FOCUS ON VOCABULARY AND LANGUAGE

How *Do* Psychologists Ask and Answer Questions?

. . . psychological science welcomes *hunches* and plausible-sounding theories. In popular usage, a *hunch* is an intuitive feeling about a situation or event. Psychology can use subjective ideas to help formulate hypotheses or predictions, which can then be tested empirically or scientifically.

Description

Numbers can be numbing, but the plural of anecdote is not evidence. We are often overwhelmed and our senses deadened *(numbed)* by the sometimes inappropriate use of statistics and numbers. Although stories by and about individuals *(anecdotes)* can generate productive lines of inquiry *(fruitful ideas)*, they do not constitute reliable empirical facts no matter how numerous they are *(the plural of anecdote is not evidence).*

As psychologist Gordon Allport (1954, p. 9) said, "Given *a thimbleful* of [dramatic] facts we rush to make *generalizations as large as a tub*." A *thimble* is a small metal container that fits over the top of the thumb or finger. It is used while sewing to push the needle through the material. A *tub* is a very large container (for example, a bathtub). Allport is saying that, given a small amount of information *(a thimbleful)*, we tend to make very big assumptions *(generalizations as large as a tub).*

. . . *eavesdrop on* . . . In a study using **naturalistic observation**, researchers asked 52 students to attach small recording devices called EARs (Electronically Activated Recorders) to their belts. For up to four days, every 12.5 minutes the researchers secretly recorded *(eavesdropped on)* 30-second segments of the students' waking hours *(half-minute life slices)*. They found that students were talking with someone 28 percent of the time and at a computer keyboard 9 percent of the time. Naturalistic studies, such as this one, can describe behavior—but they do not explain it.

Using only *1500 randomly sampled people*, *drawn* from all areas of a country, they can provide a remarkably accurate *snapshot* of the nation's opinions. A *snapshot* is a picture taken with a camera, and it captures what people are doing at a given moment in time. A good **survey** that involves 1500 randomly selected ***(randomly sampled)*** representative people, selected (*drawn*) from all areas of a country, gives an accurate picture *(snapshot)* of the opinions of the whole **population** of interest.

Correlation

Statistics can help us see what the *naked eye* sometimes misses. When looking at an array of data consisting of different measures for many subjects (for example, height and temperament), it is very difficult to detect what, if any, relationships exist. Statistical tools, such as the **correlation coefficient** and the **scatterplot**, can help us see clearly what the unaided eye (the *naked eye*) might not see. As Myers notes, *to see what is in front of us, we sometimes need statistical illumination.*

Experimentation

Let's *Recap. Recap* is an abbreviation of *recapitulate*, which means to repeat or go over briefly, to summarize. Myers summarizes *(recaps)* the important points in each section of the chapter.

Statistical Reasoning in Everyday Life

Off-the-top-of-the-head estimates often misread reality and then mislead the public. Without knowing actual data and numbers *(statistics)*, people may guess at figures (they make *off-the-top-of-the-head estimates*). These guesses do not represent the true nature of things (they *misread reality*) and consequently can deceive *(mislead)* the public. Figures generated in this manner are often easy to articulate, such as 10 percent or 50 percent *(big round numbers)*. When repeated *(echoed)* by others, they may eventually be believed to be true by most people *(they become public misinformation)*. Rather than naïvely accepting easy-to-remember, but inaccurate, figures *(big, round, undocumented numbers)*, be *skeptical* and apply straightforward statistical principles and *critical thinking* skills.

Describing Data

Because the bottom *half* of British income earners receive only a *quarter* of the *national income cake*, most British people, like most people everywhere, make less than the mean. Incomes are not *normally distributed* (that is, they do not follow a bell-shaped curve, or **normal curve**). So, a better *measure of central tendency* than the **mean** (arithmetic average) is either the **median** (the score in the middle) or the **mode** (the most frequently occurring score). In Myers' example, half the people

account for 25 percent of all the money earned in the country (the *national income cake*); therefore, in this uneven *(skewed)* distribution, most people earn below-average wages.

It [standard deviation] better *gauges* whether scores are packed together or *dispersed*, because it uses information from each score. The most commonly used statistic for measuring *(gauging)* how much scores differ from one another (their *variation*) is the **standard deviation**. Using the formula for *standard deviation* (see Appendix B), each score is compared to the *mean*; the result is an index of how the scores are spread out *(dispersed)*. A relatively small standard deviation indicates that most of the scores are close to the average; a relatively large standard deviation indicates that they are much more *variable*.

Significant Differences

Data are *"noisy."* Differences between groups may simply be due to random *(chance)* variations *(fluctuations)* in those particular samples. When data have a great deal of variability, they are said to be *"noisy,"* which may limit our ability to generalize from them to the larger population. To determine if differences are *reliable*, we should be sure that (a) samples are random and representative, (b) scores in the sample are similar to each other (have low *variability*), and (c) a large number of subjects or observations are included. If these principles are followed, we can confidently make inferences about the differences between groups.