Study Guide
for
Research Methods
(Res 800)

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Owned by

Purpose

The purpose of this study guide is to give you a summary of the terms and concepts that I expect you to have mastered for an introductory course Research Methods. Please be warned, while I have tried to include all of the concepts for which I will hold you responsible in this study guide, knowledge of the material in this handout will not compensate for through class notes, reading the text, and other assigned materials.

Recommendations for use

I suggest that you use this outline as a guide to make sure that you have mastered all of the terms and concepts I have covered in class. To do this I suggest that you

1. Review your notes.

2. Read through the assigned and reserve reading. I do not intend to cover all of this material in class.

3. Do the assigned reading. I plan to have at least 10% of the quiz items from the book.

4. Without using either the notes or your book, try to define as many of the terms in this guide as you can.

5. After trying to define as many terms as you can, then look through your notes and the text to identify those terms that you cannot recall.

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INTRODUCTION: BEHAVIORAL SCIENCE

Readings. Cosby, Chapter 1, Chapter 2 pps 15-20

Terms you should know.

Approaches to knowledge

Authority

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Intuition

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Tradition

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Rationalism

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Empiricism

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Working assumptions of science

Realism

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Rationality

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Regularity

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Discoverability

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Determinism

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Research Strategies

Basic Research

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Applied Research

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Program Evaluation

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Field Research

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Laboratory Research

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Replication

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How research works

Theory

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Hypotheses

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Observation

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Concepts you should master.

1.   Is there only one way to go about developing knowledge?

2.   What are the benefits and drawbacks of field research vs laboratory research?

3.   What is the benefit of basic research?

4.   What do we mean when we say a hypothesis is TESTABLE?

5.   What is the relationship between a hypothesis and an intuitive statement about a relationship?

6.   What is the relationship between a hypothesis and a theory?

Application

1.   Dot Samore conducted a study of affection and body language. Dot got a sample of 30 volunteers and randomly divided them into two groups. For group A Dot sat next to the participants while reading instructions for a bogus word-counting study. For Group B Dot read the identical instructions while sitting across the table from the participants. Dot found that Group A rated the experiment and the experimenter much more favorably than did Group B.

    a.   What do you think that Dot's research hypothesis was?

    b.   Was this a field or laboratory study?

    c.   Can Dot generalize these results to the real world? Why or why not?

RESEARCH REPORTS AND LITERATURE REVIEWS

Readings. Cosby, Chapter 2

Terms you should know.

Elements of an APA report.

    Abstract

    Introduction

    Methods Section

    Results Section

    Discussion Section

    References Section

Types of Research Reports

    Primary Research

    Literature Review

    Theoretical Paper

    Meta Analysis

Primary Source

Secondary Source

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Concepts you should master.

1.   What is the relationship between the abstract and the other sections of the research report?

2.   Why is it important to state an explicit research hypothesis in a research report?

3.   What should be included in the Methods section of a research report? Why should it be there?

4.   What knowledge level should you expect of the reader of your research report?   How should this affect your writing and the information you include in the report?

5.   What is the relationship between the research hypothesis and

     a.   the Methods section of a research proposal?

     b.   the Results section of a research report?

Application

1.   Read *Teachers in Bars: From Professional to Personal Self* and answer the following questions regarding this article.

   a.   Introduction.

      i.   What is the research topic?

      ii.   Where was the LeMasters (1975) article published?

      iii.   How does this article differ from the work done by LeMasters?

      iv.   How do teachers use barrooms differently than working-class people?

      v.   What is/are the research goal(s)

   b.   METHOD

      i.   How were the preliminary data collected?

      ii.   Subjects.

         (1)   Who were the participants?

         (2)   How/why were they selected?

      iii.   Setting

         (1)   What was the research setting?

         (2)   When were the data collected? Is there anything special about the time and place that the data were collected?

c.   RESULTS.

   i.   How many teachers stated that the organization of the school required uninterrupted activity and contact with students?

   ii.   What evidence did the authors cite for the idea that teachers feel that they have to maintain a distance from their students?

   iii. What are the consequences of the finding that teachers felt that they had to distance themselves from students?

   iv.   What 'meaning' did the setting of O'Keefe's barroom have for the teachers?

d.   DISCUSSION

   i.   Conclusions.

      (1)   What major conclusions were drawn from the study?

      (2)   What surprises did the authors find?

      (3)   Are there alternative conclusions that the authors did not make?

   ii.   How were the findings related to prior research?

      iii.   Implications.

          (1)   Did the authors identify any theoretical implications?

          (2)   Did the authors identify any practical implications?

      iv.   Generalizations.

          (1)   What generalizations did the authors make?

          (2)   Do you agree of disagree?

      v.   Future research. What future research would you suggest?

ETHICS IN PSYCHOLOGICAL RESEARCH

Readings. Cosby, Chapter. 3

Terms you should know.

Belmont Report ....
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Beneficence ....
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Autonomy ....
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Justice ....
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Responsibility in Behavioral Research ....
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Concept of Minimal Risk ....
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Deception ....
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Coercion ....
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Voluntary Participation ....
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Dual Relationships ....
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Informed Consent ....
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Debriefing . . . .
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Dehoaxing . . . .
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Desensitizing . . . .
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Confidentiality . . . .
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Privacy . . . .
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Anonymity . . . .
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Fraud . . . .
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Integrity . . . .
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Institutional Review Board . . . .
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Concepts you should master.

1.   What are the pros and cons of using deception in behavioral research?

2.   Are there any alternatives to using deception in behavioral research? What are they?

3.   Who is responsible for the ethical conduct of behavioral research?

4.   On what basis should one judge the use of potentially harmful stimulus in a research study? Should such stimuli ever be justified?

5.   What is the key theme that runs through the ethical principles as they apply to research with human subjects?

6.   What is a key theme that runs through the ethical principles as they apply to animal research?

7.   What is meany by fraud when the term applies to research?

8.   As a teacher in a middle school you are asked to assist a professor who has a grant to study vocabulary development in children. The researcher asks you to administer a brief personal history and family background questionnaire to your class as well as ask your students to complete a standardized vocabulary test. You agree to participate. What must you do to meet minimal ethical standards.

STATISTICS and RESEARCH

Readings. Cosby, Chapters 12 pps 212-226 & 13

Terms you should know.

Statistics
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Descriptive Statistics
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Numerical Scales

   Nominal Scales
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   Ordinal Scales
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   Interval Scales
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   Ratio Scales
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Sample
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Population
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....
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Basic descriptive statistical terms

   Graphs
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Number (N)
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Mean

. . . .
. . . .
. . . .

Median

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Mode

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Variance

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Standard Deviation

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Basic Inferential Statistical Concepts

Probability

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Random Error

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Logical Hypotheses

Null Hypothesis

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Alternative Hypothesis

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Statistical Hypothesis

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Correlation coefficient

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t-test

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F-test

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Significance Level

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Errors

Type I Error

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Type II Error

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Power

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Statistical Significance

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Practical Significance

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Effect Size

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Concepts you should master.

1.   Be able to interpret what each of the basic descriptive statistics means.

2.   Distinguish between the Null Hypothesis, Alternative Hypothesis, and the Research Hypothesis.

3.   What is meany by the term 'statistical significance?'

4.   What is meant by Type I and Type II error?

5.   What is the relationship between sample size, power, effect size, statistical significance, and practical significance?

Application

1. Donitello Nobody was interested in the ability of men and women to keep secrets. Being a chauvinist, he thought that men would be better at keeping secrets than women. In a high school class Donitello told a secret to a group of 477 young women and a similar but separate secret to a group of 474 young men. In a later survey he discovered that 64% of the women repeated the secret while 63% of the young men told the secret. These differences were statistically significant (p < .05). Donitello concluded that women could not keep secrets.

    a. What was the research hypothesis?

    b. What was the Null hypothesis?

    c. What was the Alternative hypothesis?

    d. What was the chance that Donitello made a mistake in his conclusions?

    e. Using 'eyeball statistics' do you think that there was a large effect size?

    f. Do you think that these findings were practically significant?

2. The following questions refer to Pealer et. al. article *The Implications of Racial Diversity in the Supervisor-Subordinate Relationship*.

    a. What is the research hypothesis?

    b. What is the null hypothesis?

    c. What is the alternative hypothesis?

    d. Method

        i.   Who were the subjects?

        ii.   How many subjects were there?

        iii. How many experimental groups were there in this study? What/who were they?

        iv.   Is this a laboratory or field study?

    e. Results

        i.   Looking at Table 1,
              (1)   what test had the highest Mean?

              (2)   What test had the highest standard deviation?

        ii.   What statistic was used to compare the results?

        iii. Were the statistical results significant?

        iv.   If, significant, at what level?

        v.   Where were the largest differences between the two groups?

        vi.   How do you interpret these differences?

    f. What conclusions did the authors draw from these data?

VARIABLES AND PSYCHOLOGICAL MEASUREMENT

Readings. Cosby, Chapters 4(scan) & 5

Terms you should know.

Variable

    Operational Definition

    . . . .
    . . . .
    . . . .

Measurement issues

    Subjective vs. Objective
    Measurement

    . . . .
    . . . .
    . . . .

    Quantitative vs Categorical
    Measurement

    . . . .
    . . . .
    . . . .

    Discrete vs Continuous Variables

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    . . . .
    . . . .

Reliability

    . . . .
    . . . .
    . . . .

    True score

    . . . .
    . . . .
    . . . .

    Interrater Reliability

    . . . .
    . . . .
    . . . .

    Test-retest Reliability

    . . . .
    . . . .
    . . . .

    Internal Consistency

    . . . .
    . . . .
    . . . .

    Alternate Forms

    . . . .
    . . . .
    . . . .

Validity

    Face Validity

    Content Validity

    Criterion Validity

        Predictor

        Criterion

    Construct Validity

    Convergent Validity

    Discriminant Validity

Obtrusive Measurement

Unobtrusive Measurement

    Experimenter Reactivity

Subject Reactivity

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Effective range

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Ceiling Effect

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Floor Effect

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Restriction of Range

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Concepts you should master.

1.   Why should we worry about operational definitions?

2.   What is the relationship between an operational definition and the research hypothesis?

3.   Where would you typically find the operational definition of variables in a research report?

4.   Why should you be concerned about an unreliable instrument if it can be used objectively?

5.   What is the relationship between an operational definition and the concept of validity?

6.   What are the consequences of subject reactivity on deception in human research?

7.   If a measure has a limited effective range,

      A.   What impact might there be on the reliability of the measurement.

      B.   What impact might there be on the validity of the instrument?

8.   In a research study why would a person want to employ several measures of the same construct?

Application

1.   Natalie A. Tired felt that honesty in adults could be discerned from the quality of clothing they were wearing. Natalie has come to you for advice about how to conduct the experiment. Specifically she wants your advice on the operational definitions for her key variables. How would you recommend that she define the following?

      a.   Adult

      b.   Honesty

      c.   Quality of clothing

2.   Pat R. Pitt had the notion that people who were trained in musical notation would be better dancers. To assess dancing skill Pat had a group of expert dancers dance with each of the study's participants. Pat then had the experts evaluate the dancing skill of the people who were trained in musical notation and those who were not trained in musical notation.

      a.   What is the operational definition of 'better dancer?

      b.   What advice would you give Pat to ensure the reliability of this dependent variable?

3.   Marion Haste designed a study to assess the relationship between handedness and infatuation. Her hypothesis was the left handed people (right brain dominant) would fall in love more quickly than right handed people (left brain dominant). Marion could not find a measure to assess infatuation so she developed her own measure. She prepared a questionnaire in which she asked people about how quickly they fell in love and how long this emotional attachment lasted.

      a.   How was 'infatuation' operationally defined?

      b.   What concerns would you have about reliability and validity of this variable?

Application

1. The following questions refer to McCutcheon's *Further Validation of the Self-defeating Personality Scale.*

    a. Introduction.

        i.   What was the goal of this research?

        ii. How does the author identify Self-defeating personality? Do you think that this is an adequate explanation?

        iii. What previous studies have been done to validate this scale?

        iv. What sex was more likely to report self-defeating relationship?

    b. Method

        i.   How was the 'dropout index' developed?

        ii. How were the participants in this study recruited?

        iii. What major ethical concern would you have about the conduct of this study?

        iv. What did the sample look like?

c. Results

    i. What does the following statement mean, '*Among those women who reported at least one self-defeating relationship, the number of these relationships correlated .25 (ns) and the length of them correlated .41(p < .05) with scores on the Self-defeating Personality Scale.*'

    ii. How were the results consistent with prior research?

    iii. How were the results inconsistent with prior research?

    iv. What was the relationship between the Self-defeating Personality Scale and assertiveness? What does this mean?

d. Discussion

    i. What limitations did the authors point out?

    ii. Do you think that this study demonstrated that the Self-Defeating Personality Scale would be effective for evaluating everyone on this measure? Why or why not?

    iii. What limitations do you see with the study...

        (1) based on the sample and how it was recruited?

        (2) based on the measurement scales?

OBSERVATIONAL STUDIES

Readings. Cosby, Chapter. 6

Terms you should know.

Naturalistic Observation

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Systematic Observation

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Participant Observation

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Case Study

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Negative Case Analysis

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Archival Research

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Content Analysis

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Physical Trace Analysis

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Content Analysis

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Concepts you should master.

1. Under what conditions would it be best to conduct field observation?

2. What can you conclude from an observational study?

3. When would you want to do a systematic observation and when would you want to conduct a field observation?

4. What are the methodological issues relevant to naturalistic and systematic observation?

5. What role would an operational definition of a variable play when conducting an observational study?

6. What concerns about reliability should an investigator have when conducting an observational study?

7. Is it possible to test hypotheses when doing observational, case study, or archival research? If, Yes, how or under what conditions?

Application

1.   The following questions apply to Lynskey's paper, *Stop Sign Compliance: Fact or Fiction?*

    a.   Introduction

        i.   What is the difference between behavior at stop signs and yield signs?

        ii.   Why do the author think that this study is worthwhile?

        iii.   What is the author's goal in this study?

    b.   Method

        i.   Who or what were the 'subjects' in this study?

        ii.   What was measured?

        iii.   How were the three measurement levels operationally defined?

    c.   Results

        Note: The $\underline{t}$ statistic was used to evaluate the differences between the proportion of stops by time of day.

        i.   What statistical analyses were done?

        ii.   Were there any differences in stop sign compliance based on time of day?

    d.   Discussion

        i.   What conclusion did the author reach about stop sign compliance?

        ii.   What major implications did the author point out? Do you agree with the author?

        iii.   What is the major consequence of this research?

2. Suppose you had the opportunity to do follow-up research on the Stop Sign Compliance study. You could do anything relating to behavior at stop signs.

    a.   What would your research goal/hypothesis be?

    b.   Method.   Describe your method. Be detailed enough so that someone picking up this page could conduct the study completely. Describe the participants, location, data collection techniques, and procedures.

    c.   Results.   What numbers would you look at for your results?

SURVEY RESEARCH

Readings. Cosby, Chapter. 7

Terms you should know.

Sampling

    Population

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    Sample Frame

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    Sample

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Confidence Interval

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Probability Sampling

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    Random Sample

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    Stratified Random Sample

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    Cluster Sample

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Nonprobabilty Sample

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    Haphazard Sampling

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    Quota Sampling

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Response Rate

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Question Design

Double-barreled questions

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Loaded questions

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Negative questions

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Open ended Questions

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Closed Questions

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Content Analysis

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Confirmation Bias

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Response Bias

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Social Desirability

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Rating Scales

Graphic Scale

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Semantic Differential Scale

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Non-verbal scales . . . .
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Behaviorally Anchored scales . . . .
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Concepts you should master.

1.   What can you learn using the survey technique?

2.   Under what conditions would you use each of the following?

   a.   Closed ended items.

   b.   Open ended items.

3.   What measurement issues do you face when doing a survey?

4.   If you have mailed a survey to a random sample, what must you consider when evaluating the responses?

5.   Why is it so important to consider the sampling technique and sample frame when conducting a survey?

6.   What is the key issue regarding the generalizability of a survey?

7.   When might you want to use a convenience sample?

Application

1. The following questions refer to Shulman, Seiffge-Krenke, & Dimitrovsky's article, *The Functions of Pen Pals for Adolescents*.

    a. Introduction

        i.   Why did the authors feel that knowledge about pen pals is important?

        ii. What was the goal of this study?

    b. Method

        i.   How were the participants identified?

        ii. What research technique did the authors use?

        iii. Do you think that this technique may have influenced the results? Why or how?

    c. Results

        i.   What kinds of people participated in the study?

        ii. Figure 1 shows the age distribution of subjects who had pen pals.

             (1) What age group was more likely to have a pen pal?

             (2) What adolescent group was least likely to have a pen pal?

        iii. What were the four main characteristics that people looked for in a pen pal? Which occurred most frequently?

        iv. What was the most popular topic in pen pal correspondence?

        v.   Do pen pals discuss the same things that they would with their real friends? What might account for differences?

    d.   Discussion.

        i.   What were the major points the authors made regarding the 'realism' of pen pal relationships?

    e.   Think about how adolescents correspond today, how would you redesign and implement this study to make it more contemporary?

f. Almost every college and university in the United States offers an undergraduate degree in Psychology. Suppose you wanted to find out how many of these programs required a course in History and Systems in Psychology. How would you go about doing it?

   i. What technique would you use to gather your information?

   ii. What would your sample be?

   iii. Who would you ask?

   iv. How would you ensure that you contacted a representative sample?

CORRELATIONAL STUDIES

Readings. Cosby, Chapter 12, pps 219-230, Stangor, Chapter 9

Terms you should know.

Correlational Study

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Correlation Coefficient

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Positive Correlation

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Negative Correlation

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Zero Correlation

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Effect Size

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Statistical Significance

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Practical Significance

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Restriction of Range

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Non-continuous groups

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Linear relationship

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Predictor   . . . .
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                                              . . . .

Criterion   . . . .
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Multiple Regression   . . . .
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Partial correlation   . . . .
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Structural Modeling   . . . .
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Chi Square   . . . .
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Concepts you should master.

1.   What is a correlational study?

2.   What is the difference between a correlational study and a correlation coefficient?

3.   When would you want to do a correlational study?

4.   What can you infer from a correlational study in terms of the relationship between two variables?

5.   What impact does restriction of range have on a correlation coefficient?

6.   What impact could the selection of your sample have on the correlation coefficient?

Application

1.   The following questions refer to the Dunn, Beach, & Kontos article, *Quality of the Literacy Environment in Day Care and Children's Development*.

    a.   Introduction.

        i.   What is the research hypothesis?

    b.   Method.

        i.   Sample.

            (1)   Why did the authors spend so much time comparing participating and non-participating day care centers (¶10)?

            (2)   How was the sample selected?

            (3)   How comfortable would you be applying the results of this study to children in all day care centers across the country?

        ii.   Measures

            (1)   What measures did the authors use?

                (a)   Predictors

                (b)   Criterion

            (2)   How was the reliability of the scales assured?

c. Results.

    i. The descriptive statistics are shown in Table 1.

        (1) What scale had the lowest mean? Would this create a problem with the correlational analyses?

    ii. Based on the data, could you say that teacher certification caused classrooms to be the learning environments to be higher in quality?

    iii. What was the correlation between quality of the classroom environment and number of literacy-related activities?

    iv. What variables were related to children' cognitive and language development? What was the strength of these relationships? How do you interpret the data?

    v. In ¶27 the authors report that since cognitive development is positively correlated with age, they 'partialed age' out of all analyses involving achievement. What does this mean?

    vi. What variables were most strongly related with children's development?

d. Discussion

    i. What major concerns did the authors have about the sample?

    ii. What major conclusions did they reach?

EXPERIMENTAL RESEARCH

Readings. Cosby, Chapters 4 (pps 69-76), 8, 9, & 10

Terms you should know.

Internal Validity

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External Validity

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Confounding

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True Experiment

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Subject Selection

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Subject Assignment

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Experimental Group

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Control Group

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Experimental Variables

Independent Variable

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Dependant Variable

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Confounding Variable

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Between Subjects Designs

Randomized Post-test only
control group
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Randomized Pretest Post-test
control group
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Matched Random Assignment
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Repeated Measures (Within Subjects) Design
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Order Effects
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Practice
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Fatigue
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Carry over
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Counterbalancing
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Full
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Latin Square
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Randomized Blocks
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Factorial Designs . . . .
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Factors . . . .
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Main Effect . . . .
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Interaction

Developmental Designs

Cross sectional . . . .
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Longitudinal . . . .
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Cross Sequential . . . .
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Cohort . . . .
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Concepts You Should Master.

1. In the experimental context, what do we mean by the term CONTROL? Why is the idea of control important?

2. What is a confounding variable? What effect do they have on the interpretation of experimental results?

3. Why is it possible to have high internal validity and low external validity?

4.   How could demand characteristics influence the validity of a study?

5.   Give an example of how each of the following confounding factors could adversely affect a research study.

   a.   Subject Mortality

   b.   Subject selection

6.   Be able to identify each of the following designs and describe when you might want to use each. What are potential problems with each of the designs?

   a.   Between Subjects designs.

      i.   Strengths

      ii.   Weaknesses

      iii.   When used

   b.   Pre-post designs

      i.   Strengths

      ii.   Weaknesses

      iii.   When used

    c.   Matched groups designs.

        i.   Strengths

        ii.   Weaknesses

        iii.   When used?

    d.   Repeated Measures (Within Subjects) designs.

        i.   Strengths

        ii.   Weaknesses

        iii.   When used?

    e.   Factorial designs.

        i.   Strengths

        ii.   Weaknesses

        iii.   When used?

    f.   Longitudinal

        i.   Strengths

        ii.   Weaknesses

        iii.   When used?

7. The following data were taken from Greenberg (1990). In this article, employee theft rates were measured in three manufacturing plants during a period in which pay was temporarily reduced by 15%. Because of the loss of two large manufacturing contracts, the host company was forced to reduce its payroll by temporarily cutting wages by 15% across the board in two of its plants (Plants A and B). This was done for ten weeks in lieu of laying off any employees. After this period, normal pay was returned. The author carried out three treatment conditions. Each of the payment manipulations was carried out in a separate plant. Plant A was assigned to one experimental condition (*adequate explanation*), B to another experimental condition (*inadequate explanation*), and Plant C, where no pay cuts were made, was the control group. The research hypothesis was that

    *   Pay cuts would lead to increased theft.
    *   Thoroughly explaining the theft would lead to reduced theft.

    The experimental treatment was the adequacy (thoroughness) of the explanation for the pay cuts. In Plant A there was a thorough explanation for the cuts with management apologizing for the need for this action. In Plant B only a brief announcement was made. The dependent measure was the amount of employee theft, a measure taken from company records, for three periods: before the announcements were made, during the pay cut period, and after the pay cut period. These data are summarized it Table 1

Table 1. Mean percentage rate of employee theft broken down by period			
Location	Percentage of employee theft		
	Before announcement	During pay cut	After pay cut
Plant A	3.1	4.2	3.4
Plant B	3.0	8.0	2.7
Plant C	2.9	2.8	3.0

a. Is this a laboratory or field study?

b. What kind of experimental design is this?

c. Graph and label the data in Table 1 here.

d.   Using 'eyeball statistics' is there evidence that there is an interaction?

e.   Do you feel that there was a main effect for pay cut? That is, did the pay cut have and effect on employee theft? Why?

f.   Based on these data, do you feel that the experimental treatment had an effect? Why?

Application

1. The following questions relate to Hatala, Schiek, Mialkowsik, Waldschmidt, & Baack's article *'A Pictorial Mnemonic for History and Systems in Psychology Classes.'*

    a. What is/are the research goal in this study?

    b. Method.

        i.   Was this a field or laboratory study?

        ii. What was the independent variable?

        iii. What was the dependent variable?

        iv. Referring to the research design...

            (1) What kind of design did they use?

            (2) What was missing that kept this from being a true experimental design?

            (3) How might this missing element affect the conclusions that could be made?

    c. Results.

        i.   What statistical analysis was used to assess the second hypothesis?   What was the conclusion?

    d. Conclusions.

        i.   Comment on the internal validity of this study.

        ii. Comment on the external validity of this study.

    e. Describe how you would redesign this study to deal with the problems. Be sure the identify all of the relevant groups and variables.

2.   The following questions refer to Hillary, Shatz, and Chute's article *"Seatbelts Determine the Location of Brain Injury"*.

    a.   What was the major goal of this study?

    b.   Method.

        i.   Design.

            (1)   What kind of experimental design was this?

            (2)   Why do you think that it would not be possible to do this as a true experiment?

        ii.   Who were the participants?

        iii.   What was the independent variable?

        iv.   What was the dependent variable?

    c.   Results.

        i.   What were the major findings?

    d.   Discussion.

        i.   Did the authors conclude that seatbelts prevented brain injury?

        ii.   What recommendations did the authors make?

PRE-EXPERIMENTAL and QUASI-EXPERIMENTAL DESIGNS

Readings. Cosby, Chapter 11

Terms you should know.

Pre-Experimental Designs

Ex Post Facto

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One-Shot Case Study

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One Group Pretest-Posttest

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Quasi Experiment

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Non-equivalent control group

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Mixed factorial design

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Interrupted time series

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Confounding Events

History

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Maturation

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Testing

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Instrument Decay

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Statistical Regression

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Developmental Designs

Cross-sectional research

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Cohort

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Longitudinal research

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Cross-sequential design

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Concepts you should master.

1.   What are the major strengths, limitations, and when would you use of each of the following?

    a.   Non-equivalent control group design.

        i.   Strengths

        ii.   Limitations

        iii.   When used?

    b.   Interrupted Time Series

        i.   Strengths

        ii.   Limitations

        iii.   When used?

    c.   Cross Sectional

        i.   Strengths

        ii.   Limitations

        iii.   When used?

Application

1. The following questions relate to Honnen & Kleinke's article, *Prompting Bar Patrons with Signs to Take Free Condoms.*

    a. Introduction.

        i.   What did the researchers study?

        ii.   What was the research hypothesis?

    b. Method.

        i.   What was the overall research design?

        ii.   Who were the participants?

        iii. What was the independent variable?

        iv.   What was the dependant variable?

    c. Results.

        i.   Did the signs work? Why do you say this?

    d. Discussion.

        i.   What major points did the authors make regarding the results?

        ii.   What cautions did the authors make about the results?

        iii. Do you think that these results would generalize to any bar? Why or why not?

SINGLE SUBJECT DESIGNS

Readings. Cosby, Chapter. 11

Terms you should know.

Baseline
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Designs

AB Design
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Reversal Design
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ABA Design
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ABAB Design
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Interaction Design
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Multiple Baseline
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Concepts you should master.

1.   What are the advantages of using a single subject design?

2.   What are the limitations of a single subject design?

3.   What is meant buy a stable baseline? Why is it important to have a stable baseline?

4.   Under what conditions can you infer causality from a single subject design?

Application

1.	The following questions deal with the Brigham et. al. article, *Increasing Designated Driving With a Program of Prompts an Incentives*

	a.	What is the purpose of this study?

	b.	Method

		i.	What kind of design was used in this study?

		ii.	What are the 'prompts' mentioned in the title?

		iii.	What are the 'incentives' mentioned in the title?

		iv.	What was the independent variable?

		v.	What was the dependent variable?

		vi.	How was the baseline established?

		vii.	Why do you think that the researchers had two observers identify the designated drivers?

	c.	Results

		i.	How was the treatment evaluated?

		ii.	What statistical analysis was used?

	d.	To what population would you generalize these results?

APPENDIX A

Statistical Terms and Procedures You Should Know

Background Concepts and Terms.
    Descriptive Statistics
    Inferential Statistics
    Population
    Sample
    Random Sample
    Nominal Scale
    Ordinal Scale
    Interval Scale
    Ratio Scale

Measures of Central Tendency
    Mean
    Median
    Mode

Measures of Variability
    Range
    Variance
    Standard Deviation

Correlation
    Correlation Coefficient
    r
    Positive Correlation
    Negative Correlation
    Zero Correlation
    Linear Relationship
    Partial Correlation

Inferential Statistics
    Null Hypothesis
    Alternative Hypothesis
    H_o
    H_A
    Two-tailed significance test
    One tailed significance test
    $p <$
    Effect size
    Statistical Significance
    Practical Significance

Measuring the Differences Between Groups
    t - Test
    F-test