SINGLE-CASE DESIGNS	215
<i>Sequential Replication Designs</i>	216
<i>Illustration of the ATD Design: Temporal Discrimination in Goldfish</i>	217
<i>Simultaneous Replication Designs</i>	219
<i>Illustration of the Multiple Baseline Design: Behavioral Treatment of Depressive Behaviors</i>	221
PRINCIPLES OF DESIGN AND ANALYSIS	223
<i>Choice of Design</i>	223
<i>The Size of the Study</i>	224
<i>Handling Threats to Internal and External Validity</i>	224
<i>Data Analysis</i>	225
KEY TERMS	226
KEY PEOPLE	226
REVIEW QUESTIONS	226

CHAPTER 10 FIELD RESEARCH 228**THE DESIGN OF FIELD EXPERIMENTS (QUASI-EXPERIMENTS) 230***Pretest-Posttest One-Group Design: O X O* 230*Replicating the O X O Design with Different Measures
and Subgroups* 232*Replicating the O X O Design with Repeated Measures,
Time-Series Designs* 232*Nonequivalent Control Groups* 235**NATURALISTIC OBSERVATION 237***Deciding on Behavioral Units* 239*Reducing Observer Bias* 242*Observer Reliability* 244*Reducing Subject Reactivity* 244**SURVEY RESEARCH 249***Probability Sampling* 250*Measuring Error* 252*Modes of Administering the Survey* 253*The Wording of Questions* 255**FINAL COMMENTS 256****KEY TERMS 257****KEY PEOPLE 258****REVIEW QUESTIONS 258****CHAPTER 11 FINDING A RESEARCH PROBLEM 260****PREPARING THE MIND 262***The Literature Search* 263*Collecting Your Own Observations* 268**EUREKA!—DISCOVERING IDEAS 273***Use Theory to Generate Ideas* 273*Explore Analogies and Metaphors* 274*Keep Alert for Anomalies* 275*Look for Gaps in Knowledge* 276*Turn Assumptions on Their Heads* 278*Look for Patterns in Findings* 278*Try to Resolve Discrepancies* 279*Develop Skepticism about Findings, Methods, and Interpretations* 280*Improve Apparatus, Measures, and Procedures* 280*Focus on Practical Problems* 282**FINAL THOUGHTS 283****KEY TERMS 284****KEY PEOPLE 284****REVIEW QUESTIONS 285**

CHAPTER 12	PLANNING THE STUDY	287
RECRUITING PARTICIPANTS		288
<i>Probability Sampling</i>		289
<i>Convenience Sampling</i>		289
ASSIGNING SUBJECTS TO GROUPS		290
DECIDING ON APPARATUS AND MEASURING INSTRUMENTS		290
<i>Instruments</i>		290
<i>Self-report Measures</i>		292
CONSTRUCTING YOUR OWN QUESTIONNAIRE		295
<i>Open versus Closed Questions</i>		295
<i>Closed Item Formats</i>		296
<i>Use Standard English—Define Your Terms</i>		300
EVALUATING PSYCHOLOGICAL MEASURES		301
<i>Reliability</i>		301
<i>Validity</i>		302
EVALUATING OBSERVATIONAL MEASURES		303
SPECIAL PROBLEMS OF CONTROL WITH HUMAN PARTICIPANTS		305
<i>The Hawthorne Effect</i>		305
<i>Demand Characteristics and Experimenter Expectancies</i>		307
<i>Controlling for Suggestion and Reactivity</i>		309
DEBRIEFING		310
APPLYING TO THE INSTITUTIONAL REVIEW BOARD		311
<i>Recruitment Procedures</i>		311
<i>The Consent Form</i>		312
<i>Procedures Involved in the Research</i>		314
<i>Confidentiality</i>		314
FINAL COMMENTS		314
KEY TERMS		315
KEY PEOPLE		315
REVIEW QUESTIONS		315
CHAPTER 13	COMMUNICATING RESEARCH	317
THE LANGUAGE OF SCIENCE		320
CONTENTS AND ORGANIZATION OF PSYCHOLOGICAL RESEARCH REPORTS		321
<i>Title Page</i>		322
<i>Abstract</i>		323
<i>Introduction</i>		323
<i>Method</i>		328
<i>Results</i>		329
<i>Discussion</i>		336
<i>References</i>		341
<i>Appendix, Author Note, Footnotes, Tables, and Figures</i>		342

APA EDITORIAL STYLE 342
WRITING WITH "STYLE" 345
ORAL PRESENTATIONS 347
THE ETHICS OF SCIENTIFIC COMMUNICATION 348
FINAL THOUGHTS 350
KEY TERMS 351
KEY PEOPLE 351
REVIEW QUESTIONS 351

APPENDIX A THE BELMONT REPORT 353
APPENDIX B MODEL MANUSCRIPT 367
REFERENCES 393
ACKNOWLEDGMENTS AND PHOTO CREDITS 401
NAME INDEX 407
SUBJECT INDEX 411