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Chapter 2: Basic Research Concepts

Test Bank

Multiple Choice

1. A research design in which the researcher has a high degree of control over the research situation is known as the _____.
a. quasi-experimental design
b. non-experimental design
c. experimental design
d. case study design
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.1 Introduction
Difficulty Level: Easy

2. A characteristic that fluctuates across subjects or cases is known as _____.
a. a variable
b. an outcome
c. a dataset
d. design method
Ans: A
Cognitive Domain: Knowledge
Answer Location: 2.1 Introduction
Difficulty Level: Easy

3. In scientific research, a sample refers to _____.
a. a hypothesized outcome
b. a total population
c. a subset of a population
d. non-human subjects
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.1 Introduction
Difficulty Level: Easy

4. Stating that the results of a study are applicable to others not included in the study is known as _____.
a. disclosure
b. hypothesis
c. assumption
d. generalization

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Ans: D
Cognitive Domain: Knowledge
Answer Location: 2.1 Introduction
Difficulty Level: Easy

5. Information that tells us which group each case in a study belongs to refers to a _____ variable.
a. rating scales
b. categorical
c. ordinal
d. quantitative
Ans: B
Cognitive Domain: Knowledge
Answer Location: 2.2.1 Overview
Difficulty Level: Medium

6. Information that tells us the amount of something in each case in a study refers to a _____ variable.
a. rating scales
b. categorical
c. ordinal
d. quantitative
Ans: D
Cognitive Domain: Knowledge
Answer Location: 2.2.1 Overview
Difficulty Level: Medium

7. Categorical variables are also known as _____ variables.
a. ordinal
b. nominal
c. quantitative
d. qualitative
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.2.2 Categorical Variables
Difficulty Level: Easy

8. Numerical values used for categorical variables are _____.
a. arbitrary
b. stated as decimals
c. assigned by APA
d. universally accepted
Ans: A
Cognitive Domain: Comprehension
Answer Location: 2.2.2 Categorical Variables
Difficulty Level: Easy

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9. Designating a divorced study participant with the numerical value of 2 is an example of a(n) _____.
a. quantitative variable
b. ordinal variable
c. categorical variable
d. rating scale variable
Ans: C
Cognitive Domain: Application
Answer Location: 2.2.2 Categorical Variables
Difficulty Level: Easy

10. Measuring and using the height of a study participant is an example of a(n) _____ variable.
a. ordinal
b. nominal
c. categorical
d. quantitative
Ans: D
Cognitive Domain: Application
Answer Location: 2.2.3 Quantitative Variables
Difficulty Level: Easy

11. Use of quantitative variables is common in which field/s of study?
a. behavioral and social sciences
b. mathematics
c. chemistry and physics
d. laser technology
Ans: A
Cognitive Domain: Knowledge
Answer Location: 2.2.3 Quantitative Variables
Difficulty Level: Easy

12. When subjects are ranked rather than measured, what type of variable is being used?
a. nominal
b. ordinal
c. categorical
d. quantitative
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.2.4 Ordinal Variables
Difficulty Level: Easy

13. Researchers must distinguish between categorical and quantitative variables in order to do what?

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a. apply graphs to the results
b. justify use of human subjects
c. choose appropriate statistical techniques
d. avoid plagiarism
Ans: C
Cognitive Domain: Comprehension
Answer Location: 2.2.5 Variable Type and Choice of Analysis
Difficulty Level: Medium

14. A response format that consists of a statement followed by a choice of degree of agreement ratings is known as _____.
a. a Likert scale
b. an ordinal scale
c. a Pearson Product
d. a ratio scale
Ans: A
Cognitive Domain: Knowledge
Answer Location: 2.2.6 Rating Scale Variables
Difficulty Level: Easy

15. The differences between scores on a rating scale _____.
a. represent equal intervals
b. do not represent equal intervals
c. can be precisely measured
d. are strictly interpreted
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.2.6 Rating Scale Variables
Difficulty Level: Medium

16. Ratings on a Likert scale can be treated as categorical or quantitative based on _____.
a. APA guidelines
b. publisher preferences
c. number of participants
d. what makes sense in a specific research situation
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.2.6 Rating Scale Variables
Difficulty Level: Medium

17. When variable *X* predicts variable *Y*, then *X* is the _____.
a. dependent variable
b. independent variable
c. categorical variable
d. quantitative variable

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Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.4.2 Does *X* predict *Y*?
Difficulty Level: Easy

18. When variable *X* predicts variable *Y*, then *Y* is the _____.
a. dependent variable
b. independent variable
c. categorical variable
d. quantitative variable
Ans: A
Cognitive Domain: Comprehension
Answer Location: 2.4.2 Does *X* predict *Y*?
Difficulty Level: Easy

19. When *X* happens before *Y* occurs, then *X* has _____.
a. nominal precedence
b. ordinal precedence
c. ratio precedence
d. temporal precedence
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.4.2 Does *X* predict *Y*?
Difficulty Level: Easy

20. Rival explanatory variables are also known as _____.
a. risk factors
b. hypotheses
c. confounds
d. protective factors
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Medium

21. Rival explanatory variables are considered using _____.
a. confounding variables
b. peer review
c. statistical analysis
d. experimental controls
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Medium

22. In non-experimental studies, what is used to try to rule out the effects of rival

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explanatory variables?
a. confounding variables
b. statistical control
c. peer review
d. experimental controls
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Medium

23. A typical experimental study includes how many groups of cases?
a. one
b. no more than two
c. two or more
d. a minimum of three
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Easy

24. In an experimental study, a control group _____.
a. receives no treatment
b. receives all treatments
c. chooses which treatment to be exposed to
d. is paid for their participation
Ans: A
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Easy

25. When choosing participants for an experimental study, what must you be sure to do?
a. choose participants who know each other
b. choose participants who are similar
c. include more females than males
d. include a mixture of children and adults
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Easy

26. In a study conducted to determine the effect of caffeine consumption on heart rate, what is the outcome variable?
a. heart rate
b. participant age
c. caffeine consumption

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d. participant gender
Ans: A
Cognitive Domain: Comprehension
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Easy

27. Experiments require _____.
a. institutional support
b. human participants
c. comparisons
d. a minimum of 50 participants
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Easy

28. What is a common practice to prevent confound of treatment with participant characteristics?
a. participant self-assignment to groups
b. random assignment of cases to groups
c. extraneous assignment of cases to groups
d. statistical assignment of cases to groups
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Medium

29. Variables not included in the research question are known as _____.
a. interfering variables
b. tainted variables
c. intervening variables
d. extraneous variables
Ans: D
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Medium

30. To control for the impact of time of day on the treatment outcome, a researcher should do what?
a. administer to all participants at the same time of day
b. standardize the behavior of the research assistants
c. have research assistants use a script
d. ask participants for their best time of day
Ans: A
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design

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Difficulty Level: Easy

31. The term “unlucky randomization” refers to what phenomenon?
a. groups that produce no significant outcomes
b. groups that are identical in characteristics
c. groups that are not similar in one or more characteristics
d. groups that cancel each other out
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Medium

32. A non-experimental study is also known as _____.
a. rational research design
b. outcome-based research
c. flawed research design
d. a correlational study
Ans: D
Cognitive Domain: Knowledge
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Medium

33. A researcher finds that there is a strong correlation between amount of reported exercise and amount of reported depression in a group of participants. This outcome cannot be reported as evidence because the _____.
a. subjects may have been paid to participate
b. data do not come from an experiment
c. data are flawed
d. subjects may not have been truthful
Ans: B
Cognitive Domain: Application
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Medium

34. One requirement for causal inference is that the variable thought to be the cause must happen _____.
a. naturally
b. later than the outcome variable
c. concurrently with the outcome variable
d. earlier than the outcome variable
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Medium

35. In non-experimental research design, distinctions between dependent and

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independent variables are sometimes _____.
a. arbitrary
b. strictly defined
c. based on participants
d. interchangeable
Ans: A
Cognitive Domain: Comprehension
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Medium

36. Quasi-experiments often take place in which of the following settings?
a. research lab settings
b. academic institutional settings
c. field settings
d. hospital settings
Ans: C
Cognitive Domain: Knowledge
Answer Location: 2.8 Quasi-Experimental Research Designs
Difficulty Level: Medium

37. In quasi-experimental design, researchers use preexisting groups, the members of which are likely to differ in many characteristics. What is this called?
a. dependent control group design
b. non-equivalent control group design
c. equivalent control group design
d. extraneous control group design
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.8 Quasi-Experimental Research Designs
Difficulty Level: Medium

38. A researcher wants to study the impact of a drug education program administered in one school but not in another, with the outcome measure being self-reported intention to use drugs. The researcher has no control over program or participants. What is the research design of this study?
a. experimental research design
b. non-experimental research design
c. quantitative research design
d. quasi-experimental research design
Ans: D
Cognitive Domain: Application
Answer Location: 2.8 Quasi-Experimental Research Designs
Difficulty Level: Medium

39. Highly contrived experimental designs, such as the Skinner box, are effective in _____.

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a. assuring significant results
b. eliminating all confounding variables
c. making causal inferences
d. ensuring institutional support
Ans: C
Cognitive Domain: Application
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

40. When you have a high level of control over rival explanatory variables so that they cannot be considered alternative causes for outcomes, your study has _____.
a. high internal validity
b. high external validity
c. low internal validity
d. low external validity
Ans: A
Cognitive Domain: Application
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

41. Considerations of the similarities between the subject of a research study and situations in the real world pertain to _____.
a. internal validity
b. external validity
c. internal reliability
d. external reliability
Ans: B
Cognitive Domain: Application
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

42. Non-experimental studies typically have _____.
a. high external reliability
b. low external reliability
c. high internal validity
d. low internal validity
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

43. Studies with high internal validity often have _____.
a. high external validity
b. high external reliability
c. low external validity
d. low external reliability

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Ans: C
Cognitive Domain: Comprehension
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

44. In an independent groups study, or between-*S* study, each participant _____.
a. is assigned to just one group
b. is assigned to at least two groups
c. receives multiple treatments
d. contributes two scores for the outcome variable
Ans: A
Cognitive Domain: Comprehension
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Medium

45. The test used to evaluate whether membership in one type of group is statistically related to membership in another type of group is _____.
a. an independent samples *t* test
b. a Pearson correlation
c. a chi squared test
d. analysis of co-variance
Ans: C
Cognitive Domain: Application
Answer Location: 2.10 Choice of Statistical Analysis (Preview)
Difficulty Level: Medium

46. The test that compares mean scores on a dependent variable across two or more groups is _____.
a. an independent samples *t* test
b. a Pearson correlation
c. a chi squared test
d. analysis of co-variance
Ans: A
Cognitive Domain: Application
Answer Location: 2.10 Choice of Statistical Analysis (Preview)
Difficulty Level: Medium

47. Which test is appropriate only when a linear equation exists between variables?
a. an independent samples *t* test
b. a Pearson correlation
c. a chi squared test
d. analysis of co-variance
Ans: B
Cognitive Domain: Application
Answer Location: 2.10 Choice of Statistical Analysis (Preview)
Difficulty Level: Medium

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48. When a study sample has characteristics of the study population it is _____.
a. said to be an exact replica of the population
b. said to be excluded from the study
c. said to be tainted
d. said to be representative of the population
Ans: D
Cognitive Domain: Comprehension
Answer Location: 2.10 Choice of Statistical Analysis (Preview)
Difficulty Level: Medium

49. Mass media reports sometimes _____ when reporting findings they believe will interest the general public.
a. downplay results
b. extremely inflate results
c. change authors' names
d. insinuate plagiarism
Ans: B
Cognitive Domain: Comprehension
Answer Location: 2.12 Common Problems in Interpretation of Results
Difficulty Level: Medium

50. When reporting research study results, it is advisable to avoid language that suggests high levels of certainty about _____.
a. participant honesty
b. sources of study limitations
c. causality
d. statistical errors
Ans: C
Cognitive Domain: Comprehension
Answer Location: 2.12 Common Problems in Interpretation of Results
Difficulty Level: Medium

True/False

1. It makes sense to apply statistical calculations to categorical variables.
Ans: F
Cognitive Domain: Comprehension
Answer Location: 2.2.2 Categorical Variables
Difficulty Level: Medium

2. The use of ranks is not common for data collection in the social and behavioral sciences.
Ans: T

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Cognitive Domain: Comprehension
Answer Location: 2.2.4 Ordinal Variables
Difficulty Level: Medium

3. Likert items always consists of a 5-point scale.
Ans: F
Cognitive Domain: Knowledge
Answer Location: 2.2.6 Rating Scale Variables
Difficulty Level: Easy

4. Random selection and random assignment are interchangeable terms.
Ans: F
Cognitive Domain: Comprehension
Answer Location: 2.6 Experimental Research Design
Difficulty Level: Medium

5. The number of score values for a categorical variable is always small.
Ans: F
Cognitive Domain: Knowledge
Answer Location: 2.2.2 Categorical Variables
Difficulty Level: Medium

6. When selecting which variables to include in a study, there should be a plausible theory as to why they could be related.
Ans: T
Cognitive Domain: Comprehension
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Medium

7. In a non-experimental study, the researcher introduces a treatment or intervention.
Ans: F
Cognitive Domain: Knowledge
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Medium

8. A research design in which post-intervention scores for a group of participants are compared with pre-intervention scores for the same group of participants is an example of a quasi-experimental research design.
Ans: T
Cognitive Domain: Comprehension
Answer Location: 2.8 Quasi-experimental Designs
Difficulty Level: Medium

9. Convenience samples are those that are easy for a researcher to access.
Ans: T
Cognitive Domain: Knowledge

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Answer Location: 2.11.3 Actual Research Situations That Are Not Similar to Ideal Situations
Difficulty Level: Easy

10. Misunderstandings of significance test results are uncommon.
Ans: F
Cognitive Domain: Knowledge
Answer Location: 2.12 Common Problems in Interpretation of Results
Difficulty Level: Easy

Essay

1. Describe three conditions necessary for causal inference.
Ans: Response should contain some combination of the following: (1) Must have a plausible theory as to why *X* and *Y* might be related; (2) Appropriate statistical analysis indicates an association between *X* and *Y*; (3) *X* must precede *Y* in order to assert that *X* predicts *Y*, and they must be statistically associated; (4) We can only state that *X* causes *Y* if no other variables are rival explanations for the changes in *Y*.
Cognitive Domain: Analysis
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Hard

2. Describe the terms internal validity and external validity as they apply to research.
Ans: Internal validity refers to the amount of control of rival explanatory variables the researcher has when making a causal inference. The higher the control, the higher the internal validity. External validity refers to the similarity of the study situation to real world situations the researcher would like to discuss. High external validity exists when the research situations resemble real-world situations of interest.
Cognitive Domain: Analysis
Answer Location: 2.9 Other Issues in Design and Analysis
Difficulty Level: Hard

3. Give an example of a Likert scale response format.
Ans: A Likert scale typically consists of a five-point scale, but can include more than five if appropriate to the study. A research question such as “I believe Congress is doing a good job.” asks participants to choose answers on a Likert scale that best represent their level of agreement:

1	2	3	4	5
Strongly disagree	Disagree	Neutral or don’t know	Agree	Strongly Agree

Cognitive Domain: Application
Answer Location: 2.2.6 Rating Scale Variables
Difficulty Level: Medium

4. Give an example of a situation where rival explanatory variables may cause or

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influence the outcome.
Ans: A researcher wants to study whether social stress (*X*) causes high blood pressure (*Y*). Many other variables could explain the presence of high blood pressure, such as level of fitness, family history of high blood pressure, smoking, body weight, caffeine consumption, alcohol consumption, and consumption of other drugs or substances. In order to state that social stress causes high blood pressure, the researcher must control for all of these rival explanatory variables.
Cognitive Domain: Analysis
Answer Location: 2.5 Conditions for Causal Inference
Difficulty Level: Hard

5. Define and give an example of a non-experimental research design and explain why a researcher would choose this design rather than conduct an experiment.
Ans: In a non-experimental research study, a researcher measures two or more variables that are theorized to be meaningfully related, but does not introduce a treatment or intervention. An example would be when a researcher believes there is a causal relationship between physical exercise and incidence of reported depression. If there is strong correlation between people who choose to exercise more and less reported depression in this group, this outcome cannot be reported as evidence, since the data do not come from an experiment. Although it is possible to conduct an experiment assigning groups to exercise or non-exercise groups and then measuring reports of depression, it is more challenging to create a good experiment to do so.
Cognitive Domain: Analysis
Answer Location: 2.7 Nonexperimental Research Design
Difficulty Level: Hard

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