

Chapter 2

THE PROBLEM: THE HEART OF THE RESEARCH PROCESS

Every good research project begins with the recognition of a problem. This chapter highlights the importance of understanding, developing, and stating the research problem and any associated subproblems. After reading this chapter, your students should have a clearer understanding of the importance of a well-articulated research problem as well as how to identify strategies for choosing a research problem or question.

Activities Embedded in the etext

MyLab Education Application Exercise 2.1: Stating the Research Problem

MyLab Education Application Exercise 2.2: Identifying Research Subproblems

MyLab Education Application Exercise 2.3: Selecting Variables to Study

MyLab Self-Checks for Each Learning Objective

Additional Activities to Consider

Students are likely to benefit from practice at formulating research problems. This group activity will help students move from identifying a topic or question of interest to clearly communicating a research problem that can serve as the foundation of a formal investigation.

Form groups of three to five students who share common research interests. Ask each group to formulate a formal statement of a research problem. In doing so, the students will need to consider the importance and practicality of the general research problem. Then they will need to identify subproblems, pose hypotheses, define terms, and state assumptions related to the research problem. Although students may lack a deep familiarity with a body of professional literature and may thus be somewhat limited in their ability to work through all of these steps, the exercise will impress upon them how complex the task of research problem formulation is when done properly. Ask each group to hand in a detailed document at the end of the activity.

The research problems formulated in this exercise will be a good basis for the group activity recommended for later chapters. Therefore, you may want to make note of group membership from this activity and collect the research problem exercises for later use.

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Multiple-Choice Questions

1. *Basic* research is:
 - a. research intended to enhance basic knowledge about the physical, biological, psychological, or social world or to shed light on historical, cultural, or aesthetic phenomena.
 - b. large scale research performed under contract with a governmental agency such as the National Science Foundation (NSF), National Institute of Mental Health (NIMH), etc.
 - c. informal research conducted locally by a small staff with a small budget, the purpose of which is to pave the way for larger research initiatives.
 - d. research intended to address issues that have immediate relevance to current practices, procedures, and policies.
2. *Applied* research is:
 - a. research intended to enhance basic knowledge and theoretical reasoning about the world.
 - b. large-scale research performed under contract with a governmental agency.
 - c. informal research conducted by a small staff with a small budget, designed to shed light on a problem of local interest.
 - d. research that informs human decision making about immediate, practical problems.
3. Which of the following represents a well-written *basic* research problem?
 - a. "Which general education course is more interesting, U.S. History or World Music? "
 - b. "How do business teams of six or fewer members compare to teams of more than six members in terms of productivity?"
 - c. "How does the organization of mathematical information in long-term memory differ between 3-year-olds and 13-year-olds?"
 - d. "What is the ratio of native-born students to international students on the campuses of major U.S. state universities?"
4. Which of the following represents a well-written *applied* research problem?
 - a. "How does the organization of mathematical information in long-term memory differ between 3-year-olds and 13-year-olds?"
 - b. "How do business teams of six or fewer members compare to teams of more than six members in terms of productivity?"
 - c. "Which general education course is more interesting, U.S. History or World Music?"
 - d. "What is the ratio of native-born students to international students on the campuses of major U.S. state universities?"
5. Three of the following questions lend themselves well to research. Which one does NOT?
 - a. "How does the organization of mathematical information in long-term memory differ between 3-year-olds and 13-year-olds?"
 - b. "How do business teams of six or fewer members compare to teams of more than six members in terms of productivity?"

- c. "Does message medium, print versus television, impact the effectiveness of public service health messages?"
 - d. "Which general education course is more interesting, U.S. History or World Music?"
6. Three of the following are characteristics of a well-written research problem. Which one is NOT?
- a. The problem statement includes the researcher's hypothesis.
 - b. The problem statement clearly delimits the object(s) of study.
 - c. The problem statement identifies the important factors to be investigated in the study.
 - d. The problem statement explicitly identifies assumptions.
7. "What proportion of workers hired by selected factories in the state of Oklahoma between 1995 and 2000 held four-year college degrees?"
- The chief weakness of this research problem is that:
- a. it lacks clarity or completeness in the problem statement.
 - b. it implies only description of the data, not interpretation.
 - c. it does not lead to the creation/discovery of new information.
 - d. studying the question as stated is not feasible.
8. "What do underemployed U.S. workers (i.e., those workers who are employed, but not in positions for which they have specialized training or expertise) identify as the primary reason for their inability to find suitable employment?"
- The chief weakness of this research problem is that:
- a. it lacks clarity or completeness in the problem statement.
 - b. it does not lead to the creation/discovery of new information.
 - c. it implies only description of the data, not interpretation.
 - d. studying the question as stated is not feasible.
9. "What is the correlation between an index of civic-mindedness and years of involvement in local organizations and charities among members of city councils of selected midsized cities in the northeastern United States?"
- The chief weakness of this research problem is that:
- a. it implies only description of the data, not interpretation.
 - b. it does not lead to the creation/discovery of new information.
 - c. it lacks clarity or completeness in the problem statement.
 - d. studying the question as stated is not feasible.
10. "Among social workers in selected U.S. urban areas, are the personality characteristics of Need for Structure or In-Group Preference related to prejudicial social judgments about African Americans, Latino Americans, or Asian Americans?"
- Which of the following is a well-stated subproblem that follows from this research problem?
- a. Which group is more discriminated against by the public at large in each of the selected areas: African Americans, Latino Americans, or Asian Americans?
 - b. What is the most valid existing measure of In-Group Preference?
 - c. What is the relationship between an index of Need for Structure and an index of prejudice targeting attitudes about Asian Americans among the selected social workers?
 - d. Which analytic technique is best suited to addressing the research problem, multiple regression or path analysis?

11. Which of the following represents a null hypothesis?
- Class A high school basketball teams who employ a sports psychologist will have a higher proportion of wins over the course of the season than comparable teams who do not employ a sports psychologist.
 - There will be no difference in rate of skill improvement between college gymnasts who practice meditation and those who do not.
 - Does incorporating relaxation exercises into the daily practice routine of college vocal majors enhance their performance confidence?
 - None of the above
12. Which of the following represents a research hypothesis?
- Class A high school basketball teams who employ a sports psychologist will have a higher proportion of wins over the course of the season than comparable teams who do not employ a sports psychologist.
 - There will be no difference in rate of skill improvement between college gymnasts who practice meditation and those who do not.
 - Does incorporating relaxation exercises into the daily practice routine of college vocal majors enhance their performance confidence?
 - None of the above
13. Lucy examined relationships between middle-school students' self-esteem and their performance in Mathematics. Her data analysis indicated that students with higher self-esteem perform better than those with lower self-esteem. Her investigation further revealed that students with higher self-esteem are more willing to invest effort in solving Math problems. In this case, the amount of effort is:
- an independent variable.
 - a dependent variable.
 - a mediating variable.
 - a moderating variable.
14. Research suggests that children who eat hot breakfast at home perform better at school. Many argue that not only hot breakfast but also parental care of children before they go to school has an impact on children's performance. In this case, parental care is
- An independent variable
 - A dependent variable
 - A mediating variable
 - A moderating variable
15. Imani analyzed data and found that explicitly teaching reading strategies improves students' performance on standardized tests. In this study, explicit teaching of reading strategies is
- An independent variable
 - A dependent variable
 - A mediating variable
 - A moderating variable
16. Marcos's study suggested that elementary students who watch TV more than three hours a day are more likely to be overweight than students who watch less TV. In this study, students' weight is:

- a. an independent variable.
 - b. a dependent variable.
 - c. a mediating variable.
 - d. a moderating variable.
17. Anneka ends her research proposal by introducing several variables that she does NOT plan to study, along with an explanation of why she's not studying them. When she presents her proposal to her research committee, her primary advisor is most likely to say:
- a. Be sure to include operational definitions for these variables.
 - b. Take that section out; focus only on what you intend to do in this study.
 - c. It's good that you've identified the delimitations of your study before you begin.
 - d. Don't let your personal biases interfere with your plans; remain as objective as possible.
18. After presenting the main research problem or question in a research proposal, a researcher should identify any subproblems as well as discuss any *a priori* hypotheses. What are "*a priori* hypotheses?"
- a. Hypotheses that are made by the researcher prior to data collection
 - b. Hypotheses that are made by the researcher during data collection
 - c. Hypotheses that are made by the researcher at the conclusion of the data collection
 - d. Hypotheses that are made by the researcher at the conclusion of data analysis

Essay Questions

19. Why is it important that the researcher articulate, as clearly as possible, all assumptions that affect the research problem?
20. Daphne has been a member of a research team studying interpersonal aggression among preschoolers for more than a year. In that time, her team has repeatedly employed a consistent set of techniques and procedures to study preschoolers as they interact in a number of settings. The procedures revolve around volunteer mothers bringing their children to the university child development lab for a "play session" that is the basis of the formal observations. Settings they have studied so far include: the university pre-school, affluent local day-care centers, and a pre-kindergarten program being offered in the neighborhood school district. All of these settings were fairly racially homogenous.

Daphne has just learned that a friend of a friend can help her gain research access, in the near future, to preschoolers in an unusually racially diverse though impoverished preschool setting. Daphne decides she has no time to prepare a formal research proposal before embarking on the study. "Besides," she thinks, "this study should go just like all the others we've done."

Is Daphne leaving herself open to problems in this situation, or is she safe moving ahead with no formal proposal, given how familiar she is with the study techniques and procedures?