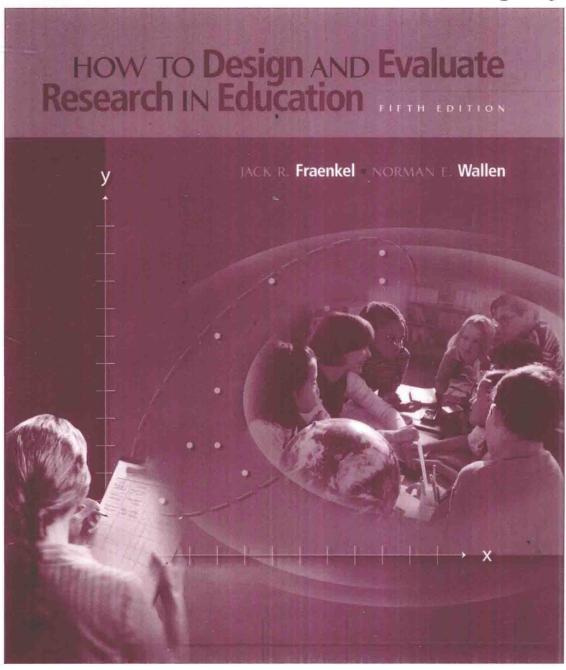
## STUDENT WORKBOOK to accompany



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## How to Design and Evaluate Research in Education

Jack R. Fraenkel

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Student Workbook to accompany HOW TO DESIGN AND EVALUATE RESEARCH IN EDUCATION Jack R. Fraenkel, Norman E. Wallen

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5 6 7 8 9 0 VFM/VFM 0 9 8 7 6 5 4

ISBN 0-07-253184-3

www.mhhe.com

# Contents

### **CHAPTER 1** The Nature of Educational Research 1

Activity 1.1: Empirical vs. Nonempirical Research 2

Activity 1.2: Basic vs. Applied Research 3

Activity 1.3: Types of Research 4

**Activity 1.4: Assumptions 5** 

Activity 1.5: General Research Types 6

#### CHAPTER 2 The Research Problem 7

Activity 2.1: Research Questions and Related Designs 8

Activity 2.2: Changing General Topics into Research Questions 9

Activity 2.3: Operational Definitions 10

Activity 2.4: Justification 11

#### **CHAPTER 3** Variables and Hypotheses 13

Activity 3.1: Directional vs. Non-Directional Hypotheses 14

Activity 3.2: Testing Hypotheses 15

Activity 3.3: Categorical vs. Quantitative Variables 16

Activity 3.4: Independent and Dependent Variables 17

#### CHAPTER 4 Ethics and Research 19

Activity 4.1: Ethical or Not? 20

Activity 4.2: Some Ethical Dilemmas 21

Activity 4.3: Violations of Ethical Practice 22

Activity 4.4: Why Would These Research Practices Be Unethical? 23

#### **CHAPTER 5** Reviewing the Literature 25

Activity 5.1: Library Worksheet 26

Activity 5.2: Where Would You Look? 27

Activity 5.3: Do a Computer Search of the Literature 28

#### CHAPTER 6 Sampling 29

Activity 6.1: Identifying Types of Sampling 30

Activity 6.2: Drawing a Random Sample 31

Activity 6.3: When Is It Appropriate to Generalize? 33

Activity 6.4: True or False? 34

#### **CHAPTER 7** Instrumentation 35

Activity 7.1: Major Categories of Instruments and Their Uses 36

Activity 7.2: Which Type of Instrument Is Most Appropriate? 37

Activity 7.3: Types of Scales 38

Activity 7.4: Norm-Referenced vs. Criterion-Referenced Instruments 39

Activity 7.5: Design an Instrument 40

Activity 7.6: Developing a Rating Scale 41

## **CHAPTER 18** The Nature of Qualitative Research 109

Activity 18.1: Qualitative Research Ouestions 110

Activity 18.2: Qualitative vs. Quantitative Research 111

Activity 18.3: Approaches to Qualitative Research 112

## **CHAPTER 19** Observation and Interviewing 113

Activity 19.1: Observer Roles 114

Activity 19.2: Types of Interviews 115

Activity 19.3: Types of Interview Questions 116

Activity 19.4: Do Some Observational Research 117

#### **CHAPTER 20** Content Analysis 119

Activity 20.1: Content Analysis Research Questions 120

Activity 20.2: Do a Content Analysis 121

Activity 20.3: Advantages vs.
Disadvantages of Content Analysis 122

Activity 20.4: Content Analysis Categories 123

#### CHAPTER 21 Ethnographic Research 125

Activity 21.1: Ethnographic Research Questions 126

Activity 21.2: True or False? 127

Activity 21.3: Do Some Ethnographic Research 128

#### **CHAPTER 22** Historical Research 129

Activity 22.1: Historical Research Questions 130

Activity 22.2: Primary or Secondary Source? 131

Activity 22.3: What Kind of Historical Source? 132

Activity 22.4: True or False? 133

#### CHAPTER 23 Action Research 135

Activity 23.1: Action Research Questions 136

Activity 23.2: True or False? 137

## **CHAPTER 24** Writing Research Proposals and Reports 139

Activity 24.1: Put Them in Order 140

#### Authors' Suggested Answers 141

Chapter 1 The Nature of Educational Research 142

Chapter 2 The Research Problem 143

Chapter 3 Variables and Hypotheses 143

Chapter 4 Ethics and Research 144

Chapter 5 Reviewing the Literature 146

Chapter 6 Sampling 146

Chapter 7 Instrumentation 148

Chapter 8 Validity and Reliability 149

Chapter 9 Internal Validity 151

Chapter 10 Descriptive Statistics 152

Chapter 11 Inferential Statistics 153

Chapter 12 Statistics in Perspective 155

Chapter 13 Experimental Research 156

Chapter 14 Single-Subject Research 157

Chapter 15 Correlational Research 158

Chapter 16 Causal-Comparative Research 160

Chapter 17 Survey Research 160

Chapter 18 The Nature of Qualitative Research 162

Chapter 19 Observation and Interviewing 162

Chapter 20 Content Analysis 163

Chapter 21 Ethnographic Research 164

Chapter 22 Historical Research 164

Chapter 23 Action Research 165

Chapter 24 Writing Research Proposals and Reports 166

Problem Sheets 167

# The Nature of Educational Research

#### CHAPTER

**ACTIVITY 1.1** Empirical vs. Nonempirical Research

**ACTIVITY 1.2** Basic vs. Applied Research

**ACTIVITY 1.3** Types of Research

**ACTIVITY 1.4** Assumptions

**ACTIVITY 1.5** General Research Types

#### Activity 1.1: Empirical vs. Nonempirical Research

Empirical research is research that involves the collection of firsthand information. Nonempirical research does not involve the collection of information at first hand. Thus, research that consists of locating and comparing references on a particular topic—the customary term paper—is not an example of empirical research. In *How to Design and Evaluate Research in Education*, we are concerned primarily with empirical research.

In the list of research topics that follows below, place an X in front of those that are examples of empirical research.

1.	A study of the effectiveness of a social learning program on the employability of severely disabled adults.
2.	The relationship between television watching and school achievement: a review of the literature.
3.	A reanalysis of the evidence on school effectiveness.
4.	The relationship between self-esteem and age at school entrance of fourth-grade students in the San Francisco Unified School District.
5.	Logical inconsistencies in writings of Sigmund Freud.
6.	A comparison of the effectiveness of behavior therapy as compared with client-centered therapy in homes for adolescent runaways

#### Activity 1.2: Basic vs. Applied Research

Listed below are a number of research projects that you can use to review your understanding of the distinction between basic and applied research. Place a "B" in front of those that you think are examples of basic research and an "A" in front of those that you think are examples of applied research.

1.	 A comparison of the attitudes of different student ethnic groups toward the general education requirements at the City University of New York.
2.	 The effectiveness of counselors who are recovering alcoholics as compared with other counselors at the Rosewood Recovery Center.
3.	 A comparison of the effects of phonics versus look-say teaching on the achievement of Latino children in reading as based on the Amalo theory.
4.	 Employer perceptions of changes in essential secretarial skills of his employees between 1945 and 1995.
5.	The relationship between adolescent self-esteem and alcoholism in parents.
6.	The effectiveness of using manipulative materials in teaching first-grade mathematics.

## Activity 1.3: Types of Research

What would be the most appropriate type of research to investigate each of the topics listed below? Match the letter of the appropriate research methodology from Column B with its topic in Column A.

COLUMN A: TOPIC		COLUMN B: TYPE OF RESEARCH	
1	Diplomatic relationships between Japan and the United States between 1918 and 1941.	a. A group-comparison experiment     b. A survey	
2	Images of women in U.S. history text-books.	<ul><li>c. A correlational study</li><li>d. A content analysis</li></ul>	
3	Relationship between student attendance and achievement in chemistry classes.	e. A case study	
4	Number of single mothers on welfare in the city of Chicago.	f. An ethnography g. A historical study	
5	Daily activities of an operating room nurse in a big-city hospital.	h. A single-subject experiment	
6	A comparison of the inquiry method and the lecture method in teaching high school biology.		
7	Changing impulsive behavior through the use of praise.		

#### Activity 1.4: Assumptions

What assumptions underlie each of the following statements? 1. "Spare the rod and spoil the child!" 2. "We couldn't beat McAteer High last season and we probably won't be able to beat them this year either." 3. "A stitch in time saves nine." 4. "Oh, brother, I have another one of the Johnson kids in my class next semester!" 5. "Boy, I dread the thought of taking algebra from Mrs. West next semester!"

#### Activity 1.5: General Research Types

Each of the following represents an example of one of the general research types we discussed on pages 14-16 in the text. Identify each as being either *descriptive*, *associational*, or *intervention* research.

1.	A study of the possible relationship that may exist between class size and learning in remedial mathematics courses
2.	A survey of the attitudes of parents in a large urban school district toward the advanced placement courses offered by the district
3.	A study designed to compare the effectiveness of two methods of teaching spelling to first graders
4.	An investigation by a researcher in an attempt to confirm that abstract concepts can be taught to six year olds
5.	A historical study of high school graduation requirements
6.	A detailed ethnographic study of the daily activities of a teacher in an inner-city high school
7.	A comparison of inquiry and lecture methods of teaching 11th grade history
8.	A study designed to compare the attitudes of male and female students toward chemistry

## The Research Problem

#### CHAPTER

**ACTIVITY 2.1** Research Questions and Related Designs

**ACTIVITY 2.2** Changing General Topics into Research Questions

**ACTIVITY 2.3** Operational Definitions

**ACTIVITY 2.4** Justification

## Activity 2.1: Research Questions and Related Designs

Select the appropriate research design for each question listed below.

Case Study Experimental
Causal-Comparative Historical
Content Analysis Survey
Correlational Ethnography

- 1. What do elementary school teachers in the San Francisco Unified School District think about full inclusion as practiced in their district?
- 2. Is there a relationship between students' level of social skills and successful transition into mainstream classes?
- 3. How do individuals with physical disabilities perceive themselves in comparison to their able-bodied peers in terms of work-related activities?
- 4. Does a whole-language curriculum lead to higher student achievement than a phonics curriculum does?
- 5. How are teachers implementing the whole-language approach to reading in their curricula at Harding Elementary School?
- 6. What were the key events that led to the demise of affirmative action in state hiring and college admissions in California?
- 7. How do magazines targeted at teenagers present information on safe-sex practices?
- 8. Are the reasons Native American Indian students give for dropping out of school different from those given by non-Native American Indian students?

#### Activity 2.2: Changing General Topics into Research Questions

Change the following topics into researchable questions.

1.	Class size and student achievement
2.	Multicultural education at Thurgood Marshall Middle School
3.	Testing anxiety
4.	Women college professors and tenure
5.	Alcohol consumption on New Year's Eve and Super Bowl Sunday
6.	Single parents and affordable child care
7.	Counseling style
8.	Asian-American students and positive stereotypes
9.	The charter school movement in the twentieth century
10.	Diet and exercise

## Activity 2.3: Operational Definitions

Which of the following are operational definitions for the phrase "motivated to learn in a research methods class" and why?

1.	Smiles a lot in class.
2.	Is observed by the teacher to ask questions about past and present reading assignments.
3.	Tells the instructor she would rather conduct a literature review than interview students.
4.	States he likes the instructor.
5.	Is described by the instructor as a student who hands in all assignments on time.
6.	Has a record of checking out books on research design at the library.
7.	Enjoys reading journal articles on quasi-experimental studies.
8.	Scored 100 percent on the midterm exam.
9.	Asks the instructor if s/he can prepare an extra-credit assignment on recent trends in the field of educational research.
10.	Voluntarily creates an interactive Web site for the class so that students can discuss course material online.

A researcher wished to study the following question: "Are 'open' classrooms more effective (do children learn more) than structured, non-open classrooms?"

Here are two different justifications that were written. Which do you think would be most likely to attain support to convince skeptics as to the importance of the study?

- (1) The general purpose of this research is to add knowledge to the field of education at this time when classroom freedom is a cornerstone of today's educational revolution. Various authorities (Leonard, Holt, Kozel, etc.) have suggested that the strictly structured, teacher-directed classroom may impede the learning process of students. They argue that less-structured, "open" environments may help students to learn more, faster, and in greater depth. It is this controversial thesis (since many "structuralists" disagree strongly) that has provoked many teachers to modify their classrooms in hopes of achieving greater educational gains for their students. While the reformers have written convincingly from an inspirational point of view, scant "hard data" exist to provide support. If educators are to jump on this bandwagon, and if money is to be diverted from the more traditional type of arrangement to support open classrooms, they should have information of the type that answers to this research question will provide. It is one thing to think something has potential for improving the learning of the young; it is quite another to have evidence that illustrates that this is so. Hopefully, this study will provide some information in this regard.
- (2) Education of children in elementary schools has always been a controversial issue among parents and teachers. There are various ideas regarding the type of setting that would be (or provides) a constructive learning situation for children. One such setting might be the open classroom type. That is what this research will set out to determine.