



## EXAM 3 REVIEW

PSY 280

## CHAPTER 11

- **Know about single-case designs:**
  - Effect of experimental manipulation on single research participant
  - Measured from baseline period to treatment periods
  - Baseline: Observed behavior before manipulation
- **Know about ABA designs: One method used to demonstrate the reversibility of the effect of the independent variable is a(n):**
  - Reversal design: Withdrawal of experimental treatment. Used to show the reversibility of the effect of the treatment
  - Baseline (A) - Treatment (B) - Baseline (A)
- **Know about multiple baseline designs:**
  - Observe change under multiple circumstances
  - Introduce manipulation at different points of time
- **Know the difference true experimental designs and quasi-experimental designs?**
  - Used when control features of experimental design cannot be achieved
  - Independent variable cannot be manipulated
  - Random assignment is not used
- **Know about using a control group:**
  - Provides a comparison condition to enable one to interpret results
    - Indicates the effects of experimental manipulation
  - Helps design internally valid experiments

## CHAPTER 11

- **Know about one-group pretest-posttest designs:**
  - Tested before and after a IV manipulation
  - No control group
- **Know about testing effects:**
  - Sensitization occurs in subjects when knowing one is being tested
  - For example: taking a pretest affects the participant's behavior
- **Know about interrupted time series designs:**
  - Examines the dependent variable over an extended period of time, before and after the IV is implemented
- **Know about cross-sectional, longitudinal, and sequential research designs and how they are conducted**
  - Used in developmental research
  - Used to study people at different ages
- **Know what a cohort is in developmental research:**
  - Group of people born at the same time, exposed to the same events, and influenced by the same demographic trends

## CHAPTER 12

- **Know the differences between scales of measurement:**
  - Nominal, Ordinal, Interval, Ratio
- **Know the three basic ways of describing results of research investigations:**
  - Comparing group percentages, correlating individual scores, and comparing group means
- **Know about Frequency Distributions**
  - Indicates the number of individuals who receive each possible score on a variable
- **Know the kinds of graphs used to display frequency distributions and how and why each is used.**
  - Pie charts, Bar graphs, Frequency polygons, Histograms
- **Know the differences in central tendency: Mean, median, mode**
- **Know the kinds of variability that is measured:**
  - Standard deviation: Average deviation of scores away from the mean
  - Variance: square of standard deviation
  - Range: difference between highest score and lowest score

## CHAPTER 12

- **Know what the Pearson product-moment correlation coefficient is:**
  - Provides information about the strength and the direction of relationship
  - Values range from 0.00 to  $\pm 1.00$
  - Can be described visually using scatterplots
- **Know what the effect size is:**
  - Strength of association between variables
  - Pearson r is an indicator of effect size
  - Advantage of reporting effect size - Provides a scale of values that is consistent across all types of studies
- **Know what a regression equation calculates:**
  - Calculations used to predict a person's score on one variable when that person's score on another variable is already known
- **Know what structural equation modeling (SEM) is:**
  - Describes expected pattern of relationships among quantitative non-experimental variables

## CHAPTER 13

- **What is the purpose of Inferential statistics?**
  - Used to determine the match of results if the experiments are repeatedly conducted with multiple samples
    - Helps make conclusions on the basis of sample data
- **Know the difference between the Research Hypothesis and the Null Hypothesis**
  - Research Hypothesis:
    - Population means are not equal
  - Null Hypothesis:
    - Population means are equal
    - suggests that the differences found between means reflects random error rather than a real difference
- **Know the concept of Statistical significance:**
  - Indicates that there is a low probability that the difference between the obtained sample means was due to random error
- **Know the concept of Probability:**
  - Likelihood of the occurrence of some event or outcome
    - Used in statistical inference
      - Alpha level: Probability required for significance

## CHAPTER 13

- **Know when the Alpha level is determined in a research study**
- **Know what Sampling Distributions are:**
  - Based on the assumption that the null hypothesis is true
- **Know when a one-tailed & a two-tailed statistical test is used.**
- **Know what error variance is.**
  - Deviation of the individual scores in each group from their respective group means
- **What is the effect size when the independent variable has no effect on the dependent variable? (0.00)**
- **How does sample size affect statistical results?**
- **Know the difference between Type I & Type II error**

## CHAPTER 14

- **Know the difference between External Validity and Internal Validity**
  - Extent to which findings may be generalized vs the extent to which one can infer a causal relationship between variables
- **Know why it is important to use participants from more than one local.**
- **Know why it is important to use both genders in your research**
- **What are some ways of improving external validity:**
  - Including groups from various cultures, both genders, different locales, using a random sample
- **What are the advantages and disadvantages of using pretests?**
  - Advantages: Confirms that the groups are equivalent, helps assess mortality effects
  - Disadvantages: Limits the ability to generalize to populations that did not receive a pretest, subjects tend behave differently than they would without the pretest
- **How can one determine the impact of taking the pretest?**
  - Use a Solomon four-group design

## CHAPTER 14

- **What are the benefits of testing your hypothesis using multiple methods**
  - It increases one's confidence in the generalizability of the findings
- **What are the implications when one fails to replicate the findings of a study?**
  - It is the same as finding nonsignificant results
- **What is conceptual replication?**
  - Using different procedures to replicate a research finding
    - The Independent and dependent variables are operationalized in different ways
- **What is a literature review?**
  - It provides information that: Summarizes what has been found.
  - It informs the reader of findings that are: Strongly supported and Weakly supported
  - It exposes inconsistent findings, areas lacking proper research, and it discusses future directions for research
- **What is a meta-analysis?**
  - It is a method for determining the reliability of a finding by examining the results from different studies