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Name:_____ Class:_____ Date:_____

Chapter 02: Multiple Choice

1. The inherited biological factors that shape an individual's behaviors, personality, and other characteristics refer to that individual's:
   a. nature.
   b. nurture.
   c. psychology.
   d. innateness.

ANSWER: a

2. Identical twins Anaïs and Sam, who were separated from each other at birth and then raised in different households, have some similar and some different characteristics. The characteristics that are similar are likely due to _____ factors, whereas the characteristics that are different are likely due to _____ factors.
   a. physical; psychological
   b. psychological; physical
   c. nature; nurture
   d. nurture; nature

ANSWER: c

3. Through studying identical twins like Sam and Anaïs, Dr. Segal has been studying:
   a. the effects of evolutionary theory on human traits.
   b. how correlation does not equal causation.
   c. the effects of genetic mutations on the characteristics of twins.
   d. how nature and nurture interact.

ANSWER: d

4. The scientific method:
   a. removes experimenter bias from having an impact on research.
   b. removes participant bias from having an impact on research.
   c. helps to minimize the impact of human errors in thinking.
   d. ensures that all variables have full reliability and validity.

ANSWER: c

5. The continuing cycle of exploration, critical thinking, and systematic observation that psychologists use to conduct research is called:
   a. the introspection process.
   b. informed consent.
   c. the scientific method.
   d. educated guessing.

ANSWER: c

6. The data collected in a research study will either support or refute the _____ that the study is designed to test.
   a. analyses
   b. hypothesis

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c. operational definition
d. statistics

ANSWER: b

7. A common research-generating experience caused Dr. Nancy Segal, who studied the identical twins Anaïs and Sam, to develop a twin study. The idea initially came to her because of:
a. her own experience with observing twins.
b. the operationalization of cooperation.
c. some inferential statistics she ran on previous data.
d. some descriptive statistics she ran on previous data.

ANSWER: a

8. The first step in the scientific method is:
a. developing a hypothesis.
b. publishing findings.
c. developing a question.
d. designing a study.

ANSWER: c

9. The final step in the scientific method is:
a. developing a hypothesis.
b. sharing the findings.
c. developing a question.
d. designing a study.

ANSWER: b

10. Using the scientific method, a researcher must _____ before they can _____.
a. analyze the data; develop a hypothesis
b. share the findings; collect the data
c. develop a question; develop a hypothesis
d. develop a hypothesis; develop a question

ANSWER: c

11. Foroughi, Werner, Barragan, and Boehm-Davis (2015) conducted an experiment on the effects of interruptions on reading comprehension. They found that participants struggled more with reading comprehension after being interrupted. However, this effect was not observed:
a. when the interruption was preceded by a 15-second break.
b. for the participants who were over 25 years of age.
c. for the participants who were under 25 years of age.
d. when there was no break before the interruption.

ANSWER: a

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12. Which sequence correctly represents the order of the first three steps of the scientific method?
    a. develop hypothesis > analyze data > publish findings
    b. develop hypothesis > collect data > analyze data
    c. develop question > design study > develop hypothesis
    d. develop question > develop hypothesis > design study

ANSWER: d

13. Dr. Kozlowski conducted a study on the effects of anxiety on memory. He wrote a peer-reviewed article on his results and then presented that paper at a conference. Dr. Kozlowski's article and presentation represent which step of the scientific method?
    a. develop a question
    b. design study and collect data
    c. analyze the data
    d. share the findings

ANSWER: d

14. Which statement expresses the relationship between a theory and a hypothesis?
    a. A theory is more specific than a hypothesis.
    b. A theory is broader than a hypothesis.
    c. A theory is the same thing as a hypothesis.
    d. A theory is unrelated to a hypothesis.

ANSWER: b

15. Dr. Segal predicted that when given a joint task, identical twins would cooperate more and compete less than fraternal twins. This prediction was her:
    a. theory.
    b. operational definition.
    c. hypothesis.
    d. descriptive statistics.

ANSWER: c

16. Neuroscientist Dr. Narayanan Kasthuri is trying to create a complete 3-D map of the human brain. When Dr. Kasthuri gathers information to generate the map, at which step of the scientific method is he?
    a. Step 2: Develop a Hypothesis
    b. Step 3: Design Study and Collect Data
    c. Step 4: Analyze the Data
    d. Step 5: Publish the Findings

ANSWER: b

17. In a research study, Dr. Nancy Segal had identical twins and fraternal twins work together on a puzzle. She and her colleagues then rated the twins on different measures of "cooperative behavior." In this study, cooperative behavior was operationally defined as:

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a. whether identical twins or fraternal twins worked on the puzzle.
b. the process of working together to the same end result.
c. the twins' ratings of how much they enjoyed working together.
d. the researchers' observations of how often twins worked together.

ANSWER: d

18. Magdalena indicates that she will measure happiness as the number of times an individual smiles per hour. She has provided a(n):
a. operational definition.
b. hypothesis.
c. theory.
d. independent variable.

ANSWER: a

19. Yifan conducted research on depression among teenagers. For the purpose of his research, he described depression using specific behaviors, such as how often a participant experienced thoughts of dying, a headache, and irritable hunger. The number of times each behavior was repeated by a participant constituted the _____ of depression.
a. hypothesis
b. random sample
c. theory
d. operational definition

ANSWER: d

20. _____ data is the term used for data once they have been gathered and entered into a data file but before they have been analyzed to give the numbers meaning.
a. Raw
b. Descriptive
c. Inferential
d. Investigative

ANSWER: a

21. After a researcher collects raw data from a study, the data must be analyzed using _____ to give the raw data meaning.
a. configuration
b. statistics
c. publication
d. investigation

ANSWER: b

22. Descriptive statistics:
a. allow predictions beyond a data set.

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b. show how two or more variables are related.
c. organize and present a set of data.
d. indicate the significance of the results.

ANSWER: c

23. After gathering data on psychologists, Tekisha creates a pie chart to display the percentage of psychologists working in different fields. In this scenario, she uses _____ to display the collected data.
a. descriptive statistics
b. inferential statistics
c. correlation coefficients
d. probability distributions

ANSWER: a

24. Inferential statistics help researchers:
a. determine the probability of future events.
b. know what mistakes were made in the research study.
c. organize and present the data from the research study.
d. operationally define their variables.

ANSWER: a

25. In _____ review, other psychologists examine an article submitted for publication and make recommendations regarding its acceptance, revision, or rejection.
a. experimental
b. creative
c. scientific
d. peer

ANSWER: d

26. Dr. Li is an expert on adolescence and is reading an article submitted for publication in the *Journal of Clinical Child and Adolescent Psychology*. At the moment, she is examining the methods section for potential flaws in the design of the research. Dr. Lee is contributing to the process of _____ review.
a. IRB
b. experimental
c. peer
d. data

ANSWER: c

27. An important part of the _____ process is for experts to attempt to catch cases of fabricated data before it is published.
a. peer-review
b. hypothesis development
c. statistical analysis

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d. replication

ANSWER: a

28. In 1998, research conducted by Wakefield and colleagues suggesting that vaccinations cause autism was published. The study was retracted from the journal years later because the:

a. study was fraudulent.
b. study was not peer-reviewed.
c. study did not include statistics.
d. autism was not operationally defined.

ANSWER: a

29. One lesson of the Wakefield autism-vaccine study incident is that consumers of media should be skeptical of studies that:

a. do not use inferential statistics.
b. have not been peer-reviewed.
c. cannot be replicated.
d. have no operationally defined variables.

ANSWER: c

30. Redoing and expanding on a study to see if its results hold up in different conditions with new samples is to:

a. replicate.
b. debrief.
c. describe.
d. peer review.

ANSWER: a

31. Yasmeen reads a journal article reporting a study in which a small sample of women undertook tests of spatial ability at two points during their menstrual cycle. Yasmeen conducts a similar study using not only spatial ability but also verbal ability tests. In addition, Yasmeen tests a larger sample of women. Yasmeen is performing a:

a. peer review.
b. replication.
c. control study.
d. double-blind study.

ANSWER: b

32. A key aspect of _____ involves being open to the consideration of new ideas.

a. pseudopsychology
b. critical thinking
c. a survey
d. the experimental method

ANSWER: b

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33. _____ is disciplined, clear, rational, and open to the consideration of new ideas.
    a. An experiment
    b. Debriefing
    c. Critical thinking
    d. Informed consent

ANSWER: c

34. Dr. Choi is organizing, evaluating, and synthesizing evidence regarding the impact of media and technology on children. Dr. Choi is engaging in:
    a. pseudopsychology.
    b. critical thinking.
    c. operationally defining technology.
    d. experiments.

ANSWER: b

35. Identical twins Anaïs and Sam went through 25 years of life without any knowledge of each other. When the twins started talking, they:
    a. didn't recognize each other.
    b. looked similar, but their personality quirks were very different.
    c. looked similar, and their personality quirks were similar, too.
    d. were reluctant to talk to each other.

ANSWER: c

36. A characteristic that can take on different values is called a(n):
    a. variable.
    b. theory.
    c. operational definition.
    d. hypothesis.

ANSWER: a

37. Personality can differ over time and across different people. In this regard, personality is a(n):
    a. sample.
    b. population.
    c. variable.
    d. outcome.

ANSWER: c

38. One difference between Sam and Anaïs was that Anaïs scored higher than Sam on _____, which is consistent with her interest in _____.
    a. memory; math
    b. memory; engineering

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c. visual-spatial skills; painting
d. visual-spatial skills; fashion design

ANSWER: d

39. Sam had stronger memory skills than Anaïs probably because Sam had a lot of experience with:
a. memorizing different fashion designers and artists through history.
b. mentally keeping track of many parts of complex machines.
c. memorizing her lines for acting jobs.
d. memorizing math proofs.

ANSWER: c

40. All members of an identified group about which a researcher is interested are called the:
a. control group.
b. treatment group.
c. sample.
d. population.

ANSWER: d

41. A subset of all members of a group chosen for inclusion in a study is called a:
a. variable.
b. correlation.
c. sample.
d. population.

ANSWER: c

42. In a _____, all members of the population have an equal chance of being selected to participate in the study.
a. random sample
b. survey
c. representative sample
d. random assignment

ANSWER: a

43. It is important for researchers to choose _____, because this allows them to generalize their findings, or apply information from a sample to the population at large.
a. random samples
b. the experimental method
c. representative samples
d. random assignment

ANSWER: c

44. Laina is conducting a survey of dating attitudes and behaviors among young adults as part of her master's

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thesis work. Laina distributes questionnaires to 200 randomly selected students enrolled in an introductory psychology class at her university. The 200 students are Laina's _____. The people to whom she assumes her results will generalize are the _____.

a. control group; sample
b. experimental group; population
c. population; sample
d. sample; population

ANSWER: d

45. At a police checkpoint for drunk drivers, some cars are stopped at random; many others are not stopped. The cars that are stopped may be considered a _____ of all the cars that pass by the checkpoint.

a. sample
b. variable
c. cohort
d. population

ANSWER: a

46. Declan is interested in studying the effects of sleep on exam performance. If he chooses a random sample for his research study, then:

a. all members of a population have an equal chance of being selected to participate in the study.
b. only the most representative members of the population will be selected to participate in the study.
c. the sample will have the same number of members as the population that he is interested in studying.
d. some members of the sample will be studied at random, but some members will not.

ANSWER: a

47. A lawyer is arguing that the sample of drivers of vehicles that are stopped at a roadside checkpoint by police officers is _____, because the characteristics of the sample are different from those of the population it is intended to reflect.

a. representative
b. not representative
c. random
d. operationally defined

ANSWER: b

48. Russell is interested in determining the overall number of undocumented workers in the United States. He takes a careful sample from New York. He needs to be careful about _____ because he is not gathering a representative sample.

a. using an experiment in this study
b. operationally defining undocumented worker
c. generalizing this number to other states
d. using naturalistic observation in this study

ANSWER: c

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49. Alice was interested in studying people's attitudes toward immigration reform, so she surveyed a sample of friends from her college in Chicago, Illinois. In her study, Alice found that 63% of her friends favored immigration reform. She concluded that "The majority of people in the United States are in favor of immigration reform." Which statement expresses the problem with Alice's conclusion?

a. Her sample is not representative of the United States population.
b. Her sample is representative of college students but not of the United States population.
c. Her sample is random, but it is not representative of the United States population.
d. Her sample is representative of the United States population but not of college students.

ANSWER: a

50. In their research methods class, Hiba and Oscar have to compare and contrast a representative sample and a random sample and then present their answers to the class. After some conversation they tell the class, "Both random samples and representative samples are useful for _____. A contrast between the two is that, unlike representative samples, random samples require that the researchers _____."

a. case studies; have access to the entire sample
b. case studies; have access to the entire population
c. generalization; have access to the entire sample
d. generalization; have access to the entire population

ANSWER: d

51. Sam and Anaïs, the identical twins separated and birth and raised in different households, showed differences in their levels of extraversion. Sam's higher level of extraversion as compared to Anaïs may be due to Sam growing up with brothers and Anaïs growing up as an only child. This difference between the twins is likely due to:

a. observer bias.
b. the placebo effect.
c. nature.
d. nurture.

ANSWER: d

52. Dr. Segal gave Sam and Anaïs, identical twins separated at birth and reunited at age 25, several psychological tests to measure personality traits. This part of Dr. Segal's research served the goal of _____ research.

a. descriptive
b. experimental
c. predictive
d. case study

ANSWER: a

53. Although descriptive research is useful for studying new topics, it cannot help researchers to reveal _____ relationships.

a. externally valid

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b. reliable
c. correlational
d. cause-and-effect

ANSWER: d

54. Researchers have observed that inside Starbucks, people in regions with a history of growing wheat (where farmers work more independently) tend to sit alone. In contrast, those from areas with a tradition of rice-growing (where farmers worked together) tend to sit together. This _____ research showed the importance of _____ in shaping everyday behavior.
a. experimental; researcher bias
b. experimental; culture
c. naturalistic observational; researcher bias
d. naturalistic observational; culture

ANSWER: d

55. As part of her research in graduate school, Dhruvi wants to examine children's play behavior in a realistic setting. She decides to watch groups of children as they play at a playground and note whether boys or girls tend to engage in more risky behavior on a particular piece of equipment. What kind of descriptive research is Dhruvi conducting?
a. case study
b. quasi-experiment
c. experiment
d. naturalistic observation

ANSWER: d

56. Naturalistic observation entails:
a. the systematic, detailed study of a single individual.
b. asking a sample of individuals a set of questions.
c. the manipulation of an independent variable.
d. examining behavior in the setting where it typically occurs.

ANSWER: d

57. The most important requirement of _____ is that researchers must not disturb the participants or their environment.
a. case studies
b. naturalistic observations
c. surveys
d. experiments

ANSWER: b

58. Enrique is a graduate student who is conducting research for his master's thesis. For his study, he is recording instances of physical aggression as he watches children in a schoolyard at recess. Enrique is

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undertaking:

a. naturalistic observation.
b. an experiment.
c. a survey.
d. a case study.

ANSWER: a

59. A study conducted by Humphreys, Fitzpatrick, & Harvey (2015) had researchers pose as regular people who were using the restroom and then observe hand-washing behavior of men and women. This is an example of what kind of descriptive research technique?

a. case study
b. naturalistic observation
c. correlational method
d. experiment

ANSWER: b

60. Dr. Torres is overseeing a naturalistic observation study of children's aggression. He notices that male and female research assistants vary in how they rate the aggressiveness of girls' behaviors. Dr. Torres suspects the presence of _____ bias.

a. participant
b. observer
c. naturalistic
d. sample

ANSWER: b

61. Multiple observers might be used in a naturalistic observation study to see whether they make similar observations. If they make different observations, this may be an indication of:

a. actor bias.
b. observer bias.
c. biased sampling.
d. random sampling.

ANSWER: b

62. Dr. Gimenez decides to complete a detailed examination of more than a dozen miners who had been trapped for two weeks in a mine. She gathers many types of information and ends up creating a rich, detailed description of this unique event. Dr. Gimenez has used the _____ method.

a. survey
b. experimental
c. naturalistic observation
d. case study

ANSWER: d

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63. Samantha and Anaïs are identical twins who were separated at birth and raised in different cultures. Samantha was raised in the United States, and Anaïs was raised in France. In thoroughly studying their specific and rare example, Dr. Segal used their situation to complete:

a. a quasi-experiment.
b. an experiment.
c. a case study.
d. the correlational method.

ANSWER: c

64. Dr. Abara conducted a detailed examination of a patient with dissociative identity disorder. He gathered a lot of information about his patient from a variety of sources, and he immersed himself into the life of his patient. Dr. Abara conducted:

a. a survey.
b. naturalistic observation.
c. a case study.
d. an experiment.

ANSWER: c

65. Sigmund Freud based much of his theory on intensive analyses of individual patients. Freud's theory therefore is built on a foundation of:

a. naturalistic observations.
b. surveys.
c. experiments.
d. case studies.

ANSWER: d

66. Researchers conducted an in-depth investigation of Jim Springer and Jim Lewis, also known as the "Jim Twins." The investigation is an example of a(n) _____ study.

a. placebo
b. randomized
c. experimental
d. case

ANSWER: d

67. A researcher conducting a _____ closely examines an individual or small group.

a. case study
b. survey
c. variable
d. replication

ANSWER: a

68. Which classic use of the case study method is correctly paired with the outcome?

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a. H. M.—provided the basis for some of Freud's theories
b. Lorenz's Geese—demonstrated the classical conditioning of fear
c. Genain Quadruplets—revealed the genetic basis of schizophrenia
d. Phineas Gage—showed the effects of brain damage on memory

ANSWER: c

69. A major advantage of using survey research is that:
a. it tends to have stronger validity than other research techniques.
b. it is the only way to gather data in an experimental setting.
c. most people are honest.
d. a lot of data can be gathered quickly.

ANSWER: d

70. Which descriptive research technique relies on questionnaires or interviews of a large group of people?
a. survey
b. naturalistic observation
c. experiment
d. case study

ANSWER: a

71. Dr. Chidozie prepares a set of questions to ask a large group of college students about their drinking behavior and their attitudes toward alcohol. Dr. Chidozie is undertaking:
a. a survey.
b. a case study.
c. naturalistic observation.
d. an experiment.

ANSWER: a

72. An example of using the survey method to conduct scientific research would be:
a. recording the behaviors of sea lions in their natural habitat.
b. observing the problem-solving strategies of an extremely gifted middle school girl.
c. comparing students' performance on abstract and concrete versions of problems.
d. asking a group of students questions about their sexual attitudes and behaviors.

ANSWER: d

73. One potential problem with the survey method is that:
a. it allows researchers to gather data from a lot of people at once.
b. participants are not always honest in their responses to survey questions.
c. it can be used alone or with other research methods.
d. it eliminates concerns about the effects of question wording on responses.

ANSWER: b

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74. Kesta is doing her senior project on attitudes about cheating. She handed her survey out to several psychology classes at her college. When she got her results back, she was surprised to see that most students said they themselves never cheated and that they thought negatively about cheating. When interpreting her results, Kesta needs to remember that:

a. her survey may have had observer bias in it.
b. social desirability may have impacted her participants' answers.
c. a case study would have been much more generalizable.
d. her quasi-experiment is not as powerful as a correlational study would have been.

ANSWER: b

75. In a recent study, Leiserowitz et al. (2014) asked half of their participants about harm to their families from "global warming" and the other half about harm to their families from "climate change." They found that most participants were significantly more alarmed by:

a. the phrase climate change than by the phrase global warming.
b. the phrase global warming than by the phrase climate change.
c. these phrases when they were accompanied by scary anecdotes than when they were presented alone.
d. these phrases when they were accompanied by well-supported statistics than when they were presented alone.

ANSWER: b

76. Many surveys ask participants surface-level questions and fail to uncover:

a. habits and behaviors.
b. attitudes and beliefs.
c. precise responses to questions.
d. why people respond the way they do.

ANSWER: d

77. Dr. Buhle, a health psychologist, is interested in the exercise intentions of students on her campus. She surveys 1,000 students about whether they intend to exercise regularly in the near future. One potential problem with this method is that:

a. it is an expensive and time-consuming method.
b. the intention to exercise can mean different things to different people.
c. it cannot be used effectively with other research methods.
d. almost everyone in her sample will likely lie.

ANSWER: b

78. With survey research, a low _____ can cause problems in getting a _____.

a. level of external validity; random sample
b. level of internal validity; good assessment of reliability
c. response rate; random sample
d. response rate; representative sample

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ANSWER: d

79. With _____, a low response rate can cause problems in getting a representative sample.
a. experiments
b. surveys
c. case studies
d. naturalistic observations

ANSWER: b

80. Akari decided to work with her faculty mentor to examine the issue of burnout among physicians for her senior research project. She sent a survey out to 300 physicians in the local area, but Akari only received 52 of her surveys back. This illustrates the general problem with getting a _____ sample when using the survey method to conduct research.
a. representative
b. naturalistic
c. positively correlated
d. negatively correlated

ANSWER: a

81. Shana has noticed that the more alcohol people drink, the more aggressive they seem to become. Which research technique would be aimed at verifying the relationship between these two variables?
a. naturalistic observation
b. case study
c. correlational method
d. experiment

ANSWER: c

82. If two variables X and Y are strongly correlated, it can be concluded that:
a. X caused Y.
b. Y caused X.
c. as the value of X increases or decreases, the value of Y increases or decreases, respectively.
d. a third variable is not likely to be responsible for the relationship.

ANSWER: c

83. Chenell calculated a correlation for some data in her statistics course. She found that the correlation coefficient between number of classes students take and their friendliness was +0.08. What does this mean?
a. A higher number of classes is strongly related to students' friendliness.
b. As class numbers increase, friendliness goes down.
c. The relationship between number of classes and friendliness is very weak.
d. The relationship between number of classes and friendliness is near perfect.

ANSWER: c

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84. As people's education level increases, their income also increases. This is an example of:
    a. a correlation coefficient.
    b. no correlation.
    c. a positive correlation.
    d. a negative correlation.

ANSWER: c

85. Which statement indicates a negative correlation?
    a. As people's education level increases, their income level increases.
    b. The more money people make, the less stressed they tend to be.
    c. The more people eat, the more they weigh.
    d. As people's level of attractiveness decreases, their happiness level decreases.

ANSWER: b

86. With a _____, as one variable increases, the other variable decreases.
    a. perfect negative correlation
    b. strong positive correlation
    c. perfect positive correlation
    d. significant research finding

ANSWER: a

87. With a strong positive correlation, as one variable increases, the other variable:
    a. increases
    b. decreases
    c. remains the same
    d. returns to zero

ANSWER: a

88. Dr. Naidoo is interested in the relationship between pacifier use during infancy and levels of empathy during young adulthood. She finds that those students who reported higher pacifier usage during infancy also reported lower levels of empathy in young adulthood. This illustrates a _____ correlation.
    a. negative
    b. not significant
    c. weak
    d. positive

ANSWER: a

89. The correlation coefficient ranges from _____ to _____.
    a. +1.00; +100
    b. -1.00; +1.00
    c. 0; +1.00

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d. -100; +100

ANSWER: b

90. "What does a correlation coefficient tell us?" Gia asks the members of her psychology study group. "The strength of a relationship between two variables," answers Selena. "The reason two variables are related," suggests Greg. "The causal relationship between two variables," answers Jose. "None of those things," exclaims Lana. Who is correct?

a. Selena
b. Greg
c. Jose
d. Lana

ANSWER: a

91. If researchers found a strong negative correlation between the amount of time a mother holds a baby and the amount that the baby cries, you should expect to see a correlation coefficient close to:

a. +1.00.
b. -1.00.
c. +2.00.
d. 0.

ANSWER: b

92. A positive correlation would be predicted for which two variables?

a. alcohol consumption and grade point average
b. depression level and height
c. grade point average and amount of studying
d. grade point average and depression level

ANSWER: c

93. Dr. Weber found a strong positive correlation between self-reported alcohol use and the number of sick days taken in a study of white-collar workers. A scatterplot of her results would show plots:

a. clustering around a diagonal line from the bottom left to the top right.
b. clustering around a diagonal line from the top left to the bottom right.
c. that create a horizontal line.
d. that are all over the graph, with no identifiable line.

ANSWER: a

94. A scatterplot of a perfect negative correlation would show:

a. a diagonal line from the bottom left to the top right.
b. a diagonal line from the top left to the bottom right.
c. a horizontal line.
d. plots that are all over the graph.

ANSWER: b

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95. Which sequence of correlation coefficients is in order of increasing strength?
a. -.65, .15, .55
b. 0, -.60, .50
c. -.60, .50, .10
d. .45, .55, -.65
ANSWER: d

96. If there is no relationship between two variables, then the correlation coefficient would be:
a. +1.00.
b. -1.00.
c. 0.
d. perfect.
ANSWER: c

97. In a survey project, Dr. Petrov finds a correlation of +0.70 between people's reported levels of attachment security and their likelihood of engaging in prosocial behaviors. This result indicates that:
a. attachment security causes people to behave antisocially at work.
b. behaving prosocially at work can cause a feeling of attachment security.
c. decreases in attachment security cause increases in prosocial behavior.
d. as people's attachment security increases, their prosocial behavior increases.
ANSWER: d

98. Even if two variables are strongly correlated, it is important to consider whether there is a(n) _____ variable, an unaccounted for characteristic of participants or the environment that explains changes in the variables of interest.
a. positive
b. negative
c. experimental
d. third
ANSWER: d

99. Researchers consistently report a positive correlation between exposure to violence in the media and aggressive behavior. It is possible that the two variables caused each other, but it is also possible that a _____ variable actually influences both exposure to violence and aggressive behavior.
a. positive
b. experimental
c. third
d. negative
ANSWER: c

100. Sometimes the media incorrectly reports the findings of correlational psychology research studies, because

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the media does not understand that when a correlation is found between two variables X and Y, then:

a. the only conclusion is that X caused Y.
b. the only conclusion is that Y caused X.
c. it must be concluded that X and Y are the same variable.
d. it could be possible that X and Y are caused by a third variable.

ANSWER: d

101. According to the World Happiness Report published by the United Nations Sustainable Development Solutions Network, the happiest people live in:

a. Syria.
b. Canada.
c. the United States.
d. Finland.

ANSWER: d

102. According to the World Happiness Report published by the United Nations Sustainable Development Solutions Network, one key factor that leads to variations in happiness in people of different countries of the world is:

a. pollution.
b. education level.
c. health insurance.
d. social support.

ANSWER: d

103. According to the World Happiness Report published by the United Nations Sustainable Development Solutions Network, five of the top ten happiest countries in the world are _____ countries.

a. African
b. North American
c. Asian
d. Nordic

ANSWER: d

104. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs is known as:

a. enriched.
b. sustainable.
c. negotiated.
d. collaborative.

ANSWER: b

105. One advantage of the experimental method over the correlational method is that the experimental method _____, but the correlational method does not.

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a. always generalizes beyond the lab setting
b. determines cause and effect
c. involves very little control over variables
d. has third variables

ANSWER: b

106. The _____ method manipulates an independent variable to reveal causal effects on a dependent variable.
a. experimental
b. correlational
c. descriptive
d. observational

ANSWER: a

107. Of all the research methods, only _____ can tell us about cause and effect.
a. naturalistic observation
b. surveys
c. correlational methods
d. experiments

ANSWER: d

108. In an experiment, the process of random _____ ensures that each participant has an equal chance of being in either the control group or the experimental group.
a. assignment
b. selection
c. sampling
d. placement

ANSWER: a

109. In an experiment, Mantaha assigned all females to a group in which participants drank three glasses of fruit punch. All males were assigned to a group in which participants drank three glasses of wine. Mantaha found that the participants who drank the wine made more errors on a simulated driving test than did the participants who drank the punch. An obvious problem with this experiment is that:
a. participants were not randomly assigned to groups.
b. there was no control group.
c. there was an independent variable but not a dependent variable.
d. there was no experimental group.

ANSWER: a

110. A control group would be included in an experiment to:
a. determine whether two variables are related.
b. allow comparisons with the experimental groups.

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c. ensure that participants are similar across all groups.
d. ensure the inclusion of confounding variables.

ANSWER: b

111. In an experiment to test the effects of throat lozenges on children with sore throats from a cold, some of the children were given a medicated lozenge, and some of them were given a lozenge with only sugar in it. In this experiment, children who received the sugar lozenges were the _____ group.

a. independent
b. confounding
c. control
d. experimental

ANSWER: c

112. Dr. Farooqi is studying the impact of the exposure of trauma on health-related outcomes. She finds that almost all of her participants in her trauma-exposed group also happen to smoke cigarettes. Whether or not participants smoke is considered a(n) _____ variable in her study.

a. independent
b. dependent
c. confounding
d. double-blind

ANSWER: c

113. A sports psychologist conducted an experiment on the effects of whey protein on people's muscle development. In this experiment, whether or not people consumed whey protein is:

a. the dependent variable.
b. the independent variable.
c. a placebo.
d. an extraneous variable.

ANSWER: b

114. A good way to minimize the influence of extraneous variables is to use:

a. random assignment.
b. random selection.
c. dependent variables.
d. independent variables.

ANSWER: a

115. If Iqra wanted to use a controlled study to examine the impact on children of using spanking as a disciplinary technique, then the best design she could ethically use is a:

a. single-blind experiment.
b. double-blind experiment.
c. case study.

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d. quasi-experiment.

ANSWER: d

116. Dr. Perez is giving a presentation on her work examining the impact of hurricane exposure on the development of mental disorders. She has used a quasi-experimental design, and so her colleagues would expect her to discuss:

a. how she randomly assigned participants to a hurricane versus non-hurricane situation.

b. how she was able to randomly select participants from throughout the United States to participate.

c. the potential confounding variables and how she controlled for them.

d. whether she decided on a single-blind or double-blind experimental design.

ANSWER: c

117. Dr. Hadad conducted an experiment to test the effects of a new stimulant drug on a group of participants. In the experiment, Dr. Hadad knew which participants were receiving the new drug and which were receiving an inert pill. However, the participants did not know which type of pill they were taking. Given this information, it can be inferred that Dr. Hadad conducted a _____ study.

a. single-blind

b. double-blind

c. triple-blind

d. placebo-blind

ANSWER: a

118. Deziree has her research assistants randomly determine whether each participant in her experiment will receive a placebo or a real treatment, and they keep this information from Deziree until it is time to analyze the data. This type of research, known as a _____ study, ensures that neither the participants nor Deziree will know which treatment is being given.

a. single-blind

b. double-blind

c. representative

d. confounding

ANSWER: b

119. A pharmaceutical company wishes to test the effects of a new antidepressant using a double-blind study. As a result, the research assistants would _____ which participants were receiving the active drug or inert pill, and each participant would _____ which type of pill they were taking.

a. know; know

b. know; not know

c. not know; know

d. not know, not know

ANSWER: d

120. Dr. Lau deliberately varied the sequence of items on a list and later measured participants' ability to recall the items. Dr. Lau conducted a(n) _____ study.

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a. correlational
b. naturalistic
c. experimental
d. observational

ANSWER: c

121. _____ involves people being selected from a larger population. _____ involves how these people are put into different groups of an experiment.
a. Independent assignment; Dependent assignment
b. Random sampling; Random assignment
c. Controlled sampling; Controlled assignment
d. Independent sampling; Dependent sampling

ANSWER: b

122. If Micah were to correctly explain the difference between an independent variable and a dependent variable in a presentation to his class, he would say, "In an experiment, the independent variable is _____, and the dependent variable is _____."
a. measured; manipulated
b. manipulated; measured
c. manipulated; an unforeseen factor that could interfere with the results
d. a behavior; the effect on this behavior

ANSWER: b

123. One group of participants in an experiment texted on their cell phones while driving a car through an obstacle course, and another group did not text while driving through the course. Researchers recorded the number of objects each participant hit while driving through the course. What was the independent variable?
a. the objects that were hit
b. the cell phones
c. texting or not while driving
d. the number of objects hit

ANSWER: c

124. A researcher is conducting an experiment to study the effects of texting while driving. Driving experience varies among the subjects in the experiment and may be a(n) _____ variable.
a. representative
b. controlled
c. third
d. extraneous

ANSWER: d

125. Vihaan flips a coin to determine which participants will be in the control group of his experiment and which will be in the experimental group. Vihaan is using:

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a. random sampling.
b. random assignment.
c. blind sampling.
d. blind assignment.

ANSWER: b

126. In a social psychology experiment, one group of participants is reminded of a social stereotype they are likely to have, while another group is not. All participants then interact with a member of the group to which the stereotype refers, and the nature of their interactions is recorded. Which statement is true?
a. The reminded group receives the treatment and is the control group.
b. The reminded group receives the treatment and is the experimental group.
c. The non-reminded group receives the treatment and is the control group.
d. The non-reminded group receives the treatment and is the experimental group.

ANSWER: b

127. In an experiment, the _____ variable is deliberately manipulated by the researcher.
a. control
b. dependent
c. independent
d. experimental

ANSWER: c

128. In an experiment, the dependent variable is:
a. applied to the treatment group.
b. randomized across groups.
c. measured by the researcher.
d. deliberately manipulated by the researcher.

ANSWER: c

129. A researcher gives the experimental group caffeine, and the control group is not given anything. In this example, what the groups are given is the _____ variable.
a. sample
b. independent
c. dependent
d. experimental

ANSWER: b

130. Dr. Bhamra is conducting an experiment on the effects of caffeine on memory. Participants are randomly assigned to a caffeine or a no-caffeine group, and their recall of items on a word list is later assessed. What is the independent variable in this experiment?
a. caffeine level
b. word recall

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c. the memory test
d. the people in the caffeine group

ANSWER: a

131. Characteristics of an environment or a participant that might interfere with an experiment's outcome are called:
a. placebo groups.
b. the population.
c. third variables.
d. extraneous variables.

ANSWER: d

132. In an experiment on the effects of a new injectable mood-boosting drug on patients with depression, some of the patients are given one injection of the active drug, and some of them are given one water injection. In this experiment, the water injection acts as a:
a. dependent variable.
b. confounding variable.
c. placebo.
d. sample.

ANSWER: c

133. A placebo is given to members of the _____ group.
a. control
b. dependent
c. experimental
d. independent

ANSWER: a

134. Neuropsychologist Dr. Saliba gives half of the participants in her experiment a pill that contains a stimulant drug. She gives the other half of her participants an identical-looking pill that does not contain the drug. Dr. Saliba is using a pill without the drug as a(n):
a. random variable.
b. extraneous variable.
c. confound.
d. placebo.

ANSWER: d

135. Annemarie gives her five-year-old son a gummy bear every night before bed. She tells him that it contains melatonin, which will "make anyone who eats it very sleepy." Although the gummy bear does not actually contain melatonin, it makes her son sleepy. This is an example of the _____ effect.
a. correlational
b. experimental

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c. extraneous
d. placebo

ANSWER: d

136. "Clever Hans" was a horse who appeared to be able to do math as well as a host of other cognitive tasks. However, it turned out that Hans was just a brilliant reader of human behavior because he was getting the correct answer by getting cues from the person asking the question. This is an example of:
a. a single-blind study.
b. a double-blind study.
c. experimenter bias.
d. the placebo effect.

ANSWER: c

137. Dr. Mikhail is worried that his beliefs about the effectiveness of a drug might influence the behaviors of the participants in his experiment. He is worried about:
a. participant bias.
b. experimenter bias.
c. random assignment.
d. random sampling.

ANSWER: b

138. _____ refers to the consistency of a measure or a finding.
a. Random assignment
b. Random selection
c. Reliability
d. Validity

ANSWER: c

139. When the same participant is assessed more than once, _____ can be assessed.
a. interrater reliability
b. test–retest reliability
c. validity
d. experimenter bias

ANSWER: b

140. Tyler takes the SAT and receives a score of 1500. He takes it a month later and receives a score of 800. When he takes it a month after that, he receives a score of 1200. Tyler's score is showing poor:
a. interrater reliability.
b. test–retest reliability.
c. validity.
d. experimenter bias.

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ANSWER: b

141. Korei, Annaliese, and Easton are scoring a video for seven common facial expressions. The consistency that they show among all of them is called:

a. interrater reliability.
b. test–retest reliability.
c. validity.
d. experimenter bias.

ANSWER: a

142. Lola creates a survey that is supposed to measure depression. However, the survey is more reflective of anxiety than depression. As a result, Lola's survey shows poor _____ for measuring depression.

a. interrater reliability
b. test–retest reliability
c. validity
d. experimenter bias

ANSWER: c

143. An experiment has strong _____ when its design allows it to measure what it intends to measure.

a. interrater reliability
b. test–retest reliability
c. internal validity
d. external validity

ANSWER: c

144. Diane is examining the impact of divorce on children's emotional intelligence. Because her study is a quasi-experiment, she has a hard time controlling for extraneous variables and as a result, her _____ is jeopardized.

a. interrater reliability
b. test–retest reliability
c. internal validity
d. external validity

ANSWER: c

145. LaToya has decided to conduct a(n) _____ because she wants to explore a new research question in a natural environment.

a. experiment
b. single-blind study
c. double-blind study
d. descriptive study

ANSWER: d

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146. A(n) _____ study is a good option when a researcher wants to explore whether two variables are related but cannot directly manipulate any of the variables.

a. experimental
b. double-blind
c. single-blind
d. correlational

ANSWER: d

147. Nami is reviewing a study that explored the impact of video game playing on attention span. The sample used in the study included only frequent video game players. Because this study does not have a representative sample, Nami includes the critique of poor _____ in his review.

a. interrater reliability
b. test–retest reliability
c. internal validity
d. external validity

ANSWER: d

148. The lack of a representative sample in an experiment might also indicate low:

a. interrater reliability.
b. test–retest reliability.
c. internal validity.
d. external validity.

ANSWER: d

149. _____ is a common weakness of experimental research.

a. Having little control
b. Not being able to determine cause and effect
c. Having poor internal validity
d. The Hawthorne effect

ANSWER: d

150. An experiment conducted by Lillard and Peterson (2011) showed that four-year-old children who watched a fast-paced, fantastical cartoon did _____ tests than did those who did not watch such a cartoon.

a. better on cognitive
b. worse on cognitive
c. better on physical
d. worse on physical

ANSWER: b

151. Ashaunti is a kindergarten teacher who read an experiment by Lillard and Peterson (2011) about the effects of watching fast-paced, fantastical cartoons on children's cognitive performance. Based on the results of the study, Ashaunti should:

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a. not allow her students to view such shows because of the negative effects on cognition.
b. allow her students to watch such shows because of the positive effects on cognition.
c. dismiss the results of the study because of the numerous extraneous variables in it.
d. dismiss the results of the study because she likes the cartoon that was used in the study.

ANSWER: a

152. Potential _____ variables were eliminated in the 2011 experiment by Lillard and Peterson, because they held all other variables constant except for the one they wanted to manipulate.
a. independent
b. dependent
c. confounding
d. quasi-experimental

ANSWER: c

153. The science of collecting, organizing, analyzing, displaying, and interpreting data is known as:
a. the application of an operational definition.
b. empirical testing.
c. the scientific method.
d. statistics.

ANSWER: d

154. The two basic types of statistics are _____ and _____.
a. inferential; empirical
b. empirical; operational
c. operational; descriptive
d. descriptive; inferential

ANSWER: d

155. The goal of _____ statistics is to provide a snapshot of what has been observed in a study.
a. inferential
b. empirical
c. descriptive
d. operational

ANSWER: c

156. Darnell is creating a bar graph to summarize the results of an experiment. The graph displays _____ statistics.
a. inferential
b. empirical
c. descriptive
d. operational

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ANSWER: c

157. Olivia selects a sample of college students. She obtains the students' scores on several personality scales, as well as on a test of creativity. Olivia wishes to summarize her sample's performance on the creativity test. She therefore uses _____ statistics to present raw data.

a. descriptive
b. correlational
c. empirical
d. inferential

ANSWER: a

158. Measures of central tendency and variability are types of _____ statistics.

a. inferential
b. empirical
c. descriptive
d. operational

ANSWER: c

159. Sadie received a 76% on her last anatomy and physiology exam. She checks both the mean and standard deviation to get a feel for how she did in comparison to other students. Both of these statistics are types of _____ statistics.

a. inferential
b. empirical
c. descriptive
d. operational

ANSWER: c

160. Eden is trying to figure out the mean for a group of scores on a quiz. To find the mean, Eden needs to:

a. add up all the scores and divide by the total number of scores.
b. identify and use the number that occurs most often.
c. list the scores from lowest to highest and identify the number in the middle.
d. find the average distance to the center.

ANSWER: a

161. What is the mean for the scores 10, 10, 6, 5, and 4?

a. 10
b. 6
c. 5
d. 7

ANSWER: d

162. What is the mean for the scores 3, 4, and 5?

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a. 3
b. 4
c. 5
d. 12

ANSWER: b

163. Marisol needs to calculate the mode for a group of reaction time scores. To find the mode, Marisol needs to:

a. add up all the scores and divide by the total number of scores.
b. identify and use the number that occurs most often.
c. list the scores from lowest to highest and identify the number in the middle.
d. find the average distance to the center.

ANSWER: b

164. Calculate the mode for this set of scores: 72, 68, 68, 65, 20, 7.

a. 50
b. 68
c. 65
d. 66.5

ANSWER: b

165. Calculate the mode for this set of scores: 2, 3, 3, 4, 5, 6.

a. 1
b. 2
c. 3
d. 4

ANSWER: c

166. Abdullah needs to determine the median for a variable he is using in his senior project. To find the median, Abdullah needs to:

a. add up all the scores and divide by the total number of scores.
b. identify and use the number that occurs most often.
c. list the scores from lowest to highest and identify the number in the middle.
d. find the average distance to the center.

ANSWER: c

167. Calculate the median for this set of scores: 10, 10, 6, 5, 4.

a. 10
b. 6
c. 5
d. 7

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ANSWER: b

168. Calculate the median for this set of scores: 3, 3, 4, 9, 11.
a. 3
b. 4
c. 9
d. 11

ANSWER: b

169. The arithmetic average of the dataset is known as the:
a. mode.
b. median.
c. mean.
d. standard deviation.

ANSWER: c

170. The most frequently occurring value in a data set is known as the:
a. mode.
b. median.
c. mean.
d. standard deviation.

ANSWER: a

171. The number that represents the middle of the data set with 50% of the data values being greater than it and 50% of the values being lower than it is known as the:
a. mode.
b. median.
c. mean.
d. standard deviation.

ANSWER: b

172. Mean, median, and mode are all measures of:
a. variation.
b. inferential statistics.
c. central tendency.
d. hypothesis testing.

ANSWER: c

173. Range and standard deviation are measures of:
a. central tendency.
b. inferential statistics.

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c. variation.
d. hypothesis testing.

ANSWER: c

174. Measures of variation estimate _____ in a data set.
a. how much dispersion exists
b. where the middle is
c. where the data values fall in relation to other variables
d. whether hypothesis testing will be appropriate

ANSWER: a

175. The _____ represents the length of the data set.
a. mean
b. measure of position
c. standard deviation
d. range

ANSWER: d

176. The _____ is a more precise measure of variation than the _____, which gives a rough picture of variation.
a. standard deviation; range
b. range; standard deviation
c. range; measure of position
d. measure of position; range

ANSWER: a

177. Dalal would like to measure the _____, which shows the average distance to the mean for her data set.
a. measure of position
b. standard deviation
c. central tendency
d. range

ANSWER: b

178. Ansam just got back her midterm exam in her chemistry class. In addition to her grade, the professor also posted the standard deviation, which was quite low. This indicates that:
a. there was not a lot of variation in students' scores.
b. there was a lot of variation in students' scores.
c. students did not do very well on the midterm.
d. students did quite well on the midterm.

ANSWER: a

179. Nicholas is trying to explain the bell curve to his study group. He explains that it is in a bell shape because:

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a. it is showing the shape of the central tendency.
b. the scores at each end of the curve are the most common.
c. most scores are in the middle, and as scores get farther away from the mean, they get rarer.
d. the scores that are closer to the middle are more likely to be validated through inferential statistics.

ANSWER: c

180. In a bell curve, the farther from the mean the scores are, the _____ they are.
a. larger in size
b. smaller in size
c. more frequent in number
d. less frequent in number

ANSWER: d

181. Kasey's standardized test results listed her overall score as well as her percentile. The percentile is a:
a. measure of position.
b. type of standard deviation.
c. result of range.
d. type of central tendency.

ANSWER: a

182. _____ can be used to determine the probability of events and make predictions about general trends.
a. Descriptive statistics
b. Inferential statistics
c. Measures of position
d. Measures of variation

ANSWER: b

183. Valeria is writing up her research on the impact of video games on aggression. She uses _____ to make a statement about how confident she is in her findings based on the data she collected.
a. descriptive statistics
b. inferential statistics
c. measures of position
d. measures of variation

ANSWER: b

184. When using hypothesis testing, researchers must select a level of certainty that the change they see is a result of the treatment. If that level of certainty is 95%, then that indicates there is a:
a. 95% chance that a difference will be statistically significant.
b. 95% chance that some difference will be found.
c. 5% chance that a difference will be found.
d. 5% chance that a difference found will be due to chance.

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ANSWER: d

185. Rasheed is presenting the results of his experiment to a conference. He reports that his results were statistically significant, which means that:

a. the measures of position must have been above 10%.

b. his mean or median must have been very high.

c. differences between groups were likely due to his experimental manipulation.

d. measures of variation must have fit the normal bell curve.

ANSWER: c

186. Corinne randomly assigned half of her sample to an experimental group that received a special supplement and half to her placebo control group. She found that the difference in ability to concentrate between the two groups after ingesting the substances was statistically significant. This means that the difference is likely due to:

a. the supplement.

b. experimenter bias.

c. an extraneous variable.

d. a third variable.

ANSWER: a

187. In reviewing a paper on the impact of video gaming on helping behavior, Abeer noticed that the authors had a rather large sample size and a small but statistically significant effect. She saw that video gaming decreased helping behavior by about 2%. In her written review, Abeer noted, "It is likely that the changes in helping behavior were due to:

a. gaming, but the practical importance is low."

b. experimenter bias, and the large sample size probably caused several confounded variables."

c. the dependent variable, but the statistical significance is not practical."

d. poor hypothesis testing, and the sample size should have been decreased."

ANSWER: a

188. In a new paper, scientists at the University of Oxford examined the effects of technology on adolescent well-being. They suggested that although some other studies have shown statistically significant results, the effects are small. This means that although:

a. the findings are due to chance, they are of some practical importance.

b. the findings are not due to chance, they are of little practical importance.

c. measures of central tendency are not significant, the variability measures are more significant.

d. measures of central tendency are significant, the variability measures are less significant.

ANSWER: b

189. Emiko's psychology class is discussing the impact of technology on teenagers. She wants to summarize the results from the recent large study by scientists at the University of Oxford who examined data on more than 350,000 adolescents on the topic. She said, "The fear and panic that so many adults feel about the potentially harmful impact of technology is _____ warranted, given the _____."

a. fully; strong association seen in most adolescents between technology and mental illness

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b. partially; strong association seen in adolescents between technology and mental illness
c. partially; moderate association seen in adolescents between technology and aggression
d. not at all; negligible effect of technology on negative outcomes

ANSWER: d

190. _____ is a statistical approach that allows researchers to combine findings of different studies and draw general conclusions.
a. Meta-analysis
b. Applying measures of central tendency
c. Using the combination of descriptive and inferential statistics
d. Applying measures of variation

ANSWER: a

191. Sebastian would like to pull together research from 145 different studies that all examine the contributors to burnout in the workplace. What technique could he use to summarize these results in a meaningful and quantitative way?
a. descriptive statistics
b. inferential statistics
c. meta-analysis
d. measures of variation

ANSWER: c

192. Sabra, a graduate student in cognitive psychology, would like to do research with children on attention and concentration. When working with this age group, ethically she must consider:
a. getting appropriate informed consent.
b. obtaining both practical and statistical significance.
c. using only descriptive statistics.
d. getting permission from the child's pediatrician.

ANSWER: a

193. Ji-ho is a member of the Institutional Animal Care and Use Committee (IACUC) and is responsible for reviewing several research studies using animals. Ji-ho will:
a. examine the housing conditions of the animals.
b. ensure that the researchers are testing theoretically supported hypotheses.
c. work with researchers to plan and conduct appropriate statistical analyses.
d. inform the researchers about techniques to train the animals.

ANSWER: a

194. Erden is transporting rats for a psychological research study to a university laboratory. For transport, the rats are in very small, individual boxes for a period of five hours. There is no food or water in the small boxes since the water might spill during transport. Erden's friend Anastasia points out that the rats' treatment would be considered:

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a. "standard procedure" for rats in psychological research.
b. unethical given that the rats lack food, water, ventilation, and space.
c. unethical given that the rats are not allowed to interact with other rats.
d. ethical given that the transportation time is under 6 hours.

ANSWER: b

195. Misha is preparing her master's thesis proposal. She knows she will need to submit her project to her college's Internal Review Board (IRB) and they will review her proposal to be sure that her:
a. project uses both descriptive and inferential statistics.
b. proposal includes meta-analyses in its literature review.
c. research will not harm her participants.
d. project uses animal and not human participants.

ANSWER: c

196. The ethical guidelines written by professional organizations encourage psychologists to:
a. maintain accuracy in research, teaching, and practice.
b. form their own internal review boards no matter where they are practicing or researching.
c. never use deception no matter what the circumstances.
d. never manipulate participants in studies.

ANSWER: a

197. Oktai is writing up an original research paper on the impact of sleep deprivation on grades. When thinking about including what other researchers have written about the topic, Oktai should:
a. try to avoid using any other researcher's work in any part of his paper because it is supposed to be original research paper.
b. never use a direct quotation from another researcher without explicit written consent from that researcher.
c. keep his sources, the other scientists, confidential to protect their privacy.
d. give credit where credit is due and use proper APA citations when discussing the work of others.

ANSWER: d

198. If Alessandra were writing a research ethics paper on the topic of confidentiality, she should write that "It is important for researchers to:
a. protect research data from misuse or theft."
b. inform people what their participation in the study will entail."
c. share with participants the purpose of the study after it has ended."
d. reveal to participants any deception that was used in the study after it has ended."

ANSWER: a

199. There are times when confidentiality can be broken. This is allowed when:
a. the researcher is speaking with another researcher who promises to maintain confidentiality.
b. a client is a danger to self or to others (including the psychologist).

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c. the researcher works for the government and so files are shared.
d. another researcher is doing a meta-analysis and requests the confidential information for research purposes.

ANSWER: b

200. Before allowing her newborn baby to participate in a research study, Dany is told by the researcher exactly how the baby will be treated and that there will be no risks to the baby. This process is called:
a. collaboration.
b. debriefing.
c. informed consent.
d. random assignment.

ANSWER: c

201. Katya participated in a psychological research study. When it ended, she left not knowing the purpose of the study or the deception that was used. The ethical issue with this study involves:
a. informed consent.
b. debriefing.
c. confidentiality.
d. unnecessary harm.

ANSWER: b

202. When obtaining informed consent, it is important to include:
a. a broad outline of the hypotheses.
b. any kind of deception that is being used in the study.
c. information telling participants that they can withdraw at any time.
d. the purpose of the research and a brief discussion of the theory behind it.

ANSWER: c

203. Which factor is a component of informed consent?
a. the disclosure of any deception that was used
b. a statement of the potential risks of participating in the study
c. information about whom to contact to get the results of the study
d. information about the manipulations that were used in the study

ANSWER: b

204. Amy would like to conduct a research project in which she bumps into random people on the street and then drops a load of books to see how each person will react. A lack of _____ is a potential ethical issue with her project.
a. informed consent
b. confidentiality
c. random assignment
d. random selection

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ANSWER: a

205. Dr. Asfour is telling his participants before he begins the experiment that their participation is completely voluntary and that they can stop taking part at any time. Dr. Asfour is:

a. debriefing his participants.
b. obtaining informed consent.
c. providing peer review.
d. performing random assignment.

ANSWER: b

206. Dr. Richards is telling her participants before she begins the experiment that their participation is completely voluntary and that they can stop taking part at any time. Dr. Brown is providing a detailed explanation to participants who have just completed his study. Dr. Richards is _____ her participants, whereas Dr. Brown is _____ his participants.

a. debriefing; obtaining informed consent
b. obtaining informed consent; debriefing
c. presenting a placebo; obtaining informed consent
d. obtaining informed consent; deceiving

ANSWER: b

207. Naturalistic observation involves systematic observations of individuals in their natural environment. It is important that the researchers observe unobtrusively. However, an ethical issue involved in naturalistic observation is that the:

a. individuals being observed don't consent to participate in the research.
b. researchers can't control unwanted variables that may appear.
c. researchers don't know which variable they are observing.
d. researchers must operationally define the variables before observing them.

ANSWER: a

208. When is it ethically acceptable to deceive participants during a psychological study?

a. when the researcher determines it is necessary and if so, the researcher then couples it with an informed consent
b. when the deception does not harm the participant and it is necessary for the manipulation to be effective
c. when the researcher obtains informed consent after the study is over
d. It is never ethically acceptable to mislead participants in a psychological study.

ANSWER: b

209. Bali serves on an Institutional Review Board (IRB) at his university. As a member of the IRB, he would:

a. review research manuscripts that have been submitted for publication.
b. edit research proposals for spelling and grammar.
c. help researchers review research literature.

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d. review research proposals to protect the rights of participants.

ANSWER: d

210. Sam and Anaïs are identical twins who were given up for adoption in 1987 by their biological mother in Korea. This may have been due to the devastating stigma associated with giving birth to a child out of wedlock in South Korea. This information indicates that:

a. attitudes toward unwed mothers have not changed much from the 1980s to the present.

b. attitudes toward unwed mothers can be impacted by cultural context.

c. adoption was considered unethical during the 1980s.

d. it was standard procedure for identical twins to be raised apart in the 1980s.

ANSWER: b

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Name:_____ Class:_____ Date:_____

Chapter 02: Essay

1. Sam and Anaïs are identical twins who were separated at birth and then met again at age 25. Explain why their unique situation can address the nature-versus-nurture debate. Use an example to show the power of nature on their experience, and then use an example to illustrate how nurture impacted their experience. Finally, explain how identical twin research could be applied to the average person and use an example to explain this.

ANSWER: The story of Sam and Anaïs is uniquely situated to address the nature-versus-nurture problem because they share almost 100% of their DNA, but they grew up in different environments. As a result, researchers can examine the genetic or 'nature' underpinnings of their experience by looking at things that they have in common, such as their use of naps to calm down when they are stressed out. Researchers can also examine the environmental or 'nurture' underpinnings of their experience by looking at differences in their traits, such as differences in their levels of extraversion. To further explain the power of nature in their story, students could discuss several behaviors and traits that the twins had in common. As stated earlier, the twins both use naps to decrease their stress levels. They also showed similarities across several variables such as job satisfaction and certain mental abilities and personality traits. Clearly though, these young women were influenced by their upbringing as well. For example, Anaïs scored higher on tests measuring visual-spatial skills than Sam did. This is likely due to Anaïs' training and interest in fashion design. In contrast, Sam showed better memory skills, and this is likely due to Sam's practice with memorizing lines for acting roles. Finally, twin research can be applied to the average person because researchers can discover the interactions between genes and the environment more clearly with this type of research. For example, if both twins had a predisposition to cancer but only one twin developed the cancer, then there is likely important information about environmental triggers from the twin who did develop the cancer. Psychologists have used twin research to untangle the roles of nature and nurture in a variety of areas, including intelligence, sexual orientation, personality, and psychological disorders.

2. Silvia is giving a poster presentation in her Introduction to Psychology class about the scientific method. She needs to draw the cycle of the scientific method out and then identify and explain each step of the process as it relates to psychology. She also needs to explain within her poster the cyclical nature of the process.

ANSWER: Drawing the steps out in a circle would work best for the scientific method. Each step could be represented by a square or circle within the larger circle and then arrows lead from each step to the next one. The arrows help to illustrate the cyclical nature of the whole process. Step One: The first step of the scientific method is to develop a research question about human behavior. Often the question comes from a researcher's own interests and/or observations of the world. With a tentative topic in mind, the researcher then reviews the scientific literature on this topic.
Step Two: The second step is to develop a hypothesis, which is a specific testable prediction about the outcome of the research study. The hypothesis should be based on a theory, which is a general explanation of human behavior that is based on a sturdy foundation of scientific evidence.
Step Three: The third step is to design a research study and collect data on human behavior. The researcher picks a research method, either descriptive or experimental, that will best test the hypothesis. The precise ways in which variables in the study will be manipulated or measured (operational definitions) must be specified. Data are then collected using controlled measurement techniques.
Step Four: The fourth step is to analyze the data that has been collected. Descriptive statistics are used to organize and present the data, and inferential statistics are used to make inferences and determine the probability of events occurring in the future. The researcher determines whether the hypothesis is supported.
Step Five: The fifth step is to publish the findings of the research study. The researcher writes a description of the study and submits it to an academic journal, where it will be reviewed by a group

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of subject-matter experts (peer review). If the study is approved, it will be published for other researchers to read when they are at step one of the scientific method. The scientific method begins again with these researchers, hence the cyclical nature of the process.

3. How do statistics help in data analysis? Be sure to discuss descriptive and inferential statistics in your answer.

ANSWER: To make sense of the "raw" data, one must use statistical methods. Descriptive statistics are used to organize and present data, often through tables, graphs, and charts. Inferential statistics, on the other hand, go beyond simply describing the data set, allowing researchers to make inferences and determine the probability of events occurring in the future.

4. Describe the processes of peer review and replication. Explain why these processes are important to the progress and ethics of psychological science. Use the Andrew Wakefield vaccines-autism study example to illustrate these important steps of the scientific method.

ANSWER: Peer review occurs when an article submitted for publication is sent to subject-matter experts for close examination. Experts then make recommendations with respect to acceptance, revision, or rejection. This provides evidence that the research is sound and that the findings can be trusted. Peer review also helps to safeguard against fraud and inaccuracies, and to ensure that research is published based on merit rather than on favoritism.

Replication means that researchers repeat a study with a different sample, and/or with other modifications to the procedures. When other researchers replicate research findings, it boosts confidence in those findings and the theories underlying the research. Replication also helps to ensure that initial findings are reliable, and not just a fluke, the result of a poorly designed study, or the results of experimenter bias.

The peer-review process is not foolproof and sometimes erroneous studies are reviewed and accepted for publication. This was the case with Andrew Wakefield, who published a study in a peer-reviewed journal in the late 1990s that suggested there was a connection between vaccines and autism. Later investigations revealed that Wakefield had fabricated the data of the study, and eventually the study was retracted from the journal. Although the peer-review process failed to identify these fabrications, the second piece of this part of the scientific method, replication, did succeed in protecting the integrity of the process. Over 10 years, many high-quality studies failed to replicate his original findings. Due to this failure to replicate the original study, many scientists were rightfully skeptical of the original study and this probably helped to drive the investigation into the original publication itself.

5. Explain how a random sample is collected and how random assignment is used. Describe one contrast and one comparison between the two concepts. Then, explain the purpose of each of these techniques within the research process.

ANSWER: A random sample is when researchers randomly select a group of people from a larger population. That smaller group is called a sample. It is truly random when each individual within the population has an equal chance of being selected for the sample. In contrast, random assignment is used once a sample has already been collected. Random assignment is a way of assigning individual participants to the group that they will be in during the study. One contrast is that random sampling is done when determining the sample, whereas random assignment occurs after the sample has already been selected. Another contrast is that while random samples are extremely difficult to get and rather rare in most research, random assignment is not as difficult to do and is used commonly in research. Another contrast is that random sampling is used to help with generalizing the results of the study,

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whereas random assignment is used to ensure that there are no confounding variables. Another contrast is that random selection can occur in any type of research, whereas random assignment is a hallmark of experimental research. A final contrast is that random selection is important for external validity, whereas random assignment is important for interval validity. One comparison is that both are techniques that are used to deal with the selection of participants. Another comparison is that both are techniques that are used to improve the quality of the study. The purpose of a random sample is to be able to generalize the results of the study to the population. It helps the researcher to form a representative sample and decreases the bias in the study. The purpose of random assignment is to reduce the possibility of confounding variables impacting the results. This is directly related to the ability to be able to establish cause and effect.

6. Tamara was interested in studying people's attitudes toward immigration reform, so she surveyed a sample of friends from her college in Chicago, Illinois. In her study, Tamara found that 63% of her friends favored immigration reform, so she concluded that "The majority of college students in the United States are in favor of immigration reform." Discuss why Tamara's conclusion is problematic. What could she do to improve her study?

ANSWER: Tamara's conclusion is problematic because she did not have a representative sample. A representative sample is a subgroup of a population selected so that its members have characteristics similar to those of the population of interest. Tamara's population of interest is all college students from the United States. However, her sample is a small group of her college student friends from Chicago, Illinois. It is possible that the characteristics of her sample may have biased her findings. It also is important that Tamara choose a representative sample, because this would allow her to generalize her findings to the population of all United States college students. In other words, immigration reform attitudes of her college student friends from Chicago, Illinois, may not generalize to the attitudes of all college students in the United States.
One way that Tamara could improve her study is by picking a random sample. This involves using a procedure that ensures that all members of the population of interest have an equal chance of being selected to participate in the study. This means Tamara would have to find a database that includes contact information for all college students and then randomly select people from that database. Perhaps she could select people from SAT or ACT databases. By choosing the sample randomly, it ensures that she has a representative sample and can draw valid conclusions based on it.

7. Describe two advantages and two disadvantages for conducting a naturalistic observational study and then for conducting a case study.

ANSWER: Naturalistic observation is a descriptive research method that is ideal for when researchers want to study people as they behave in their real environments, without any manipulation. An advantage is that this type of research captures more genuine and realistic behaviors. As a result, participants are not likely to change their normal behaviors. Another advantage is that naturalistic observation may be able to focus on topics that cannot be studied using other techniques because the topic itself cannot be manipulated by the researcher. A disadvantage, however, is that such real environments are cluttered with unwanted variables and removing them can alter the natural environment that the researchers desire. A lack of control can contribute to extraneous variables possibly influencing the results. Another disadvantage to this technique is that in naturalistic observation, researchers do not tell people that they are being observed and as a result, issues regarding informed consent arise. An additional disadvantage is that because the variables are hard to control, it may be difficult to replicate the findings. Finally, there is concern about observer bias in naturalistic observation. The researcher's value system, expectations, and attitudes may produce errors in the recording of

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observations.
A case study is a type of descriptive research method in which a researcher closely examines an individual or small group. An advantage of this method is that it provides a wealth of information about unique and interesting individuals from a variety of sources. Another advantage is that a case study can provide a lot of ideas for future research with larger sample sizes. Yet another advantage is that a case study allows researchers to examine topics that cannot be examined using other researcher techniques, either due to ethical concerns or feasibility issues. Finally, case study research also allows the complete immersion of the researcher in the lives of participant(s) and as a result, the researcher may get a fuller understanding of the participant and his or her situation. There are also quite a few disadvantages. First, the issue of observer bias is especially concerning. Because the participant is being studied in such an intimate way, the researcher may have a difficult time separating his or her own personal biases and expectations. A second disadvantage is that no matter how thought-provoking a case study may be, it cannot be used to support or refute a hypothesis, because it cannot identify the causes of behavior and events using controlled methods. Finally, because a case study is an isolated example, additional research must be done before generalizations can be made to others.

8. Jorge is working on his master's thesis. He has decided to conduct a survey research project examining how exercise habits of undergraduates impact their reported mood. Explain what the advantages are for Jorge of using the survey method. Explain three common problems with the survey method he will have to think about and then explain what he can do to try to avoid those problems. Be sure to also discuss what type of design this study is, correlational or experimental, and explain why. Finally, address the type of conclusion he will be able to draw with this kind of study.

ANSWER: Survey research is straightforward. It is fast and efficient, and it will allow Jorge to gather a large amount of data from a large group of people in a short time. However, there are several pitfalls with the survey method. First, he needs to be careful about how he words his questions on the survey. Simple wording changes can cause participants to give different kinds of answers. He should check his wording with other people before he finalizes his survey to be sure that the questions are interpreted the way he intends. Second, significant care must be taken to ensure that the sample is truly representative of the population (a random sample is ideal). This is extremely difficult in most survey studies, but he should try to get as representative of a population as possible. He should try to avoid just taking a convenient sample of friends he knows or just of other students in his class. He should try to get a diversity of types of students involved in his study. Third, participants may not be honest in their responses or may not be consciously aware of their true behaviors, thoughts, and/or feelings. To try to reduce this limitation, he should be careful to make sure that the surveys are anonymous, and he should be careful to avoid questions that require a lot of memory. Fourth, surveys tend to only "skim the surface" of people's beliefs, failing to tap into the complex issues underlying responses. To obtain a more precise solution, he could use a scale that indicates the degree to which they agree or disagree as opposed to a more yes or no answer. This is a correlational study because he is not randomly assigning participants to experience either high or low stress. As a result, he cannot draw cause-and-effect conclusions and instead he can only discuss how the variables are related.

9. Briefly explain the correlational method. Discuss the difference between a positive and negative correlation and provide an example of each.

ANSWER: The correlational method examines relationships among variables and assists researchers in making predictions. When researchers collect data on many variables, it can be useful to determine if these

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variables are related to each other in some way. A correlation is a relationship or link between variables.
A positive correlation is a relationship between two variables in which the variables go up together or down together. In a positive correlation, as the value of one variable increases, the value of the other variable increases. For example, there is probably a positive correlation between the amount of time a student spends studying and the score earned on the subsequent quiz covering that material.
A negative correlation is a relationship between two variables in which as the value of one variable increases, the value of the other variable decreases. A good example would be that the more time spent drinking alcohol the night before a quiz, the lower the score is likely to be on that quiz.

10. Suggest (a) two variables that are likely to be positively correlated, (b) two variables that are likely to be negatively correlated, and (c) two variables that are probably not correlated. Portray the relationship between each pair of variables in a scatterplot.

ANSWER: Many examples are possible. Positive: hours spent studying and grade point average. Negative: stress and physical health. Uncorrelated: agreeableness and intelligence.
Graphical representations should show a line with a positive slope to reflect a positive correlation, a line with a negative slope to portray a negative correlation, and a flat, horizontal line to relate two uncorrelated variables (plots would be all over the scatterplot, not forming a line with a positive or negative slope). Using a scatterplot, we can express the relationship between two variables. One variable is labeled on the horizontal axis, and the second variable is labeled on the vertical axis. Each dot represents one participant's scores on the two variables.

11. Marta conducts a research study and finds a correlation of -0.61 between the amount of stress participants report having experienced recently and participants' scores on an index of physical health. Marta needs to state her finding to her master's thesis committee. What should she say based on the correlation coefficient? What possible third variable might she suggest underlies the obtained correlation between stress and health? Be sure to define what a third variable is in your response.

ANSWER: The interpretation should be similar to, "The more stress participants report having experienced, the lower their scores on a physical health index."
A third variable is an unaccounted for characteristic of participants or the environment that explains changes in variables of interest. A third variable would produce changes in stress and health. One example of a third variable might be a person's socioeconomic status, such that poor socioeconomic status affects people's self-reported stress levels as well as their physical health.

12. Two variables can be found to be correlated in a certain direction and be of a certain strength. Explain what is meant by this statement.

ANSWER: Some variables are strongly associated, others are weakly associated, and still others are not related at all. Lucky for researchers, there is one number that indicates a correlation's strength and direction (positive or negative). It is a statistical measure called the correlation coefficient and is symbolized as *r*. Correlation coefficients range from +1.00 to -1.00, with positive numbers indicating a positive correlation between variables (as one variable increases, the other variable increases) and negative numbers indicating a negative correlation between variables (as one variable increases, the other variable decreases). The closer *r* is to +1.00 or to -1.00, the stronger the relationship. The closer *r* is to .00, the weaker the relationship. When the correlation coefficient is very close to zero, there may be no relationship at all between the variables.

13. Describe the problems that are addressed by each of the following designs and explain when each of these

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designs is used: an experimental design, a quasi-experimental design, and a double-blind study. Be sure to explain how each design addresses the problem.

ANSWER: An experimental design is used when we need to establish cause and effect. This type of design is the only design that can be used to infer cause and effect because it addresses the problem of confounding variables through random assignment to a group. When participants are randomly assigned to a group, then the differences between the groups should be due just to the experimenter's manipulation as opposed to other factors. As a result, the experimenter can then infer that the manipulation caused the observed effect. A quasi-experimental design is used when random assignment is not possible. It solves the problem of trying to explore a topic in a controlled manner when random assignment cannot be used due to ethical or feasibility issues. A quasi-experimental design does this through allowing the researcher to focus on problems that cannot be manipulated or controlled while still being aware of extraneous variables that may impact the outcome and trying to control them as best as they can. A double-blind study is used when we need to manage the placebo effect and experimenter bias. It addresses the placebo effect by making sure that participants do not know whether they are getting the active manipulation (the one that the experimenter thinks will cause the expected outcome) or whether they are getting the placebo (the inert manipulation that is not known to cause an effect). This helps the experimenter to control for participants' expectations about what they think will happen to them. It also addresses experimenter bias because the individual running the experiment is also unaware of which manipulation participants are receiving. As a result, the experimenter cannot inadvertently impact participants' behavior.

14. How is it that the experimental method allows researchers to draw cause-and-effect conclusions? Identify the critical elements of the experimental method and explain how each allows researchers to draw valid causal conclusions.

ANSWER: The answer should mention both (a) the deliberate manipulation of an independent variable and (b) the random assignment of participants to groups. The independent variable is the variable the researcher manipulates to see if it affects the dependent variable, which is the behavior the researcher measures. If the only difference between treatment groups in the experiment is in the level of the independent variable, and extraneous variables are minimized as much as possible, then it can be concluded that any changes across groups on the dependent variable must have been caused by the independent variable. One way to minimize the potential effects of an extraneous variable is using random assignment. This involves putting people in the control or experimental groups in such a way that each person has an equal chance of being assigned to any group. Random assignment ensures that characteristics of the participants are not influencing the results differently across treatment groups and thus allows the researcher to draw cause-and-effect conclusions.

15. Reese needs to complete her senior thesis by doing a psychological experiment. She decides to study the impact of violent videos games on aggression. First, give an example of a hypothesis she might have. Second, identify her independent and dependent variables and explain why each one fits the label given. Third, identify what she could use as a control group and an experimental group. Fourth, give examples of how she could operationalize both her independent and dependent variables. Be sure to operationalize both the control and the experimental group as well. Finally, explain what advantage she has in the conclusions she can draw because she used an experiment as opposed to another kind of design.

ANSWER: A hypothesis is a statement that allows a prediction to be tested. An example of a hypothesis that she could test could be, "I predict that violent video games will increase aggression." Another example of a hypothesis she could test could be, "I predict that violent video games will not increase aggression." Her independent variable here is "violent video games." This is the independent

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variable because it is the variable that is the predictor in this hypothesis. Her dependent variable here is "aggression." This is her dependent variable because it is the outcome and the variable that Reese is measuring. Her control group could play a nonviolent video game and her experimental group could play a violent video game. An operational definition is a specification of how a variable is to be manipulated or measured. Reese needs to operationalize both her independent and dependent variables. There is no one correct answer here because there are multiple ways she could operationalize these variables. She could operationalize her experimental group of her independent variable (violent video games) as, "two hours of playing violent video games." She could operationalize her control group of her independent variable as, "two hours of playing nonviolent video games." Her dependent variable, aggression, could be operationalized as the number of number of times the participant uses retaliation instead of cooperation in a subsequent game with another participant after the initial video game playing is over. Finally, it is important to note that Reese is able to discuss cause and effect in this type of study because she used an experimental design instead of using a correlational design. The random assignment that she will use to assign participants to groups allows her to be able to remove potential confounding variables.

16. Define reliability and then more specifically, test–retest and interrater reliability. Then define validity and internal and external validity. Explain how a researcher might enhance each of these.

ANSWER: When evaluating a study, we must assess both reliability and validity. Reliability refers to the consistency of stability of a study's results or measures. Test–retest reliability is how consistent the results are when a person is assessed more than once. Interrater reliability is the consistency across people measuring a particular variable or scoring an assessment. Test–retest reliability is assessed with measures themselves, whereas interrater reliability focuses on the people scoring the measure. To enhance test–retest reliability, a researcher needs to work on the quality of the measure itself to be sure that participants interpret the questions similarly each time they take the test. To enhance interrater reliability, the researchers assessing or scoring the measures need to be trained well so that they are consistent with one another. Validity refers to the accuracy of the data collection methods. If a measure is assessing what it intends to assess, then it is valid. Internal validity is when a design of a study allows it to measure what it intends to measure. External validity refers to the ability to generalize to the population of interest. Internal validity can be increased by randomly assigning participants to conditions and thereby decreasing the problem of extraneous variables providing an alternate explanation for the findings. External validity can be enhanced by random selection, or if that is not feasible then by having a representative sample.

17. Identify and briefly describe three research methods used in psychology. Provide an original example of each. Identify one advantage and one disadvantage of each of the methods you describe.

ANSWER: The answer should contain elements such as these:

Example: Naturalistic observation
Description A type of research that manipulates a variable of interest (independent variable) to uncover cause-and-effect relationships. Example: The effect of texting on driving. Advantage: It is the only method of research that permits researchers to determine cause-and-effect relationships. Disadvantage: Results may not generalize beyond laboratory settings; potential for extraneous variables; may not be ethical.

18. Veronica just received a 68% on her midterm exam. The professor has also listed the mode, median, mean, range, and standard deviation from the class. First, explain what these statistics are and then explain how each

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of these statistics can help Veronica to interpret how she did in comparison to the rest of the class.

ANSWER: All of these statistics are descriptive statistics. The mode, median, and mean are all measures of central tendency, whereas range and standard deviation are measures of variability. Central tendency measures represent the middle of the data set. Measures of variability indicate the spread of the dataset. The mode is the most frequent exam score in the class. The median is the score that represents the position in the class scores for which 50% of the values are above it and 50% are below it. The mean is the mathematical average of the data set. The range represents the length of the data set and is a rough measure of dispersion. The standard deviation represents the average distance to the mean and is a more precise measure of variability.

The measures of central tendency can all tell Veronica where the average or middle of the class's scores lies. The mode would show her the most frequently scored exam score. If that score was higher or lower than her score, then it could indicate that a significant group of students did better or worse than she did. The median would show her the point of the distribution where 50% of the scores fall below it and 50% fall above it. The mean shows her where the mathematical average of scores is. Both the median and the mean would give her a better understanding of whether she scored higher or lower than the average.

The measures of variation show her how much dispersion there is in the scores in the class. If the variation is low, then there wasn't much difference among students in how well they did, whereas if the variation is high, then the students showed more differences in their scores. The range would tell her how wide the overall distribution of scores is. This would give her a general idea of how much variation there was in scores. Standard deviation would tell her the average distance to the mean and would give her a good idea of how differently most people in her class scored from the mean.

19. Dr. Rivera is interested in the effect of video games on aggression. She finds that video games increase aggression in a statistically significant way, but her effect is very small. Explain the meaning of statistical significance and practical significance and how these things can be in conflict. Be sure to address how these results connect to the large meta-analysis from researchers at the University of Oxford in which the impact of media on mental health and behavioral outcomes was examined in over 350,000 adolescents.

ANSWER: Statistical significance indicates the probability that findings were due to chance. If a result is found to be "statistically significant," then that means that the probability is small that the results were due to chance. Sometimes researchers will draw conclusions based on statistical significance without thinking about the practical significance of the effect. Practical significance refers to whether the results impact behavior in a meaningful way. Practical importance addresses the question of whether the results have any relevance to real life. It is possible to have a result that is not due to chance (i.e., statistically significant), yet it is still relatively meaningless for everyday life (i.e., low on practical importance). For example, in the University of Oxford meta-analysis referenced in the question, researchers found that other studies have shown a statistically significant relationship between the use of technology and mental health but that the impact averages about a half of a percent. This means that, on average, these studies find that technology use increases mental health issues by only half of a percent. Clearly there are many other things that impact mental health to a much greater degree than the average effect found by these studies. In this context, Dr. Rivera needs to seriously consider whether her statistically significant results play any meaningful role in everyday interactions.

20. Dr. Carson is planning a research study on the effects of sleep deprivation on rats' ability to learn a task. Given that her participants are animals, it is important that she adhere to the guiding principles for the ethical use of animals in research that were developed by the American Psychological Association. Explain at least two

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of these guiding principles.

ANSWER: The use of the rats in Dr. Carson's research must first be approved by the Institutional Animal Care and Use Committee (IACUC). The IACUC must review the methods of the research to ensure that the methods are humane.
The housing of the animals must "exceed current regulations." The housing conditions of the rats will be inspected twice a year and approved by the IACUC. The conditions must be "humane and healthful."
The rats must be obtained legally. During transport, the rats must have access to food, water, ventilation, and space. They must not experience undue stress.
The rats' welfare must be a part of the research design.

21. Define informed consent and debriefing. Explain how informed consent and debriefing contribute to the ethical conduct of research with human participants.

ANSWER: Informed consent: Before a study begins, researchers explain to potential participants the basic methods of the study and any risks that may be involved in participating in the study. The potential participants then acknowledge that the researchers have provided this information to them, that their participation is voluntary, and that they understand any risks that participation may entail.
Debriefing: After a study, researchers tell the participants the purpose of the study and of any deception to which they may have been exposed.
These procedures ensure that participants in human research know what they are getting into, that participation is voluntary, and that research is conducted as honestly as possible.

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