groups, availability of recreational facilities. After examining existing theories and research findings in this area, he would frame a hypothesis stating a suspected or tentative relationship between some specific urban characteristic and mental illness. For example, he might hypothesize that the incidence of mental illness increases in proportion to the size of the city, with the largest cities having the highest rates of mental illness.

In the search for ways that these **variables** (characteristics that are present in varying amounts or degrees) could be measured, the hypothesis might be further refined. The researcher might choose to limit his study to those patients actually hospitalized with a diagnosis of mental illness, thus eliminating all those mentally ill urban residents who have not been diagnosed and are not being treated. Although this refinement makes the hypothesis easier to test, it also introduces an additional problem: the number of institutions that can diagnose and treat mental illness. Thus, the rates of mental illness might appear higher in some cities simply because they have more facilities to treat the mentally ill, whereas in other cities a large percentage of the mentally ill population go untreated. Each choice of a specific measure brings with it new possibilities of error and bias, yet the general hypothesis must be reduced to specifics if it is to be tested at all.

Second, develop a research design. A **research design** is a plan for the collection, analysis, and evaluation of data; it involves deciding how facts are to be selected, how they are to be evaluated and classified, and how they are to be analyzed to uncover relationships and patterns that bear on the original hypothesis. The major goal of the research design is to insure that the evidence gathered to test a hypothesis will be trustworthy, and that extraneous factors that might falsify the results will be controlled. Please note that **extraneous variables** are undesirable variables that influence the relationship between the variables that an experimenter is examining. In other words, extraneous variables are the variables which though not a part of the study yet are capable enough to influence the outcome of the study. These variables are undesirable because they add error to an experiment. A major goal in research design is to decrease or control the influence of extraneous variables as much as possible. The classic **controlled experiment** in a laboratory is the ideal scientific research design. It is an experiment designed in advance and conducted under conditions in which it is possible to control all relevant factors while measuring the effect on an experimentally induced variable. In a controlled experiment the subjects are divided into two groups. The variable whose effect is to be tested, or the **independent variable**, is then introduced into one group, called the **experimental group**, while it is withheld from the other group, called the **control group**. The two groups are subsequently compared to determine whether there are any significant differences between them regarding the variable that is expected to change, or the **dependent variable**. On the basis of