APPENDIX B

Writing Research Problems and Questions

Frameworks for Stating Research Problems

A common definition of a research problem is that it is a statement that asks what relationship exists between two or more variables. However, most research problems are more complex than this definition implies. The research problem should be a broad statement that covers several more specific research questions to be investigated, perhaps by using summary terms that stand for several variables. Several ways to state the research problem are provided in this appendix. Underlines indicate that you fill in the appropriate name for the variable or group of variables.

Format
One way that you could phrase the problem is as follows: The research problem is to investigate whether (put independent variable 1 or group of variables here) (and independent variable 2, if any, here) (and independent variable 3, if any) are related to (dependent variable 1, here) (and dependent variable 2, if any) in (population here).

Except in a totally descriptive study, there always must be at least two variables (one is usually called the independent variable and one the dependent variable). However, there can be two or more of each, and there often are. In the statement of the problem, in contrast to the research questions/hypotheses, it is desirable to use broad descriptors for groups of similar variables. For example, in the hsb data demographics might cover four variables: gender, mother’s and father’s education, and ethnicity. Spatial performance might include a mosaic pattern test score and a visualization score. Likewise, grades and mathematics attitudes could each refer to more than one variable. Concepts such as self-esteem or teaching style have several aspects that usually result in more than one variable.

Examples
If your study uses the randomized experimental approach, you could phrase the problem as:

1. The research problem is to investigate the effect of a new curriculum on grades, math attitudes, and spatial performance in high school students.

For other studies that compare groups or associate/relate variables, you could phrase the problem as follows:

2. The problem is to investigate whether gender and grades are related to mathematics attitudes and achievement in high school students.

If you have several independent variables and want to predict some outcome, you could say:

3. The problem is to investigate the variables that predict or seem to influence mathematics achievement.

This latter format is especially useful when the approach is a complex (several independent variables) associational one that will use multiple regression.