**Chapter 1**

**THE NATURE AND TOOLS OF RESEARCH**

The purpose of this chapter is to get students to think critically about what constitutes research. Systematic research serves the function of allowing us to discover possible answers to unanswered questions. This chapter sets the foundation for understanding research in this way. Along the way, several myths and misconceptions regarding research will be disputed and your students should finish the chapter with a clearer understanding of *why* we conduct educational research. Additionally, this chapter will introduce a variety of research methodologies, tools, and philosophical approaches to the nature of research.

**Activities Embedded in the etext**

 MyLab Education Application Exercise 1.1: Identifying Hypotheses and Assumptions

 MyLab Education Application Exercise 1.2: Communicate Effectively about Research

 MyLab Education Application Exercise 1.3: Examining Philosophical Assumptions

 MyLab Self-Checks for Each Learning Objective

**Additional Activities to Consider**

To further familiarize students with the research literature, try the following exercise. It will help them understand what research is and the many forms it may take.

Ask students to bring copies of one or two research articles they’ve read recently to class. This will create a pool of articles to work with. Chances are the pool will include review articles, meta-analyses, theoretical pieces, and empirical studies employing both quantitative and qualitative methodologies. To the extent that the class includes students from a variety of fields, the pool will represent these diverse fields. If there are certain types of articles that you particularly want included in the sample pool, or that you anticipate will be missing from the pool, you may want to provide these.

Place students into groups of about five. Make these groups diverse by field to the extent possible. Without providing any opening discussion about the nature of research, ask students to look through their group’s collection of articles and determine how they are similar to each other and how they differ. After groups have explored the articles and attempted to classify them on various criteria, conduct a discussion of the content of Chapter 1. Returning to the pool of sample articles, assist students in identifying what types of articles are in the sample pool and which of the articles should be considered research based on the description found in Chapter 1.

Collect the articles from class members at the end of the activity to keep on hand for use throughout the course. Consider making additional suggestions for their use in conjunction with subsequent chapters.

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**Multiple-Choice Questions**

1. To be considered true research, a project must:
2. gather together a body of existing information and communicate it in a clear and concise way.
3. uncover obscure or esoteric information and bring it to the consideration of the broader research community.
4. gather and interpret information in a systematic fashion so as to increase understanding of some phenomenon.
5. produce definitive conclusions regarding the subject of study.
6. Which of the following examples illustrates research as it is described in your textbook?
7. Sally is writing a paper about the effects of the Harry Potter books on the reading habits of fourth graders in the United States and United Kingdom. She goes to a research library to find information to include in her paper.
8. Ian wants to know why the population of songbirds has declined in recent years in the Sutton Wilderness Area. He carefully collects soil and water samples, systematically surveys the entire area for predators, and then sits down to make sense of his findings.
9. Leonard is starting a woodworking business and is not sure how to calculate the cost of his labor so he can be both profitable and fair to the customers. He asks several established business owners how they calculate labor changes.
10. Bill is doing a report on the sonnets of Shakespeare. He carefully reads a number of sonnets and then carefully reads scholarly reviews of those same sonnets written by various Shakespeare scholars. He synthesizes all of this information in his report.
11. Research is considered *cyclical* because:
12. the researcher articulates the goals of the project and then collects data to solve a particular problem.
13. questions lead to data collection which leads to interpretations and then to new problems.
14. it has a number of steps that should be followed in order.
15. it is based on solving problems and subproblems in a systematic, unbiased way.
16. Cameron is conducting a study that addresses the differences in achievement scores between schools that use block scheduling and schools that use a traditional scheduling format. He has accessed average achievement scores for 1200 schools and now is comparing the two groups. In which research step is Cameron engaged?
17. Recognize and identify a problem
18. Interpret the meaning of the data
19. Analyze the collected data
20. Develop a specific plan to address the problem
21. Which of the following is most likely a statement made by a qualitative researcher?
22. I would like to interview a few of the participants to understand their training.
23. I would like to give participants a test to determine their skill level.
24. I would like to use teacher ratings to see if the program worked.
25. I would like to control which students get the training so we can compare groups of children that did and did not get training.
26. Which of the following is most likely a statement made by a quantitative researcher?
27. Let’s follow the groups for the course of the project and take notes about their social interactions and dialogues.
28. Let’s conduct some focus groups with college students about the types of cooperative learning they have encountered in their schooling.
29. Let’s compare unit test scores of those who were placed in cooperative groups and those who were not.
30. Let’s enroll in a course that uses cooperative groups and observe the nature of the instruction from a student perspective.
31. The philosophical assumption that objective scientific research can uncover true cause-and-effect relationships in the world is known as:
32. postpositivism.
33. positivism.
34. experimentation.
35. realism.
36. Qualitative researchers most commonly (but not exclusively) align with which of the following philosophical approaches to research?
37. positivism
38. postpositivism
39. constructivism
40. pragmatism
41. A specific mechanism or strategy the researcher uses to collect, manipulate, or interpret data is known as a:
42. research tool.
43. research method.
44. statistical test.
45. theory.
46. Research methodology refers to:
47. the general approach the researcher takes to conducting a research project.
48. a specific device the researcher uses to collect data.
49. the specific theoretical basis of the research project.
50. the statistical tests to be employed in a research project.
51. The primary purpose of inferential statistics is to:
52. organize and summarize the data.
53. turn qualitative data into meaningful numbers that can be interpreted.
54. measure social and psychological phenomena in an unbiased way.
55. help the researcher draw conclusions from the data.
56. Kade has spent the past month carefully observing a group of third graders on the playground during recess, taking note of how the students interact with one another. On the basis of these observations, Kade is drawing conclusions about the interaction styles of boys and girls. This is an example of:
57. theory building.
58. deductive reasoning.
59. inductive reasoning.
60. the scientific method.
61. Kimberly knows that teenagers often do not make good decisions in areas where they have little knowledge. She also knows that most teens have little knowledge about human sexuality. Therefore, Kimberly believes that teens are likely to make poor decisions about sexual activity. This is an example of:
62. inductive reasoning.
63. theory building.
64. problem solving.
65. deductive logic.
66. Having completed a series of studies for her dissertation, Marianela sits down to brainstorm about possible explanations for her key findings. She can see a variety of ways in which all data work together, and she prepares to write a final chapter in which she presents those ideas. We would most likely say Marianela is engaged in the process of:
67. science.
68. theory building.
69. constructivism.
70. deductive reasoning.
71. The primary reason to seek research articles published in academic journals, rather than those posted by the author on the Internet, is that:
72. they have been carefully selected after an extensive review by experts.
73. they are more likely to follow the scientific method.
74. they tend to focus on the most important topics in the field.
75. they are more objective and show fewer pitfalls in human reasoning.
76. Researchers who ascribe to the belief that there are multiple realities to be discovered are known as:
77. Constructivists.
78. Positivists.
79. Post-Positivists.
80. Pragmatists.