## CHAPTER 1
## THE NATURE OF EDUCATIONAL RESEARCH

Note: The phrase in parentheses following the item number for both closed-form and open-form items, for example, "(obj. 3)", refers to the textbook chapter objective to which the item is keyed.

### CLOSED-FORM ITEMS

1. (obj. 1) Studies that seek to identify the students who will drop out of high school or the students who will do well in college are examples of
   a. descriptive research.
   b. intervention-oriented research.
   c. prediction research.
   d. theory-building research.

Answer: c

2. (ob. 1) Studies that seek to assess how well students are mastering different curriculum subjects are examples of
   a. descriptive research.
   b. intervention-oriented research.
   c. prediction research.
   d. theory-building research.

Answer: a

3. (obj. 1) Which of the following statements best reflects the current status of improvement-oriented research?
   a. Researchers have discovered only a few interventions that improve learning.
   b. Researchers have discovered many different types of interventions that improve learning.
   c. Researchers have conducted few improvement-oriented studies in education.
   d. Researchers have not yet conducted studies on forms of cultural oppression that affect student learning.

Answer: b

4. (obj. 2) "Intelligence is that which is measured by intelligence tests." This statement is an example of
   a. an operationally defined construct.
   b. a constitutively defined construct.
   c. a theoretical law.
   d. grounded theory.

Answer: a

5. (ob. 2) Theories are considered "small" or "large" depending on
   a. how much research evidence is available to support them.
   b. how many phenomena they can explain.
   c. the number of constructs they contain.
   d. the number of scientific laws they contain.

Answer: b

6. (obj. 2) Unlike the "grounded theory" approach, a research hypothesis in the conventional "scientific method"
   a. can be proved or disproved by a single study.
   b. only can be tested if the constructs have been constitutively defined.
   c. is formulated after the data have been collected.
   d. Is formulated before the data have been collected.

Answer: d

7. (obj. 3) To date, research has had the most impact on educational practices involving
   a. teacher decision-making.
   b. school organization.
   c. assessment of students' academic achievement.
   d. individualization of instruction.

Answer: c

8. (obj. 3) The findings of a well-done educational research study
   a. will be value-free.
   b. nonetheless will be value-laden.
   c. nonetheless will have no generalizability beyond the situation that was studied.
   d. will yield clear prescriptions about what ought to be done to improve educational practice.

Answer: b

9. (obj. 3) Richard Schön's model of reflection-in action as a guide to practice
   a. precludes the use of research knowledge as a basis for professional action.
   b. supports the assumed relationship between research and practice posed by the technical rationality model.
   c. assumes a stable, consistent reality about which generalizations can be made and applied.
   d. involves experimentation based on practitioners' analysis of each unique situation.

   Answer: d

10. (obj. 4) Which of the following is *not* an example of basic research in education?
   a. Research to identify the parts of the brain that control memory
   b. Research on physiological changes in students during test-taking situations
   c. Research on the effects of a pharmaceutical drug on the classroom attention span of students diagnosed with attention-deficit disorder
   d. Research on factors that explain artistic aptitude

Answer: c

11. (obj. 4) In their study of research on the treatment of heart diseases, Julius Comroe and Robert Dripps found that
   a. medical doctors have more confidence in basic research than applied research.
   b. important advances in the treatment of heart diseases resulted from basic research.
   c. most advances in the treatment of heart diseases resulted from applied research.
   d. basic and applied research did not advance the treatment of heart diseases nearly as much as the informal research conducted by medical doctors in their daily practice.

Answer: b

12. (obj. 5) Karl Popper claimed that a theory
   a. is untestable through empirical research.
   b. can by proven correct or false if it survives replication tests conducted by researchers who are skeptical about the theory's validity.
   c. can be proven correct or false if research designed to test it has sufficient controls for researcher bias.
   d. can be proven to be false, but cannot be proven to be true.

Answer: d

13. (obj. 5) Postpositivists believe that
   a. physical and social research is independent of those who observe it.
   b. there is an objective reality, but it can only be known imperfectly.
   c. all epistemologies have equal value in the search for truth.
   d. generalizations from the research sample to other samples from the same population are impossible.

Answer: b

14. (obj. 5) Progressive discourse requires that researchers
    a. maintain a willingness to change their views in response to criticism and new research findings.
    b. conduct a replication study before reporting the findings of the original study.
    c. give equal weight to case studies and case research.
    d. all of the above.

Answer: a

15. (obj. 6) In writing a research report, the author includes her own reactions to the classrooms she has studied. This style of reporting typifies
    a. positivist research.
    b. scientific realism.
    c. reflexivity in research.
    d. postmodernism.

Answer: c

16. (obj. 6) Researchers who subscribe to constructivist epistemology believe that
    a. they might view social reality differently than the individuals whom they are studying.
    b. objectivity can be achieved if they take responsibility for collecting data, but leave the responsibility for data interpretation to the research participants.
    c. objectivity can be achieved through the use of a positivist reporting style.
    d. as individuals mature, they assimilate physical and social reality with more objectivity and less private interpretation.

Answer: a

17. (obj. 7) If a constructivist researcher was interested in the effects of cooperative learning, he most likely would select for study
    a. a large sample of teachers who were using this method.
    b. a few teachers who were using this method.
    c. every teacher in a school district who was using this method.
    d. a large sample of staff developers who were training teachers in this method.

Answer: b

18. (ob. 7) Positivist researchers believe that
    a. they should study cases in order to determine local interpretations of social reality.
    b. features of social reality retain a high degree of constancy across settings.
    c. if consistent findings are obtained from several case studies, these findings can be generalized to a population.
    d. an investigation starts with sample selection and ends with the determination of a population to which the findings apply.

Answer: b

19 . (obj. 8) Constructivist researchers typically deal with the shortcomings of numerical data by
    a. not subjecting such data to statistical analysis.
    b. collecting such data only on large samples.
    c. making pictorial representations of numerical data.
    d. relying instead on thorough verbal descriptions of phenomena.

Answer: d

20. (obj. 8) A constructivist educational researcher would most likely argue that
    a. features of the social environment retain a high degree of constancy across time and space.
    b. quantifiable features of the social environment do not reveal what is most important about teaching and learning.
    c. most of the significant advances in the physical and social sciences involve quantification.
    d. symbolism, mythology, and religion are the best guides to explain human events and physical phenomena.

Answer: b

21. (obj. 9) The view that the real world consists of layers of causal structures is a primary tenet of
    a. positivism.
    b. postpositivism.
    c. scientific realism.
    d. both postpositivism and scientific realism.

Answer: c

22. (obj. 9) The view that interpretations and intentions are causal agents in social reality characterizes
    a. constructivism.
    b. scientific realism.
    c. postpositivism.
    d. scientific realism and postpositivism.

Answer: a

23. (obj. 10) Postmodernists would argue that
    a. positivist research is not superior to literary studies.
    b. positivist research is superior to literary studies.
    c. literary studies has a privileged position in the search for truth.
    d. it is necessary to combine literary studies with positivist research in order to make scientific progress.

Answer: a

24 (obj. 10) Postmodernists believe that theories
    a. cannot be validated.
    b. can be validated.
    c. can only be validated by cross-cultural research.
    d. can only be validated through objective observation.

Answer: a

25. (obj. 11) *Qualitative research* is sometimes called
    a. interpretive research.
    b. case study research.
    c. constructivist research.
    d. all of the above.

Answer: d

26. (obj. 11) Quantitative and qualitative researchers
    a. differ in their reliance on variables and holistic observation.
    b. differ in their methods of data analysis, but agree on report-writing procedures.
    c. share the belief that social reality can be studied objectively.
    d. share the belief that they should become personally involved with their research participants.

Answer: a

27. (obj. 11) Advocates of mixed-methods research believe that
    a. studies should be designed using qualitative-research epistemology and quantitative-research statistics.
    b. quantitative and qualitative methods can be combined in a study, but only if the data are collected from an emic perspective.
    c. quantitative and qualitative research methods can be combined in a study to generate useful findings.
    d. different quantitative methods can be combined in a study, but these methods cannot be combined with any qualitative methods.

Answer: c

**EDUCATIONAL RESEARCH: AN INTRODUCTION**

**OPEN-FORM ITEMS**

1. (obj. 1) Briefly describe four types of knowledge yielded by educational research.
Answer:
    1. *Description*. This is the initial step in new fields of investigation. It depends heavily on the state of measurement in the science.
    2. *Prediction*. Description often reveals relationships between variables. These observed relationships can be used to make predictions with varying degrees of accuracy.
    3. *Improvement or control*. Once predictions of events are possible, researchers can attempt to influence their occurrence by designing appropriate interventions. In education, interventions often have the goal of improving a learning outcome.
    4. *Explanation*. This the ultimate goal of research. The explanations often take the form of theories.

2. (obj. 2) State two reasons why theories are useful.
Answer (any 2 OK):
    1. They identify commonalities among phenomena that otherwise appear unrelated.
    2. They can be used to make accurate predictions of future events.
    3. They can be used to design or implement interventions that have known consequences.

3. (obj. 3) How is D. C. Phillips's distinction between *is* and *ought* relevant to the application of educational research to practice?
Answer:
    Research tells practitioners what is but cannot tell them what they ought to do. Knowledge about what is helps practitioners by contributing to their dialogue about what ought to be.

4. (obj. 4) A common criticism of basic research in education is that it seldom leads directly to improvement in educational practice. What are two reasons that basic research nonetheless should be supported?
Answer (any 2 OK):
    1. Even though its immediate impact may be slight, its eventual impact may be great.
    2. Without basic research, we have little chance of gaining a better understanding of the underlying processes involved in education.
    3. Studies in other sciences such as medicine show that basic research contributes more to important advances in practice than all other kinds of investigation.

5. (obj. 5) Describe two distinctive beliefs of researchers who subscribe to postpositivist epistemology, and explain why
    you think these beliefs have merit or are misguided.
Answer (any 2 OK):
    1. Belief in the creation of concepts and procedures that are shared and publicly accessible.
    2. Belief in the importance of replication research.
    3. Belief in the refutability of knowledge claims.
    4. Belief in the importance of controlling for errors and biases.
    5. Belief in the boundedness of knowledge claims.
    6. A moral commitment to progressive claims.

    The instructor will need to judge the soundness of the student's argument in support of, or against, the beliefs listed in the answer.

6. (obj. 6) Why do constructivist researchers distinguish their perspective from the perspectives of the individuals whom they study and of the individuals who will read their research reports?
Answer:
    Constructivist researchers believe that individuals construct their own interpretations of social reality. Therefore, researchers must bear in mind that (a) their interpretations of a social phenomenon may be different from those who participated in the phenomenon and that (b) the way they write their research reports will affect how readers interpret the findings.

7. (obj. 7) Give one reason why constructivist researchers study cases rather than samples or populations.
Answer (any 1 OK):
   1. Constructivist researchers believe that social reality is constructed locally. Therefore, one must do in-depth study of local instances of a phenomenon. Each such instance is a case.
   2. Constructivist researchers believe that social reality is highly variable and changeable, and therefore one must study particular instances of it. Each such instance is a case.

8. (obj. 8) State one criticism of relying on numerical data to measure variables in educational research.
Answer (any 1 OK):
   1. Numerical data tend to involve variables that may be of trivial significance in education.
   2. The assumption that a numerical value (e.g., the number of students in a classroom as a measure of class size) has the same meaning for all individuals may not be tenable.

9. (obj. 9) Explain one way in which constructivists and scientific realists differ in their explanation of the causes of social phenomena.
Answer (any 1 OK):
   1. Constructivists believe that individuals' interpretations of the social environment are the causes of social phenomena, whereas scientific realists believe that layers of causal structures are the causes of social phenomena.
   2. Constructivists believe that interpretations are constructed by individuals, whereas scientific realists believe that causal structures are real objects that exist independently of individuals.

10. (obj. 10) Explain why postmodernists would be critical of educational research as a basis for describing, predicting, improving, or understanding educational phenomena.
Answer: (any 1 OK):
   1. Educational research claims to produce valid, replicable, and useful findings about educational phenomena, but postmodernists doubt that any method of investigation can lay claim to such an authoritative, privileged position in the search for truth.
   2. Postmodernists suspect that any method of inquiry, including scientific inquiry, is not neutral, but instead serve particular political and societal interests.

11. (obj. 11) State two key differences between quantitative and qualitative research.
Answer (any 2 OK; other answers based on Table 1.2 in the textbook are also acceptable):
   1. In quantitative research, the social environment is an independent reality; in qualitative research, the social environment is constructed by individuals.
   2. In quantitative research, samples are studied; in qualitative research, cases are studied.
   3. In quantitative research, numerical data are emphasized; in qualitative research, verbal data are emphasized.
   4.. In quantitative research, instruments are used to measure variables; in qualitative research, the researcher is the "measuring instrument."

12. (obj. 11) State one assumption that must be satisfied in order to use quantitative research to verify the findings of a qualitative research study.
Answer (any 1 OK):
   1. The social phenomena being studied must be stable across time and place.
   2. It must be possible to represent the concepts discovered in the qualitative study by a measure that yields numerical scores.

**EDUCATIONAL RESEARCH: AN INTRODUCTION**

**APPLICATION PROBLEMS**

Problem 1
Formulate a small theory about education, that is, an explanation of an observed set of phenomena in terms of a system of constructs and laws the relate these constructs to each other that you believe to be true. Generate a plan for a research study that would allow you test this theory that includes the following three steps:

1. Formulating a hypothesis based on your theory.
2. Deducing observable consequences of the hypothesis.
3. Testing the hypothesis by collecting research data.

Sample Answer:

The theory is that students learn better under conditions of positive reinforcement than under conditions of negative reinforcement.

1. Hypothesis: Students will learn more when they are rewarded for their positive efforts than when they are punished for their mistakes.
2. Observable consequences: When solving mathematical problems, students who receive praise and criticism or correction during each step of the process.
3. Data collection: Two groups of students will receive the same set of mathematical problems to solve individually. Observers in the first group will praise and encourage students at each step they take to solve the problems, while observers in the second group will criticize or correct students at each step. The average number of correct problem solutions will be calculated for each group and group means will be compared.

Problem 2
Suppose the federal government decides to fund a new program for training high school students in study skills. Some educators argue that all of the appropriated funds should be used to develop model programs and materials, to train teachers in summer institutes, and to hire additional school staff. Other educators argue that at least 15 percent of the appropriations should be allocated for research on study skills. What defense could you offer for the latter proposal?
Sample Answers:

a. The model programs and materials may be ineffective, in which case the appropriated funds would be wasted. Research is needed to sort out the effective programs from those that are ineffective.
b. Research may yield new insights about studying and study skills instruction that can be used to develop more effective programs and materials than any that are currently available. This increase in effectiveness is better in the long run than reaching more individuals with less effective programs and materials in the short run.

Problem 3
Suppose you are asked to design a study of teachers' attitudes toward recent school reforms. How would you select a sample and measure teacher attitudes if you were doing (a) a quantitative research study, or (b) a qualitative research study?
Sample Answer:

a. In the quantitative study, a large sample of teachers that is representative of a defined population would be selected, and their attitudes would be measured by a scale that yields numerical scores.
b. In the qualitative study, the researchers would select a small number of teachers (or perhaps just one teacher), each of whom would be a case, and their attitudes would be assessed by interviewing the teachers and recording their responses in detail.

## TEACHING ACTIVITIES

Activity 1

Identify a report of a quantitative research study and a report of a qualitative research study that are fairly simple. Have students read each study as a homework assignment. In class, have students discuss how the design and the findings of the two studies differ. For purposes of this activity, it does not matter if students understand all the technical details of the study. This activity will help students to discover for themselves how quantitative and qualitative research differ, and to integrate these presented in chapter 1.

Activity 2

On page 10 of the textbook the authors state that, "putting a research finding into practice also means putting a particular set of values into practice." Assign a research article for all students to read as a homework assignment. In class, have students discuss how the authors' statement applies to this particular study. Having students read a report of an experimental study would be desirable for this particular activity.

Activity 3

On the first day of class, preferably before students have read Chapter 1, ask them (individually or in small groups) to write a definition of *research*. You can have them write their definitions on overhead transparencies, and them project each transparency so that the entire class can see all the definitions. You can ask students to look for commonalities and differences in the definitions. At various points in the term, you can ask students to revisit their definitions and decide whether they wish to revise the definitions in light of what they are learning about research in your course.

# CHAPTER 2
# THE RESEARCH PROCESS: FROM PROPOSAL TO FINAL REPORT

Note: The phrase in parentheses following the item number for both closed-form and open-form items, for example, "(obj. 3)", refers to the textbook chapter objective to which the item is keyed.

## CLOSED-FORM ITEMS

1. (obj. 1) Research knowledge and personal knowledge in that
   a. they serve different purposes.
   b. are judged against different standards.
   c. research knowledge is cumulative across studies.
   d. all of the above.

Answer: d

2. (obj. 2) An advantage of theory-based research is that it
   a. allows the researcher to examine any question of personal interest.
   b. provides a rational basis for explaining the research results.
   c. enables the researcher to prove a particular hypothesis.
   d. greatly reduces the possibility of conflicting interpretations of research findings.

Answer: b

3. (obj. 2) If a number of studies produce evidence in line with a theory and no disconfirming evidence is found, the most reasonable conclusion is that
   a. the theory has been proved.
   b. the theory has been supported.
   c. more evidence is needed to prove the theory.
   d. none of the above.

Answer: b

4. (obj. 2) Theory in qualitative research typically involves
   a. discovering a set of constructs, themes, or patterns in the data.
   b. formulating a research problem based on an earlier researcher's findings.
   c. testing hypotheses derived from an existing theory.
   d. attempts to disconfirm previously held beliefs about educational phenomena.

Answer: b

5. (obj. 3) Replication studies in education
   a. sometimes are done to test the generalizability of the original study's findings to new settings and populations.
   b. almost always find corroborative evidence for the findings of the study being replicated.
   c. are invalid unless they follow the same methodology as that used in the original study.
   d. can be used to search for more effective interventions than the one originally tested, but cannot be used to search for more efficient interventions.

Answer: a

6. (obj. 3) Replication studies in education
   a. have little value because they usually investigate problems of no interest to practitioners.
   b. have little value because the important studies generally are well-funded and produce trustworthy results.
   c. are of no value unless they literally reproduce the methodology of the original study.
   d. can be considered "original" if they check the findings of an important study using different methodology.

Answer: d