65
CHAPTER 4 Research: Its Role and Methods
LOOKING FORWARD

After reading this chapter, you should be able to discuss:

- The aim of science and the roles of observation and measurement
- Reliability and validity of research results
- The case study, correlational methods, the experiment, and single-subject designs
- Cross-sectional, longitudinal, and accelerated longitudinal designs
- Qualitative research
- Ethical issues in research

As a discipline, psychology is committed to the view that science can provide the most complete and valid information about human functioning, behavior, and development. Although common sense tells us much about behavior, science aims to go beyond common sense to systematic, reliable, and accurate knowledge. The general purpose of science is to describe and explain phenomena.

The word *science* comes from the Latin word for "knowledge," or "to know," but refers to knowledge gained by particular methods of inquiry. We might know the world from reading literature or listening to music, but we would not consider knowledge gained in this way to be scientific knowledge. Scientific understanding derives from systematic formulation of a problem, observation and collection of data, and interpretation of findings by what is considered acceptable procedures. Despite some misgivings—and even warnings of danger—about the scientific study of humans, we have come to value what science can tell us about ourselves.

65 66
FUNDAMENTALS OF RESEARCH

The numerous major questions relevant to developmental psychopathology are progressively being addressed by scientific investigations (Figure 4.1). Of course, these general questions are transformed into countless more specific queries. To answer them, it is sometimes necessary only to describe phenomena. We can count the number of cases of particular disorders and can describe the symptoms of disorders. At other times, it is necessary to determine the conditions under which a phenomenon occurs and to discover its relationship to other variables. Frequently, the quest is to determine cause-and-effect relationships.

We previously have noted that researchers rarely, if ever, simply pose and try to answer questions in an intellectual vacuum. They are guided by already established information, concepts, perspectives, or theories, and by their own inclinations. Theoretical concepts and assumptions guide research goals, choice of variables, procedures, analyses, and conclusions. But there is always at least a touch of subjectivity and creativity in the posing of research questions and in deciding how best to seek answers.

It is common to try to test specific hypotheses derived from theoretical notions. **Hypothesis testing** is valuable because it tends to build knowledge systematically rather than haphazardly. Any one investigation rarely proves that a hypothesis is either correct or incorrect; instead, it provides evidence for or against the hypothesis. In turn, a hypothesis that is supported serves as evidence for the accuracy and explanatory power of the underlying theory. An unsupported hypothesis, in contrast, serves to disprove, limit, or redirect the theory. Together, observations and theory advance scientific understanding.

Just as researchers ask a variety of questions and pose hypotheses, they work in a variety of settings, ranging from the natural environments of the home or community to controlled laboratory settings. Different strategies and designs are used, depending on the purposes of the research—and on ethics and practicality, too. In all cases, however, careful consideration must be given to selection of participants, observation and measurement, reliability, and validity.

Selection of Participants

For good reason, research reports require the description of the participants and the way they were selected. This information is important in judging the adequacy of investigations and interpretations of the findings.

Investigations of development and abnormal psychology are typically interested in drawing general conclusions about a population of interest. Because it is rarely possible to study an entire population, the next best choice is to examine a representative sample. Representativeness is best achieved by **random selection** of participants from the population, that is, by choosing each participant by chance. Even this goal may not be feasible; for example, it is impossible to randomly select a sample from *all* preschoolers or *all* children with intellectual disability. However, efforts can be made to approximate representativeness, and the extent to which it is achieved affects the interpretation of the research findings.

FIGURE 4.1 Some of the major questions for research on developmental psychopathology.