

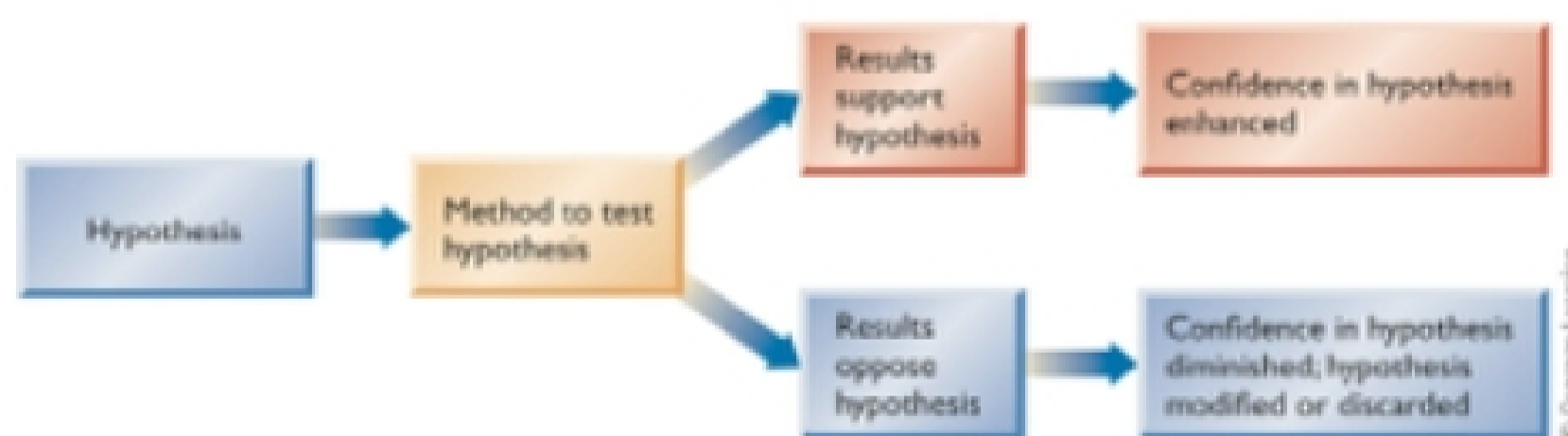
Test 1: Chapter 2 Outline

Psychology is a science

- practices help to gain the most accurate and useful knowledge of mental processes and human behavior
- rationalism(logic and reasoning) + empiricism(experience and observation) = science
- the study of all matter and energy (accumulation of knowledge as well as a body of accumulated knowledge)
- to observe, think, read, hypothesize, test
- advanced and limited by both tools and ourselves

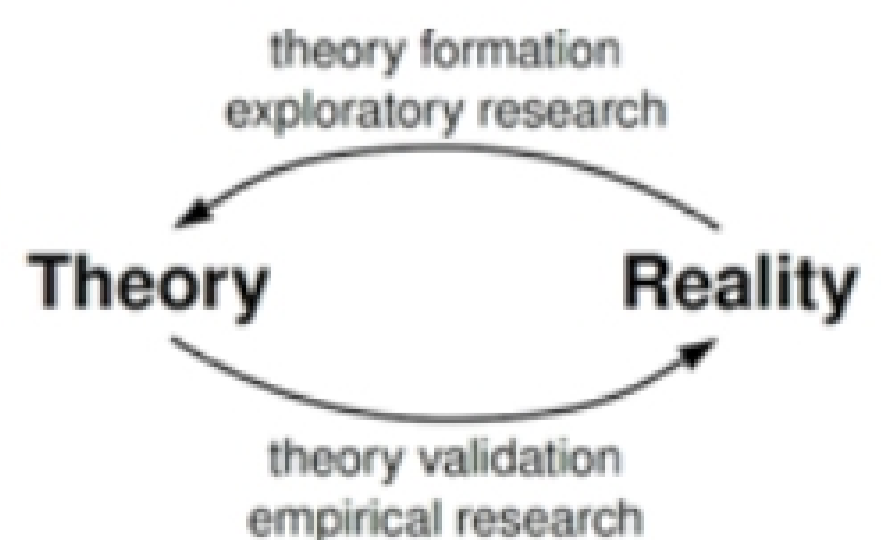
Scientific Method

- provides guidelines for scientists in all fields to use in evaluating discrete claims (hypotheses) and broader theories
- supporting claims
 - hypothesis(a claim) : seek evidence that will support or disprove a claim (testable prediction)
 - allows us to reach conclusions that are likely to be true under a set of conditions
 - factual : something that likely exists (nothing is 100%)
 - make assumptions - facts don't change over time (can measure/quantify subjects in a meaningful way)
 - facts don't always tell us the whole truth
 - hypotheses : must be falsifiable
 - "next year, your life will change" - vague, not falsifiable
 - replication : testing must be repeated
 - report methods in great detail for others to confirm or contradict in terms of validity



Scientific Theories

- a comprehensive explanation of observable events and conditions
- good theory : makes precise, consistent predictions relying on small number of underlying assumptions
- importance of falsifiability and parsimony
 - falsifiable : making precise predictions (find evidence that would confirm/contradict)
 - parsimony : reliance on fewest assumptions (open-mindedness with probable options)



General Principles of Research

- challenges of measurement (define and then measure)
 - operational definitions (behavioral, observable definitions are developed for constructs) : specify procedures used to measure it (measure phenomena being studied)
 - numerical value for construct is produced (tangible - weight, time)

Streetlight Effect

- observational bias where people look where it is easiest

Population Samples

- when a number of observations are collected to generalize the whole population
- convenience sample : easy availability (not always valid)
- representative sample : closely resembles population in proportion of gender, ethnicity, age, race
- random sample : every member has an equal chance of being selected
- cross-cultural sample : comprised of people from two or more distinct cultures

Meta-analysis

- small to medium effects dominate in studies of certain phenomena (ex : sex differences in aggressive behavior)
 - results treated as one very large study

Anecdotal Evidence

- personal accounts of isolated events can strengthen beliefs
- not systematically gathered
- "selective memory" - confirmation bias (only remember correct hunches)

Experimenter bias

- researcher's unintentional distortion of study procedures or results (unknowingly influencing to get desired results)
- creativity : will judge differently to get results
- to counteract bias:
 - using observers to record data who don't know the study's purpose
 - placebo control : preventing to subjects' knowledge (single-blind), preventing the subjects' and experimenter's knowledge (double-blind) on who has received the treatment

- science involves constant revision as new evidence emerges
- systematic methods ensure that claims are grounded

Research Design

- observational (non-experimental)
 - naturalistic : careful monitoring and description of humans and animals in natural settings
 - Dr. Jane Goodall : social and family interactions of wild chimpanzees in Tanzania for 45 years
 - pro : environment unchanged
 - con : observation may change behavior
 - case history (case study) : thorough description of a single event (unusual or rare condition)
 - Phineas Gage or Feral Children : child isolated from human interaction at a very young age
 - pro : enables us to study something we could never do ethically
 - con : history largely unknown and generalizability is low
- surveys and interviews
 - Kinsey : founded an institute for sex research
 - pro : fast, convenient, large sample, less researcher bias
 - con : samples may not be representative and survey design/participant circumstances can impact answers

Correlational Studies

- describes relationships between variables (turning on seatbelt sign doesn't cause plane to get bumpy)
 - height, weight, socio-economic level, number of years of education
- correlation coefficient (r value : -1.00 to +1.00) - numerical index of the relationship's strength and direction
 - the closer to 1, the stronger the relationship
 - pro: points us in a good direction for research
 - con: doesn't indicate causation (may be correlated through third variable)

SCATTERPLOTS & CORRELATION

Correlation - indicates a relationship (connection) between two sets of data.

