Experimental Design

Cozby--Ch. 8

Introduction to Experimental Psychology

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Story Time—the Case of Clever Hans

- *Once upon a 19th-century time, there lived a world-famous horse named Clever Hans, who displayed amazing mathematical ability. If somebody asked him to add, say, five plus seven, Hans would faithfully stomp 12 times, astounding all present. For years, puzzled scientists were baffled by how the animal could add and subtract. One Oskar Pfungst solved the riddle at last. According to Pfungst, Clever Hans looked closely at his human audience for subtle body cues [e.g., of the eyes and head] telling him when to stop tapping his hoof.*

Stanovich, Ch. 6

- We must distinguish between the *description* of a phenomenon and the *explanation* of that phenomenon.
- "In a true experiment, the investigator manipulates the variable hypothesized to be the cause and looks for an effect on the variable hypothesized to be the effect while holding all other variables constant by control and randomization."

Experiments

- Recall: Experiments seek to assess the causal link between the independent variable and the dependent variable.

- In contrast to case study, observational study, correlational study, descriptive study, survey, etc., which cannot provide definitive information about cause-effect relationships.

Design vs. Methodology

- We can differentiate between <u>design</u> and <u>methodology</u>. *Methods* refers to the way that the study was actually conducted--procedures used, training of experimenters, use scripts, experimental materials, operationalization of variables, setting the stage, analysis of data, etc.
- Both design and methods are critical to getting reliable and valid information.

Internal Validity