

TEST BANK

James H. McMillan



Educational

RESEARCH

FUNDAMENTALS FOR THE CONSUMER

SIXTH EDITION

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*Instructor's Resource Manual and Test Bank
for*

**Educational Research:
Fundamentals for the Consumer
Sixth Edition**

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PEARSON

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PREFACE

This instructor's manual has been prepared to assist you in designing and teaching a course in which students will learn how to understand and critically evaluate educational research. The manual has been organized to provide ideas for structuring such a course, chapter objectives, application problems, classroom activities, and multiple choice test items.

Educational Research: Fundamentals for the Consumer (*Sixth Edition*) provides a strong introduction to the most important research concepts and principles for effectively reading and evaluating empirical studies. Consequently, the learning aids in the text, including the short definitions of terms in the margins, boldface key terms in the text, excerpts from actual studies, and several complete articles and the evaluations of them should be stressed to students as guidelines for learning. In other words, organizing the course and telling students to concentrate on these aids will maximize student learning and satisfaction with the course.

This edition of the text includes new chapters on mixed-method designs and action research and substantial revision on using the Internet for educational research. In addition, there is some expanded material on qualitative research and more diagrams and figures to aid student learning.

COURSE ORGANIZATION

Educational research courses need to be planned to communicate to students two important points. First, learning the content will require considerable study and serious student involvement. It is very important to keep up with the reading and assignments. Second, it can take several weeks for students to feel comfortable and confident in their understanding of the content. It is not uncommon for students to feel "lost" during the beginning of the semester, but most feel quite comfortable as time passes. Because the course is usually one of the more difficult students take, it is best to reduce student anxiety and concern. There are several effective ways to do so.

1. Use as much humor as possible.
2. Learn the names of students, something about them, and use small group activities to encourage students to know each other.
3. Give students examples of papers and assignments that were completed successfully in previous semesters.
4. Offer to review drafts of papers before final due dates.
5. Give students the opportunity to take a "make-up" midterm exam.
6. Assign papers that allow students to select a topic of interest and familiarity.
7. Give students fairly detailed reviews of what will be tested (e.g., a table of specifications).
8. Do not give a comprehensive final exam.

A schedule of topics for a semester course should take into consideration the time students need to process and understand the material. While the chapters in this edition are relatively short, by the time examples are discussed in class and students read research articles to apply their knowledge, each major topic can take a week or more to promote a complete understanding. It is essential for students to read and review as many examples of research studies as possible during the semester, beginning as soon as classes start. The examples in the last chapter are illustrative, but students need to evaluate other articles also. A successful approach is to assign the same article to all students, ask them to identify certain characteristics or parts of the articles, and then discuss their evaluation, either in small groups or with the whole class. Two articles of interest to the students, one quantitative and one qualitative, should be identified for this purpose.

It is also very helpful for students to conduct their own review of the literature on a topic of interest. This provides each student with valuable experience in identifying, locating, and evaluating articles of interest and relevance to their professional work.

LEARNING OBJECTIVES

Learning objectives have been written for each chapter. They indicate what students should know or be able to do if the concepts and principles of the chapter are mastered. While there is obviously some overlap with the objectives in the text, the learning objectives in this manual are far more specific and detailed. These objectives obviously help direct the students' learning, but they also create a system by which you can identify specific issues that are essential to your personal goals as the instructor of a course.

The author of this manual has found it extremely helpful to make these objectives available to students so they can focus their attention on the important concepts and issues being taught. Communicating to students which objectives will be emphasized makes their task far less complicated and confusing. To help in this regard, the objectives can be found on the companion website. In addition, each objective has been keyed to the items addressing it in the pools for the student's self assessments and the instructor's exams.

APPLICATION EXERCISES

Application exercises have been written for each chapter. They include references to those questions in the text, a set of short questions that identify many of the fundamental concepts presented in the chapter, and a series of questions and activities that promote an in-depth understanding of some important issues addressed in the chapter.

CLASSROOM ACTIVITIES

A few suggestions for effective classroom activities have been written for each chapter. These are designed to complement the application exercises, but they can be used independently. Many of the activities have been successfully used by the author of this manual in his experiences teaching an introductory, consumer-oriented research class.

OBJECTIVE ITEMS

Two sets of objective test items have been written for each chapter. The first set, Student's Self Assessment Items, is for students to use to assess their understanding of the material covered in each chapter. The second set of items, Instructor's Exam Items, is for your use in assessing student knowledge of the material in each chapter.

Each set of items covers the same objectives. Each objective is addressed by at least one item, but many have several items associated with them. A table identifying each objective and the corresponding items addressing that item is presented to assist in your selection of items for any assessments you are developing. The answers to all items are printed in a table at the end of the manual.

CHAPTER 1

Introduction to Research in Education

LEARNING OBJECTIVES

After reading Chapter 1, you should have mastered each of the following objectives.

CHAPTER OBJECTIVES	RELEVANT TEST ITEMS
OBJECTIVE 1: Identify five (5) sources used to make decisions in education and the limitations associated with each source. Assess the appropriateness of relying on each source for specific decisions.	Self-Assessment: 1 Instructor's Exam: 1
OBJECTIVE 2: Define the term "research" and identify its characteristics. Defend research as a valuable source of information and knowledge in education.	Self-Assessment: 2-3 Instructor's Exam: 2-3
OBJECTIVE 3: Explain the purpose of scientific inquiry and describe the six Scientific Principles.	Self-Assessment: 4 Instructor's Exam: 4
OBJECTIVE 4: Identify four (4) steps typically used to conduct research. Discuss how the credibility of each step can be established.	Self-Assessment: 5 Instructor's Exam: 5-6
OBJECTIVE 5: Compare quantitative and qualitative approaches to research in terms of their underlying assumptions; their goals; the research designs used; the samples from which information is collected; the actual data, data collection techniques, and data analyses; and the researcher's role.	Self-Assessment: 6 Instructor's Exam: 7-8
OBJECTIVE 6: Distinguish between non-experimental and experimental quantitative research designs.	Self-Assessment: 7-8 Instructor's Exam: 9
OBJECTIVE 7: Describe the characteristics of the following quantitative research designs: descriptive, causal-comparative, true experimental, quasi-experimental, and single subject.	Self-Assessment: 9-10 Instructor's Exam: 10
OBJECTIVE 8: Describe the goals of the following qualitative research designs: phenomenology, ethnography, and grounded theory. Identify the characteristics of case studies.	Self-Assessment: 11-12 Instructor's Exam: 13
OBJECTIVE 9: Identify the characteristics of analytical research. Identify three types of analytical designs.	Self-Assessment: 13 Instructor's Exam: 11
OBJECTIVE 10: Identify the characteristics of mixed-methods design.	Self-Assessment: 14 Instructor's Exam: 12
OBJECTIVE 11: Define basic, applied, action, and evaluation research. Give examples of each, and differentiate them in	Self-Assessment: 15

terms of purpose, generalizability, and intended use.	Instructor's Exam: 14
OBJECTIVE 12: Identify the ethical guidelines for conducting human-subjects research.	Self-Assessment: 16 Instructor's Exam: 16
OBJECTIVE 13: Identify the components of an educational research article. Provide a brief description of the function of each component. Identify these components in a research article.	Self-Assessment: 17 Instructor's Exam: 15

APPLICATION EXERCISES

- 1) Answer the study questions for Chapter 1 found in the textbook.
- 2) The following questions are designed to help focus your attention on several important points in Chapter 1. Answer each question in a succinct manner.
 - a) Defend the use of research as a valuable source of knowledge on which educators can rely.
 - b) Discuss some examples of how educational research has affected your professional practice.
 - c) Identify a specific theory or theories that you feel has had an effect on your work.
 - d) Quantitative and qualitative research differs along several dimensions. Identify several of these dimensions and discuss the differences between a quantitative and qualitative approach.
 - e) Locate a quantitative research article and a qualitative research article. Explain why you have classified each as quantitative or qualitative.
 - f) Briefly describe how basic, applied, action, and evaluation research might affect your work in terms of specific things you do or approaches you take when working with students.
 - g) Identify a problem or a question that could be the subject of a research project and is important to you professionally. Identify the sequence of steps that you would take to research this problem.
- 3) Create your own cognitive map of this chapter.
- 4) A teacher is trying to decide whether to teach simple addition facts (e.g., $1 + 2 = 3$; $3 + 2 = 5$; etc.) by using manipulatives or drill. She has heard good things from other teachers in the school about their use of drill, but she has very little information about the use of manipulatives except that their popularity is somewhat recent. The teacher decides to go by the recommendations of the other teachers and use drill.
 - a) What source(s) of knowledge did the teacher use in making her decision?
 - b) What are the limitations of this source(s)?
 - c) Describe a different approach that the teacher could have used to make her decision.
- 5) The following is an abstract from a research article.

The study was designed to compare the efficacy of two instructional methods, oral recitation and transcription, on the spelling accuracy of five students with learning disabilities. During oral recitation, the student orally spelled the words presented by the experimenter. Transcription was

similar to the recitation method, except that the students were required to write the word as they spelled it. Results showed that all students achieved higher accuracy with the transcription method.

- a) Is this an example of basic, applied, action, or evaluation research? Defend your answer.
 - b) Is this a quantitative or qualitative study? Explain your answer.
- 6) Read the two articles in Chapter 13 – *How Elementary School Counselors Can Meet the Needs of Students with Disabilities*, and *The Effect of Reciprocal Peer Counseling in the Enhancement of Self-Concept Among Adolescents*. Respond to each of the following questions.
- a) Why might we consider these articles “scientific inquiry”?
 - b) Why might we be justified calling all three articles “research”?
 - c) Discuss the differences between the articles in terms of the goals, the research designs, the ways by which subjects were selected, the type of the data collected and the ways by which that data was collected, the analyses of data, and the researcher’s role.
 - d) Based on these differences, which articles would you categorize as quantitative and which qualitative?

CLASSROOM ACTIVITIES

- 1) Refer to the Application Exercises for Chapter 1.
- 2) Using several examples of research articles that address a particular educational theory, have students identify the theory and discuss its utility and limitations.
- 3) Have students share with the class an example of research that has affected their personal and/or professional lives.
- 4) Have students identify a problem or a question that could be the subject of scientific inquiry. Get them to identify the sequence of steps they would take to research their problem or question.
- 5) Ask students to read the *How Elementary School Counselors Can Meet the Needs of Students with Disabilities* and *The Effect of Reciprocal Peer Counseling in the Enhancement of Self-Concept among Adolescents* articles found in Chapter 14. Discuss the differences between the two studies in terms of the:
 - goals of the researchers,
 - research designs used,
 - selection of subjects,
 - types of data collected and the techniques used to collect that data,
 - nature of the data analyses, and
 - relationships between the researchers and the subjects. Ask students to classify each article as either quantitative, qualitative, or mixed-methods on the basis of these characteristics.
- 6) Have students identify the specific components of the *How Elementary School Counselors Can Meet the Needs of Students with Disabilities*, and *The Effect of Reciprocal Peer Counseling in the Enhancement of Self-Concept Among Adolescents* articles found in Chapter 14.
- 7) Provide articles that are examples of basic, applied, evaluation, and action research. Ask students to categorize them according to the type of research and explain why they categorized them as they did.
- 8) Divide the class into small groups. Each group should propose a research question that illustrates

basic, applied, evaluation, and action research. Share the research questions in a group discussion.

SELF-ASSESSMENT ITEMS

- 1) Which source of knowledge was used to make the following decision? "We should teach children basic math computations using flash cards because that is how I learned."
 - a) Research
 - b) Personal experience
 - c) Authority
 - d) Tradition

- 2) A valuable source of information characterized by the systematic collection, analysis, and interpretation of data is:
- a) research.
 - b) personal experience.
 - c) logic.
 - d) tradition.
- 3) A teacher is trying to decide whether to teach reading using a phonetic or whole-language approach. Her decision should be based on:
- a) analysis of data on how the students performed after using both techniques.
 - b) her own personal experience with other classes.
 - c) the opinions of other teachers in her department.
 - d) what authorities in the field say.
- 4) Why is scientific inquiry important in education?
- a) It enables us to describe and explain educational phenomena.
 - b) It provides a means for developing and testing theories.
 - c) It allows us to control variables so we can study the causal relationship between phenomena.
 - d) all of the above
- 5) What of the following reflects the importance of theory in education?
- a) It provides a general explanation of behavior.
 - b) It provides great utility with regard to our understanding certain phenomena.
 - c) It represents a body of knowledge about educational practice.
 - d) All of the above.
- 6) Beyond a description of the process by which research can be conducted, why are the six steps of the research process discussed in this chapter important?
- a) The credibility of the overall result is dependent on the credibility of each individual step.
 - b) There is a need to conduct research in a systematic manner so that the results will be credible.
 - c) A systematic approach can be examined thoroughly.
 - d) All of the above.
- 7) All of the following are characteristics of quantitative research **EXCEPT** the:
- a) focus on verbal narratives and observations.
 - b) researcher is detached and uninvolved.
 - c) emphasis is on the form of statistical analysis.
 - d) researcher controls experimental variables.
- 8) All of the following are characteristics of qualitative research **EXCEPT** the:
- a) detached, objective role of the researcher.
 - b) use of purposeful sampling techniques to select a few participants.
 - c) use of observations and interviews to collect data.
 - d) inductive analysis of data.

- 9) Which of the following are the unique characteristics of experimental research designs?
- a) The investigation of cause and effect relationships
 - b) The manipulation of a factor
 - c) The control of extraneous factors that might influence the results
 - d) All of the above
- 10) If a researcher is studying the effect of computer-assisted instruction on student achievement, what type of research design is he using?
- a) Descriptive
 - b) Comparative
 - c) Correlational
 - d) Experimental
- 11) Which of the following qualitative designs has as its purpose the in-depth study of a single program, event, activity, or group defined by time and place?
- a) Phenomenology
 - b) Ethnography
 - c) Grounded theory
 - d) Case study
- 12) Which type of research investigates ideas or concepts by analyzing documents, records, recordings, and other media?
- a) Phenomenology
 - b) Correlational
 - c) Grounded theory
 - d) Analytical
- 13) Which of the following is **NOT** a type of analytical research design?
- a) Historical
 - b) Legal
 - c) Concept
 - d) Applies
- 14) Which type of research is being used when a researcher uses both questionnaires, tests, observations, and interviews in her study?
- a) Qualitative
 - b) Quantitative
 - c) Analytic
 - d) Mixed-method

- 15) A teacher is concerned about the attention level of some of the students in her class. She tries different seating arrangements to see if the students' levels of attention improve. What type of research was the teacher using?
- a) action research
 - b) basic research
 - c) descriptive research
 - d) evaluation research
- 16) Which of the following are aspects of ethic concern in research?
- a) Subjects should be informed of all aspects of the research.
 - b) Subjects may discontinue participation at any time without penalty.
 - c) Participant privacy should be protected.
 - d) All of the above
- 17) Which of the following are components of a research report includes recommendations and implications?
- a) references
 - b) conclusions
 - c) results
 - d) discussion

INSTRUCTOR'S EXAM ITEMS

- 1) Standardized social studies test scores have been very, very low for several years in a local parish. Ms. Bolden, the superintendent, has identified the outdated curriculum being used as a major cause for these low scores. She must recommend to the Board of Education a new curriculum (i.e., textbook series, instructional approach and strategies, supplemental materials including related technology, etc.) for parish-wide adoption. Which of the following is the MOST appropriate knowledge base upon which she should rely for choosing a specific curriculum for adoption?
- a) Authority
 - b) Tradition
 - c) Personal experience
 - d) Research
- 2) A valuable source of information characterized by the systematic collection, analysis, and interpretation of data is:
- a) personal experience.

- b) common sense.
 - c) research.
 - d) tradition.
- 3) Which of the following characteristics distinguish research from other sources of knowledge?
- a) The replicability of findings
 - b) The refutability of knowledge claims
 - c) The control for errors and bias
 - d) A commitment to analyze and critique investigations
 - e) All of the above
- 4) Why is scientific inquiry important in education?
- a) It helps to explain phenomena and our understanding of the relationships that underlie these phenomena.
 - b) It enables us to obtain accurate descriptions about behavior, events, and/or people.
 - c) It enables us to make predictions based on objective and valid information.
 - d) All of the above.
- 5) What is theory?
- a) A method of inquiry that enables us to describe natural phenomena
 - b) A set of propositions that explains relationships among observed phenomena
 - c) A source of knowledge that is used to make educational decisions
 - d) A systematic process of collecting and analyzing data
- 6) Which of the following is a critically important characteristic of the six steps of the research process identified by McMillan?
- a) The credibility of the overall result builds on the trustworthiness of each preceding step.
 - b) The review of the literature is superfluous to most research questions.
 - c) Mistakes in any individual step of the process can be compensated by actions taken in other steps.
 - d) Each step is independent of the other steps.
- 7) Which of the following is **NOT** a characteristic of quantitative research?
- a) The emphasis is on numbers and statistical analyses.
 - b) The data is presented in narrative form.
 - c) The research design is highly structured.
 - d) The experiment involves the manipulation of variables.
- 8) Which of the following is **NOT** a characteristic of qualitative research?
- a) The data is presented in narrative form.
 - b) The researcher is involved in the study for a long period of time.
 - c) The research design is unstructured and emerges over time.

- d) The researcher conducts the study in a highly controlled, manipulated environment.
- 9) Which of the following characteristics most clearly differentiates experimental research designs from other types of quantitative designs? The researcher:
- a) applies the findings from basic research to a practical problem in the classroom.
 - b) assesses the relationship between two or more phenomena.
 - c) investigates the causal relationship between two variables by manipulating one of them.
 - d) makes judgments about two or more alternatives.
- 10) Which of the following is a common characteristic of true experimental, quasi experimental, and single subject research designs?
- a) All of these designs examine causal relationships.
 - b) Each design examines the differences between groups.
 - c) Each design provides simple information describing something of interest to the researcher.
 - d) All of these designs are qualitative in nature.
- 11) Which of the following types of research is solely investigated by analyzing documents, records, and other media?
- a) Quantitative
 - b) Action
 - c) Analytical
 - d) Mixed-method
- 12) Which type of research best describes the following study?
- A researcher used a mid-term social studies exam to identify six students who performed exceptionally well or exceptionally poorly. Once identified, each student was interviewed to understand the nature of their preparation for the exam.*
- a) Quantitative
 - b) Qualitative
 - c) Analytical
 - d) Mixed-method
- 13) Which of the following designs attempts to describe and interpret a cultural or social group system?
- a) Grounded theory
 - b) Phenomenology
 - c) Descriptive
 - d) Ethnography
- 14) From the following questions, identify the one that could be answered by doing evaluation research.
- a) How do teacher aides apportion their time in the classroom?
 - b) Was the new reading program being used in our school this year effective in increasing the reading scores of the fourth-grade students?
 - c) What is the relationship between self-concept and academic achievement?

d) Will the use of manipulatives enhance the retention of math concepts in fifth-grade students?

15) Which of the following components of a research report provides an explanation of the analysis of the data?

- a) Abstract
- b) Conclusion
- c) Results
- d) Discussion

16) Which of the following are aspects of ethic concern in research?

- a) Potential benefits to a control group should be identified
- b) Approval for conducting the research should be obtained before data are collected
- c) Subject participation must be voluntary
- d) All of the above

Essay Question: Describe a study you would be interested in conducting from a quantitative or qualitative approach. Briefly describe the problem, choose a research design, and identify the methods you would use to collect and analyze data. Justify the appropriateness of your selection of these quantitative or qualitative methods in terms of how they will provide a credible answer to the problem.

CHAPTER 2

Research Problems, Variables, and Hypotheses

LEARNING OBJECTIVES

After reading Chapter 2 you should have mastered each of the following objectives.

CHAPTER OBJECTIVES	RELEVANT TEST ITEMS
OBJECTIVE 1: Define the term “research problem” and identify characteristics of good research problems.	Self-Assessment: 1 Instructor’s Exam: 1
OBJECTIVE 2: Differentiate research problems from research problem statements and/or questions.	Self-Assessment: 2 Instructor’s Exam: 2
OBJECTIVE 3: List the characteristics of researchable and non-researchable problems. Identify examples of each.	Self-Assessment: 3 Instructor’s Exam: 3-4
OBJECTIVE 4: Identify four (4) common sources of research problems.	Self-Assessment: 4 Instructor’s Exam: 5
OBJECTIVE 5: Differentiate quantitative and qualitative research problems in terms of the following: the specificity of the problem, the nature of the questions addressed, the development of the problems itself, and the terminology related	Self-Assessment: 5 Instructor’s Exam: 6-8

to the problem. Classify research problems as quantitative or qualitative on the basis of these characteristics.	
OBJECTIVE 6: Describe the characteristics of quantitative research problems.	Self-Assessment: 6 Instructor's Exam: 9
OBJECTIVE 7: Define the term "variable" and give examples of variables relevant to educational research.	Self-Assessment: 7 Instructor's Exam: 10
OBJECTIVE 8: Differentiate conceptual and operational definitions and give examples of each.	Self-Assessment: 8-9 Instructor's Exam: 11-12
OBJECTIVE 9: Differentiate the following types of variables: independent and dependent, extraneous and confounding, and continuous and categorical.	Self-Assessment: 10-12 Instructor's Exam: 13-15
OBJECTIVE 10: State the criteria for evaluating quantitative research problems and evaluate specific problems using these criteria.	Self-Assessment: 13 Instructor's Exam: 16
OBJECTIVE 11: Define the term "hypothesis" and identify reasons for using a hypothesis.	Self-Assessment: 14 Instructor's Exam: 17
OBJECTIVE 12: Differentiate the following types of hypotheses: 1) inductive and deductive and 2) research and statistical. Define the term "null hypothesis" and discuss its use in a study. Identify examples of each type of hypothesis.	Self-Assessment: 15-16 Instructor's Exam: 18-19
OBJECTIVE 13: State the criteria for evaluating hypotheses and evaluate specific hypotheses using these criteria.	Self-Assessment: 17 Instructor's Exam: 20
OBJECTIVE 14: Describe the characteristics of a qualitative research problem.	Self-Assessment: 18 Instructor's Exam: 21
OBJECTIVE 15: State the criteria for evaluating qualitative research problems and evaluate specific research problems using these criteria.	Self-Assessment: 19 Instructor's Exam: 22

APPLICATION EXERCISES

- 1) Answer the study questions for Chapter 2 found in the textbook.
- 2) The following questions are designed to help focus your attention on several important points in Chapter 2. Answer each question in a succinct manner.
 - a) Explain why stating a research problem is critically important to the research process.

- b) Explain the differences between quantitative and qualitative research problems.
 - c) What is a variable?
 - d) Why is it important to operationally define a variable?
 - e) Why is it necessary to use terms like *independent* and *dependent* variable or *continuous* and *categorical* variable?
 - f) Discuss the differences between researchable and non-researchable problems.
 - g) Summarize the criteria for evaluating quantitative research problems.
 - h) Explain why a hypothesis is an important aspect of a quantitative research study.
 - i) Summarize the criteria for evaluating a hypothesis.
 - j) Summarize the criteria for evaluating a qualitative research problem.
- 3) Create your own cognitive map of this chapter.
- 4) The following are general research topics: 1) teaching children with learning disabilities, 2) effective classroom instruction, 3) exercise behaviors, and 4) leadership styles.
- a) What are specific quantitative and qualitative research questions that could be derived from each topic?
 - b) For each quantitative research problem, identify the variables and write a research hypothesis describing their relationship.
 - c) For each qualitative research problem, identify the issue or process being studied and write a foreshadowed problem.
- 5) The following is an abstract from a research article.

This study was designed to compare the efficacy of two instructional methods, oral recitation and transcription, on the spelling accuracy of five students with learning disabilities. During oral recitation, the student orally spelled the words presented by the experimenter. Transcription was similar to the recitation method except that the students were required to write the word as they spelled it. Results showed that all students achieved higher accuracy with the transcription method.

- a) What is the independent variable? What are the levels of the independent variable?
 - b) What is the dependent variable?
 - c) How is instructional method operationally defined?
 - d) How do you think spelling accuracy could be operationally defined?
 - e) What is a research hypothesis relevant to this problem? What is the null hypothesis?
- 6) Answer the following questions using the *The Effect of Reciprocal Peer Counseling in the Enhancement of Self-Concept Among Adolescents* article found in Chapter 14.
- a) What is the research problem? Evaluate this problem using the criteria for a quantitative research problem discussed in this chapter.
 - b) How do you think the researchers became interested in this problem?
 - c) What are the independent and dependent variables? How are they operationalized?
 - d) Do the authors use research hypotheses? If so, state them; if not, write one.
 - e) Do the authors use statistical hypotheses? If so, state them; if not, write one.
- 7) Answer the following questions using the *How Elementary School Counselors Can Meet the Needs of Students with Disabilities* article found in Chapter 14.
- a) What is the research problem? Is this addressing an issue, process, or both? Defend your response.
 - b) How do you think the researcher became interested in this problem?
 - c) What is the foreshadowed problem? How was it reformulated during the study?

CLASSROOM ACTIVITIES

- 1) Refer to the Application Exercises for Chapter 2.
- 2) Have students write constitutive and operational definitions for several variables. Use the think, pair, and share process to discuss their definitions.
- 3) Get students to locate several articles from educational journals. Ask them to categorize the research problems as quantitative or qualitative. For the quantitative problems have the students identify the variables being studied as well as the relationships between these variables. For the qualitative problems, have the students identify the issue or process being studied.
- 4) Locate several quantitative studies that report a research problem, problem statement, and research hypotheses. Ask students to compare the three in terms of clarity and specificity.
- 5) Locate several qualitative studies and ask students to identify the research problem. Discuss why it is important to identify the central issue, participants, and site.
- 6) From a selection of research articles, get students to discuss the sources for the problems. Have them evaluate these problems using the criteria in the chapter.

SELF-ASSESSMENT ITEMS

- 1) Which of the following **BEST** exemplifies a research problem as defined in the text?
 - a) The purpose of this study is to investigate instructional strategies.
 - b) The research will examine technology issues.
 - c) What is the relationship between active learning instructional strategies and students' achievement?
 - d) The purpose of this study is to examine the effect of co-operative group instruction on the achievement of first and second grade students.

- 2) Which of the following **BEST** example of a research problem statement as defined in the text?
 - a) The primary aim of this study is to compare the effects of word-supply and word-analysis on the oral reading errors of four students with special needs.
 - b) The purpose of this research is to study the social skills of behaviorally disordered students.
 - c) The purpose of this research was to examine the drop-out behavior of adults enrolled in education programs to see if adults who worked full-time and who therefore had other commitments and responsibilities were more likely to drop out than those who were not employed and who therefore did not have extra pressures imposed on them.
 - d) Will the new math curriculum enhance each student's memory of math concepts?

- 3) Which of the following is a researchable problem?
 - a) Can we prevent war?
 - b) Should music and art be eliminated from the curriculum in our school?
 - c) What is the relationship between teacher's knowledge of classroom management techniques and their use of them?
 - d) Is values education effective?

- 4) Which of the following is a legitimate source of an educational research problem?
 - a) Constructivist learning theory
 - b) Personal experience using active learning strategies

- c) Clarifying seemingly contradictory results on the effectiveness of using technology in classrooms
d) All of the above
- 5) Which of the following likely reflects a quantitative research problem?
- a) What are the experiences of a child who is consistently “left out” of important social events in school?
b) This study explored the meaning of “inclusion” for three special needs students who had been placed in a regular education classroom.
c) To what extent are elementary teachers using math manipulatives?
d) This study examined the process of changing to a standards based curriculum.
- 6) A good quantitative research problem identifies the:
- a) type of research design.
b) independent and dependent variables.
c) subjects.
d) All of the above
- 7) Which of the following is not a type of variable discussed in the text?
- a) independent
b) categorical
c) continuous
d) scientific
- 8) Which of the following is a conceptual definition of reading?
- a) Comprehension scores on the Stanford IQ Test
b) Extracting meaning from a written text
c) The number of words recognized correctly in a 150-word passage
d) Scores on the Stanford Diagnostic Reading Test
- 9) All of the following are characteristic of an operational definition **EXCEPT** it:
- a) defines a concept with other concepts.
b) indicates how a variable is manipulated by the researcher.
c) represents a construct by defining it in terms of observable events.
d) specifies the way to measure a construct.
- 10) Which of the following italicized variables can be described as an independent variable?
- a) The teacher found the *phonics method* of teaching reading led to an increase in reading scores.
b) The researcher studied the effect of parental involvement on the *academic achievement* of their children.
c) In a recent study, it was found that the SAT score was not a good predictor of *college performance*.
d) The teacher rearranged the seating in his room to see if this would increase the *on-task behavior*

of some of the students.

- 11) All of the following are characteristics of extraneous variables **EXCEPT** they:
- a) can affect the independent variable.
 - b) can affect the dependent variable.
 - c) are manipulated by the researcher.
 - d) are unknown by the researcher.
- 12) Which of the following represents a continuous variable?
- a) Catholics or Protestants
 - b) Grade point average
 - c) Pass/fail
 - d) White-collar or blue-collar workers
- 13) Which of the following research problems meets all of the criteria discussed in the text for evaluating a quantitative research problem?
- a) Should we study longer for the upcoming test?
 - b) Is the weight of students related to their achievement?
 - c) This project was an ethnographic study of the beliefs of students.
 - d) The purpose of this study was to describe the relationships between elementary students' attitudes toward math and their math achievement.
 - e) This study examined the development of 13 year-old children in middle schools.
- 14) Which of the following reasons justifies the use of a hypothesis?
- a) It provides focus to the study.
 - b) It provides for the testing of the relationships between variables.
 - c) It implies how the study should be organized and structured.
 - d) It allows the investigator to confirm or not confirm relationships.
 - e) All of the above
- 15) The following is an example of which type of research hypothesis?
- There is a positive relationship between adults' perceptions of themselves and their persistence in adult basic education programs.*
- a) Deductive
 - b) Null
 - c) Research
 - d) Statistical
- 16) The results of the study showed that students who were taught to use the SQ3R method scored higher on a social studies test than students who were not exposed to this method. Which of the following best describes the results in terms of the null hypothesis?

- a) Rejected the null hypothesis
- b) Retained the null hypothesis
- c) Tested the null hypothesis again to confirm the original findings
- d) Tested the research hypothesis to see if it provided support for the null hypothesis

17) Which of the following is an important characteristic of a good hypothesis?

- a) It is written as a statement.
- b) It is consistent with known facts, prior research, or theory.
- c) It states an expected relationship between two or more variables.
- d) It is clear and concise.
- e) All of the above

18) Which of the following characterizes a qualitative research problem?

- a) It includes a single, central phenomenon.
- b) It is open-ended.
- c) It is evolving.
- d) It is process oriented.
- e) All of the above

19) Which of the following is **NOT** an important characteristic of a good qualitative research problem?

- a) It is amenable to change as data is collected and analyzed.
- b) It reflects the researcher's assumptions and desired findings.
- c) It is written with "how" and "why" questions to focus on describing the phenomena.
- d) It includes a central question as well as the participants and the site.

INSTRUCTOR'S EXAM ITEMS

- 1) Which of the following **BEST** exemplifies a research problem as defined in the text?
 - a) I am curious about leadership styles.
 - b) Do electronic portfolios help students?
 - c) Does instruction, using mastery learning strategies have an effect on the academic development of graduate students in educational research classes?
 - d) The purpose of this study is to examine instructional strategies for graduate research students.

- 2) Which of the following is the BEST example of a statement of a research problem as defined in the text?
 - a) The purpose of this research is to study social integration of minority students.
 - b) The purpose of this study was to examine the effect of computer-assisted instruction on the achievement of nine learning-disabled students.
 - c) This research will look at the relationship between school size and SAT scores.
 - d) What is the relationship between higher-order questioning and retention learning?

- 3) Which of the following is a researchable problem?
 - a) Should we use electronic portfolios to assess student's development as teachers?
 - b) Can students be taught to reflect?
 - c) Do teachers' assessment strategies relate to students' knowledge of key concepts in chemistry classes?
 - d) Is the teaching of "abstinence" a justifiable approach to sex education?

- 4) Based on the author's discussion of the nature of research problems, which of the following is the **LEAST** appropriate research problem?
 - a) Does studying Latin improve the standardized vocabulary test scores of seventh grade students?
 - b) Would it be a good decision to ban competitive games from elementary schools?
 - c) Does drilling fifth grade students with multiplication facts improve their standardized math tests scores?
 - d) What is the relationship between teacher's sense of self-efficacy and the quality of their instruction?

- 5) Which of the following represents a legitimate source of a research problem?
 - a) A teacher's personal experience using alternative assessments and her perceptions of their effectiveness
 - b) Brain-based research
 - c) Contradictory research results when investigating the effectiveness of using online tests in high school classes
 - d) All of the above

- 6) Which of the following **BEST** characterizes the difference between quantitative and qualitative problems?

- a) Quantitative problems involve many, many variables while qualitative problems involve only one.
 - b) Quantitative problems are stated as questions while qualitative problems are stated as hypotheses.
 - c) Quantitative problems are researchable while qualitative problems are not.
 - d) Quantitative problems involve variables while qualitative problems address issues.
 - e) All of the above
- 7) Which of the following statements is **MOST** aligned with a researcher studying a qualitative problem?
- a) The research problem identifies specific variables and discusses the relationships between these variables.
 - b) The research investigates cause and effect relationships.
 - c) The research design emerges as the study progresses.
 - d) The researcher is a detached, objective observer.
- 8) Which of the following statements is **MOST** aligned with a researcher using QUANTITATIVE methods?
- a) Research results are described in narrative form.
 - b) Research strives to understand phenomena from the participant's perspectives.
 - c) Research designs emerge over the course of time.
 - d) Research designs are chosen to manipulate the variables of interest and control for extraneous variables.
- 9) Which of the following would **NOT** be identified in a good quantitative research problem?
- a) The specific research design being used
 - b) Each of the variables being studied as well as the relationships between them
 - c) The subjects being studied
 - d) The emergent nature of the research design
- 10) Which term is used to describe a phenomenon that has many values?
- a) Abstraction
 - b) Educational concept
 - c) Scientific construct
 - d) Variable
- 11) The following are definitions of the term "tantrum." Identify the *constitutive* definition.
- a) A fit of bad temper
 - b) The number of times the student tips his desk over
 - c) The number of times a student throws items around the room
 - d) The frequency of violent acts toward other students
- 12) Which of the following is the **BEST** definition of the term *operational definition*?
- a) It defines a concept with other concepts.
 - b) It is the same as a dictionary definition.
 - c) It defines variables in terms of observable behavior.
 - d) It is precise.

- 13) Which of the following italicized variables can be described as a dependent variable?
- a) It was found that high school GPA was a better predictor of college performance than *SAT scores*.
 - b) The data from the study showed that the timeout procedure was not effective in reducing the student's *kicking behavior*.
 - c) The researcher studied the effect of students' *socioeconomic status* on academic achievement.
 - d) The teacher was able to increase the number of books read by the students in her class by offering a *prize* to students who read four books in one month.
- 14) A variable that might interfere with the results of a study is called:
- a) a confounding variable.
 - b) a dependent variable.
 - c) an independent variable.
 - d) a predictor variable.
- 15) Which of the following variables can be described as continuous?
- a) Males/females
 - b) Republican/Democrat/Independent
 - c) Skilled or unskilled workers
 - d) Vocabulary level
- 16) Which of the following research problems meets all of the criteria discussed in the text to evaluate a quantitative research problem?
- a) Can we legislate change?
 - b) This study examined the effects of using formative quizzes on graduate students' research skills.
 - c) How do you make a Power Point slide show?
 - d) Why is this school failing its students?
- 17) Which of the following is a legitimate reason for using a hypothesis rather than a research question?
- a) The hypothesis provides greater focus.
 - b) The hypothesis provides for the testing of the relationship.
 - c) The hypothesis implies how the study will be organized and structured.
 - d) The hypothesis allows the researcher to confirm or not confirm the relationships being studied.
 - e) All of the above
- 18) The following statement is an example of which type of hypothesis? *There is a negative relationship between birth rate and socio-economic status.*
- a) Null
 - b) Deductive
 - c) Research
 - d) Inductive

19) Which of the following is a research hypothesis rather than a statistical hypothesis?

- a) There is a positive relationship between self-concept and math achievement.
- b) The class using the web-based resources will show higher levels of content mastery than the class that does not use them.
- c) The mean exam scores of the group using the self assessment quizzes will be significantly higher than the mean scores for the group not using them.
- d) Leadership styles of administrators are related to measures of school climate.

20) Which of the following is a poor example of a hypothesis?

- a) What is the relationship between test anxiety and performance?
- b) Positive reinforcement is an ineffective method of changing behavior.
- c) Test anxiety and performance are being studied.
- d) All of the above

21) Which of the following is **NOT** a characteristic of a qualitative research problem?

- a) It is open-ended.
- b) It is evolving.
- c) It is process oriented.
- d) It identifies specific variables to be studied.

22) Which of the following is the **BETTER** qualitative research problem?

- a) What is the relationship between students' attitudes and their performance?
- b) How does Ms. Wilkins get her students to accept the high standards she holds for them?
- c) What is going on at Kennedy High School?
- d) How am I going to prove holding higher standards is an effective tool for learning?

Essay question: Describe the difference between how a hypothesis is used in a quantitative study and a qualitative study.