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| UNIT 2: RESEARCH METHODS |

***Key Question***: How do psychologists develop new knowledge?

***Core Concept:***

**Hindsight Bias:**

 **+**

**Overconfidence:**

**…THE NEED FOR SCIENCE!!!**

**Scientific Method:** pg 25-26

Theory:

Hypothesis:

Operational Definitions:

Data:

Replicate:

# Clinical Research

1. Experimental
2. Correlational (e.g., observational, survey, clinical)

***Types of Psychological Research***

**A. Case Study** pg 26

**B. Survey Method:** pg 27

Population:

Random Sample:

**C. Naturalist Observation:** pg 28

**D. Correlational Study:** pg 29-33

Correlation:

Correlation Coefficient:

 Scatterplots:

 Illusory Correlation:

**CORRELATION DOES NOT EQUAL CAUSATION!!!!**

**E. Experimental Method:** pg 34-36

Random assignment:

Double blind procedure:

Placebo effect:

Experimental group:

Control group:

Independent variable:

Confounding or Extraneous Variables:

Dependent variable:

**F. Longitudinal Study:**

**G. Cross-sectional Study:**

**H. Cohort-sequential Study:**

**Personal Bias:**

**Expectancy Bias:**

**Single-Blind Study:**

##### STATISTICS

Descriptive and Inferential pg 37

***Key Question***: How Do We Make Sense Of The Data?

***Core Concept:***

1. **Descriptively** …
2. **Inferentially** …

*Measures of Central Tendency*…or averages pg 36-38

The central point around which the scores seem to cluster

**Mode:**

**Mean:**

**Median:**

**Mean, Median, Mode**

*All are* ***descriptive statistics*** *and* ***measures of central tendency***

*Measures of Variation* pg 39-40

**Range:**

**Standard Deviation:**

**Normal Distribution (curve):**

**Statistical Significance:**

## Ethics In Research pg 44-46

# Deception: Good and Bad?

**Animal Studies**

**Notes**

Five Steps of the Scientific Method

1. Develop a hypothesis

2. Perform a controlled test

3. Gather objective data

4. Analyze the results

5. Publish, criticize, and **REPLICATE** the results

The independent variable is the thing that someone actively controls/changes; while

 the dependent variable is the thing that changes as a result.

**For example………**
--In a study of how different dosages of a drug are related to the severity of symptoms of a
 disease, a measure of the severity of the symptoms of the disease is a dependent variable.
--The administration of the drug in specified doses is the independent variable.
--Researcher will compare the different values of the dependent variable (severity of the
 symptoms) and attempt to draw a conclusion.

###### The Experimental Method

 Basic Purpose: to explore cause and effect

 How Conducted: manipulate one or more factors, use random assignment

 What is Manipulated?: the independent variables

 Weaknesses: Sometimes not feasible

 Results may not generalize to other contexts

 Not ethical to manipulate certain variables

###### Correlational Study

 Basic Purpose: To detect naturally occurring relationships

 To assess how well one variable predicts another

 How Conducted: compute statistical association, sometimes among survey responses

 What is Manipulated?: nothing

 Weaknesses: does not specify cause and effect

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* **Other Terms to Know** \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*.

**Pseudoscience**: fake science…has not survived trial by the scientific method

**Experimental group:** Those in the study that get the special treatment, such as a new drug

**Control group:** Those in the study that get the placebo

**Quantified:** Concepts that are measured and expressed as numbers.

 Often presented in graph form.

 This type of data is generally obtained when you conduct experimental research.

**False Consensus Effect:** The tendency to overestimate others’ agreement with us.

 Example: Vegetarians will think more people are vegetarians that will meat eaters.

**Scatterplots**: A graphed cluster of dots, each of which represents the values of two variables.

--The slope of the points suggests the direction of the relationship between the two variables.

--The amount of scatter suggests the strength of the correlation

**Correlation Coefficient:** A number between –1 and +1 expressing a degree of relationship between two variables

1. If people have high scores on one variable also have high scores on another, the correlation is positive

 The Correlation Coefficient is also positive ex: +.03

1. If people have high scores on one variable, but low on another, the correlation is negative

 The Correlation Coefficient is also negative…(less than 0)

1. Zero means there is no relationship between scores

\*\*Does NOT tell about cause and effect

 Simply gives information on the direction and strength of the relationship\*\*

**Significant Difference:** Psychologists accept a difference between groups to be ‘real’ or significant

 when the probability that in might be due to chance is less than 5 in 100