

MODULE 5 THE SCIENTIFIC METHOD AND DESCRIPTION

THE SCIENTIFIC METHOD

- In science, a **THEORY** explains behaviors or events by offering ideas that organize what we have observed.
- A good theory produces testable predictions, called **HYPOTHESES**. Predictions specify what results would support the theory and what results would cast doubt on the theory.
- In order to decrease biases from observations, psychologists use **OPERATIONAL DEFINITIONS** when they report their studies. Being able to state exact descriptions will allow anyone to **REPLICATE**, or repeat, the research.
- The theory will either confirm our theory or lead us to revise or reject it.
- A good theory effectively organizes a range of self-reports and observations, leads to clear hypotheses that anyone can use to check the theory, and often stimulates research that leads to a revised theory.
- We can test our hypotheses and refine our theories in several ways: descriptive methods, correlational methods, and experimental methods.

DESCRIPTION

- We observe and describe people, often drawing conclusions through case studies, naturalistic observation, and surveys/interviews

THE CASE STUDY

- Psychologists use the descriptive method with a **CASE STUDY**, which is among the oldest research methods, to examine one individual or group in depth in the hope of revealing things true of all of us. Individual cases may mislead us if the individual is atypical. Unrepresentative information can lead to mistaken judgments and false conclusions. Individual Case Studies point out suggestive ideas but cannot be generalized.

NATURALISTIC OBSERVATION

- Psychologists use the descriptive method of **NATURAL OBSERVATIONS (NO)** where observers record behavior in natural environments. NO does not explain behavior but instead describes behavior. In order for NO to be apparent, no controlling of variables is to be tampered with when NOing.

SURVEY

- A SURVEY looks at many cases in less depth for a representative sample of people, the attitudes or reported behaviors of a whole population.
- Wording effects when dealing with surveys can persuade the surveyors to a certain answer therefore, surveys are to be written without any persuading questions that could tamper results.
- Random sampling also must be in effect when dealing with surveys/experimentation. **SAMPLING BIAS** is a flawed sampling process that produces an unrepresentative sample. **POPULATION** is all of those within a group being studied, from which the samples will be drawn from. **RANDOM SAMPLE** (random selection) is a sample that fairly represents a population because each member has an equal chance of inclusion. Most studies cannot fund researching an entire population and therefore, take a sample.

BE ABLE TO ANSWER: What are some strengths and weaknesses of the three different methods psychologists use to describe behavior – case studies, naturalistic observation, and surveys?

PRACTICE FRQ'S: A teacher wants to know if nightmares are more common than dreams. He asks volunteers from his second-period class to report how many dreams they had last week. He asks volunteers from his third-period class to report the number of nightmares they had last week. Describe two things wrong with the design of this study.