OpenStax Psychology
Chapter 2 Psychological Research
Study Guide

2.1 Why Is Research Important?

a. Research is a mandatory process in validating claims. Without research, we would only have intuition and groundless assumptions. Through research we are able to prove certain ideas through study and testing. Because Psychology is a science, research is required to not only further investigate something but provide verification and support of the findings.
    i. Psychological research utilizes tools within the **scientific method** to process observations and claims made. The two processes work interchangeably.
    ii. In the process of **inductive reasoning**, new ideas are generated from empirical observations. Through this, general ideas are derived from observations made.
    iii. **Deductive reasoning** uses general ideas to create predictions to claims by testing real-world observations.
    iv. Through these processes, certain claims derive from the ideas generated.
        1. A **theory** is a less refined set of ideas, more of a proposed explanation.
        2. A **hypothesis** is a more concrete claim, typically an if-then statement. This concrete quality in a hypothesis is what separates it from general ideas gathering.

Questions:

1. What is the difference between inductive and deductive reasoning?

2. The scientific method is often described as self-correcting and cyclical. Briefly describe your understanding of the scientific method with regard to these concepts.

2. In this section, conjoined twins, Krista and Tatiana, were described as being potential participants in a case study. In what other circumstances would you think that this particular research approach would be especially helpful and why?

4. Distinguish between a theory and a hypothesis.

5. Why do we treat some theories as "near facts" and others as less concrete and accepted?

2.2 Approaches to Research

Because the field of Psychology includes such a variety of research a variety of techniques are utilized to approach these areas of study.

1. **Clinical studies or case studies** focus on one individual. The studied individual is typically in a extreme or unique psychological circumstance that differentiates them for the general public. Because these cases are so distinct, it is difficult to rely on previous findings in that such cases require exclusive attention.
2. **Naturallstic behavlor** is generally hidden under scrutiny or observation. To study the most accurate and genuine behaviors, naturalistic observation proven most effective. Through naturalistic observations, any feeling of performance or anxiety of the studied individuals is eliminated. Establishment of clear criteria to observe should help eliminate observer bias.
3. **Surveys** can be used to gather a large amount of data from a sample from a population.
4. Some more expansive subjects of research require a stretched period of time to measure changes or effects.
5. Through **longitudinal research**, gradual differences can be studied through a more prolonged time of study.
6. E. **Cross-sectional research** creates cohorts of subjects over the same expanse of time, allowing sectioned observations rather than continual.

Questions:

1. Aside from biomedical research, what other areas of research could greatly benefit by both longitudinal and archival research?

2. What are some pros and cons of survey usage?

3. List some limitations of naturalistic behavior?

2.3 Analyzing Findings

Varied techniques are not limited only to data collection. Analysis of collected findings can be approached differently as well.

A. Findings can be drawn from correlations found in the collected data. When two variables move in the same direction, a **positive correlation** is apparent. When two variables move in different

directions, a **negative correlation** is found. It is important to keep in mind that any correlations found do not necessarily prove causation.

B. A hypothesis regarding cause and effect can be tested through experimentation.
    a. *An **experiment** should include an experimental group receiving experimental manipulation and a control group that is not manipulated.*

C. To eliminate any ambiguity or misinterpretation, operational definitions or clear descriptions should be established.

D. Because experimenter biases can be apparent, techniques such as **single blind and double-blind** can help eliminate any biases in researchers.

E. When findings are collected they are sorted between the independent variable, the manipulated findings, and the dependent variable, the measured effect of the independent variable.

F. Although experiments may require **specific demographics**, a random sample is used to ensure that the sample pool was selected randomly without any biased dispositions.

G. A **statistical analysis** is used to study any meaningful differences between the groups within the study.

Questions:

1. Who makes up the control group of an experiment, and how do they differ from the experimental group?
2. Distinguish between positive and negative correlation.
3. How do single blind and double blind studies help eliminate the impact of bias?
4. What are demographics?
5. Recently a study was published in the journal, *Nutrition and Cancer*, which established a negative correlation between coffee consumption and breast cancer. Specifically, it was found that women consuming more than 5 cups of coffee a day were less likely to develop breast cancer than women who never consumed coffee (Lowcock, Cotterchio, Anderson, Boucher, & El-Sohemy, 2013). Imagine you see a newspaper story about this research that says, "Coffee Protects Against Cancer." Why is this headline misleading and why would a more accurate headline draw less interest?