

Chapter 02 Studying Behaviour Scientifically

Multiple Choice Questions

1. If a participant in a computer-based experiment is periodically interrupted to make judgments about how focussed they feel, what kind of measure is being used?

- A. behavioural
- B. objective
- C. neurological
- D. self-report**
- E. implicit

Self-report measures ask people to report on their own knowledge, beliefs, feelings, experience, or behaviour.

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Blooms: Remember

Difficulty: Easy

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

2. One day, after their psychology class, Olivia and Hannah are talking about dreaming. Most mornings Olivia doesn't remember any of her dreams, but occasionally she has vivid recollections when she wakes. Hannah says she has the same experience and wonders why. When they talk to friends about the phenomenon, they notice a pattern related to the stress of the previous day. They verbalize this pattern as, "When people feel stressed out over something one day, they are more likely to remember their dreams the following day." Olivia and Hannah have just formed a

- A. scientific attitude
- B. valid statement
- C. hypothesis
- D. hindsight
- E. deduction

The tentative explanation is then translated into a hypothesis, a specific prediction about some phenomenon that often takes the form of an "If-Then" statement: "In an emergency, IF multiple bystanders are present, THEN the likelihood that any one bystander will intervene is reduced."

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Blooms: Understand

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-03 Gathering Evidence: Steps in the Scientific Process

3. Which of the following would not be measured in a neuropsychological test?

- A. walking
- B. ability to use various kinds of everyday objects
- C. average level of physical activity
- D. speaking
- E. all of the above would be measured in a neuropsychological test

Neuropsychological tests help to diagnose normal and abnormal brain functioning by measuring how well people perform mental and physical tasks.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

4. Sarah has just moved to a new city, where she works the night shift at the local hospital. On her way home from work, she walks through a park that has a high crime rate. Sarah reasons that she is safe, because there are always a lot of people around. According to the research conducted by Darley and Latané, Sarah is

A. mistaken; there is no evidence to suggest that the number of people around have any impact on safety whatsoever.

B. correct; there is safety in numbers, and as long as the park is crowded, she's safe.

C. mistaken; the more people she encounters in any given situation, the higher the likelihood one of them will attack her.

D. correct; the more people she encounters, the lower the likelihood that Sarah will even be noticed.

E. mistaken; the more people she encounters, the lower the likelihood any one of them would help her in an emergency.

Diffusion of responsibility refers to the fact that the presence of multiple bystanders during an emergency reduces the chance that an individual will provide assistance.

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Blooms: Apply

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-03 Gathering Evidence: Steps in the Scientific Process

5. Zhuang is trying to decide which major he should choose in college. His older brother notes that Zhuang is always asking questions, so maybe he should become a scientist. If Zhuang asks the same kinds of questions that successful scientists ask, he is probably asking things like

- A. Why? How do you know? Where's your evidence? Is there another explanation?
- B. How does this affect me? Why is it important that I know this?
- C. Where will I use this information? Will it help me get ahead in life?
- D. Who? What? When? Where? How? Can I get a quote?
- E. None of the above reflect questions that scientists tend to ask.

Like a child who constantly asks "Why?" the good scientist has an insatiable curiosity. Each claim is met with the reply "Show me your evidence," and even when a mystery appears to be solved, the good scientist asks, "Might there be a better explanation?" Scientists also must remain open-minded to conclusions that are supported by facts, even if those conclusions refute their own beliefs.

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Blooms: Understand

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-02 Scientific Attitudes

6. Hailie is writing a psychology research paper. She has collected research from the past three decades, which her professor says is fine. What is confusing for Hailie is that her articles say different things. She finally asks you why all of the research has been published if some of it is wrong. You tell her that

A. Scientists rarely work together or review previous research, which can leave publications in disagreement with each other.

B. There is no review process in scientific publication; if someone writes well enough, the article will be published, regardless of its validity.

C. Truth and reality are in the eye of the beholder.

D. She must be wrong because nothing incorrect has ever been published in a scientific journal.

E. Part of the scientific process is testing and retesting a theory, to see if everyone reaches the same results each time; if they don't, the research may not agree.

When research consistently supports the hypotheses derived from a theory, confidence in the theory increases. If predictions made by the theory are not supported, then it will need to be modified or, ultimately, discarded.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-04 Two Approaches to Understanding Behaviour

7. If _____ is low, then what else would also be expected to be low?

A. cross-cultural replication, the dependent variable

B. external validity, generalizability

C. the dependent variable, cross-cultural replication

D. cross-cultural replication, external validation

E. generalizability, The dependent variable

External validity refers to the degree to which the results can be generalized.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-14 Replicating and Generalizing the Findings

8. Thea is taking a social psychology class and is asked to come up with a hypothesis. She watches various groups of people throughout the day and takes some notes about what she sees. At the end of the day, she notices that many people who are dating seem to be similar to each other, which reminds her of the phrase 'birds of a feather flock together'. She starts to think that this single phrase can explain much of what she observed throughout the day. What may be influencing her reasoning here?

- A. theory of social impact
- B. diffusion of responsibility
- C. hindsight**
- D. bystander apathy
- E. habituation

Darley and Latané reasoned that the presence of multiple bystanders produced a diffusion of responsibility, a psychological state in which each person feels decreased personal responsibility for intervening.

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Blooms: Apply

Difficulty: Hard

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-04 Two Approaches to Understanding Behaviour

9. Which of the following is not a characteristic of scientific theories?

- A. they are testable
- B. they never disagree with any other established scientific theories**
- C. they make predictions that can be supported by data
- D. they conform to the law of parsimony
- E. all of the above are characteristics of scientific theories

Competing theories often disagree about various elements of a phenomenon, which does not make a theory unscientific.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-04 Two Approaches to Understanding Behaviour

10. Nathaniel is designing an experiment: He wants to learn how much time other students at his university spend studying for their art history exams. He decides to use a self-report survey, but he knows that people might over- or under-report their study time, due to
- A. the hindsight bias
 - B. random assignment
 - C. placebo effects
 - D.** the social desirability bias
 - E. counterbalancing

A social desirability bias is the tendency to respond in a socially acceptable manner rather than according to how one truly feels or behaves.

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Blooms: Apply

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

11. Dr. Child has developed a straightforward theory on emotional eating (the tendency for people to eat for emotional reasons rather than hunger). Dr. Gordion has also developed a theory, though her theory is far more complicated. Both theories generate a number of new hypotheses. Both theories predict the phenomenon equally well. In the scientific community, Dr. _____ theory will probably be preferred because _____.
- A. Gordion's; it will be easiest to prove or disprove
 - B. Child's; it will be easiest to prove or disprove
 - C. Gordion's; complexity suggests that she has thought the problem through more carefully
 - D. Gordion's; complexity is more likely to capture the complexity of eating behavior
 - E.** Child's; it conforms to the law of parsimony

The law of parsimony states the following: If two theories can explain and predict the same phenomena equally well, the simpler theory is preferred.

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Blooms: Apply

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-04 Two Approaches to Understanding Behaviour

12. Ramon is studying bullying behaviour among elementary schoolchildren. He arranges to spend one day following around a class of children, making notes on their behaviour. Unfortunately, when he presents his research to his professor, his professor says that Ramon's data were compromised by the way he collected it. What did Ramon forget to do?

- A. he did not introduce himself to each student; that is, he failed to build rapport with his subjects
- B. he did not introduce himself to the children as a person in authority; as a result, the children may not have paid enough attention to him throughout the day
- C. he forgot to take some kind of reward to thank the children for having him there
- D. he did not use unobtrusive measures, and his presence may have affected the children's behaviour**
- E. his measures were not reliable

Humans and other animals may behave differently when they know they are being observed. To counter this problem, researchers may disguise their presence or use unobtrusive measures, which record behaviour in a way that keeps participants unaware that certain responses are being measured.

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Blooms: Analyze

Difficulty: Hard

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

13. If stress is found to affect sleep differently on days in which someone has maintained other healthy lifestyle behaviours (e.g. eating behaviour), what term would describe that kind of relationship?

- A. a contingent replication
- B. a statistical constraint
- C. an interaction**
- D. a confounding of variables
- E. reciprocal

Interactions occur when the way one independent variable influences the dependent variable differs depending on the various combinations of other independent variables present.

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Blooms: Understand

Difficulty: Hard

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

14. Priscilla wants to design a study that will let her determine what lifestyle factors are more likely to contribute to greater levels of happiness. The only problem is that she can't look inside people's heads to see their degree of happiness. What should be her first step?

- A.** create an operational definition that translates the abstract concept of happiness into something observable and measurable
- B. find an assessment instrument that has already been used extensively by other researchers
- C. find someone who has already studied happiness to work with
- D. choose another topic
- E. None of these response options is relevant.

An operational definition defines a variable in terms of the specific procedures used to produce or measure it.

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Blooms: Understand

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

15. Nahele has agreed to participate in a survey so he can receive extra credit in his psychology class. When he arrives, he is given a questionnaire that contains questions like "I enjoy playing team sports," "I often worry about getting things done," "I prefer to try new ways of doing things," and "I sometimes find it hard to trust other people." He is most likely taking a/an _____ test.

- A. intelligence
- B. neuropsychological
- C. achievement
- D. personality**
- E. depression

Personality tests assess personality traits, often contain questions that ask how a person typically feels or behaves.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables

16. Hailey is doing research on the Canadian killer, Robert "Willy" Pickton using the transcripts from a number of interviews, and the court and police records. This is ideal for a/an

- A.** case study
- B. naturalistic observation
- C. operationalization
- D. correlational study
- E. experiment

A case study is an in-depth analysis of an individual, a group, or an event.

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Blooms: Understand

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-07 Descriptive Research: Recording Events

17. Imagine that a large online retailer wants to test a new service. They decide to test it in three markets, Toronto, Vancouver, and Montreal for a short period of time to see whether it will be popular with Canadian customers. In this example, those three cities are the _____, and Canadian consumers are the _____.

- A. target demographic; population
- B.** sample; population
- C. population; sample
- D. sample; target demographic
- E. predictor; Outcome

A population consists of all the individuals about whom we are interested in drawing a conclusion, while a sample is a subset of individuals drawn from the larger population of interest.

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Blooms: Apply

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-07 Descriptive Research: Recording Events

18. Sitting in the park one sunny day, Chaim notices that people who are walking dogs smile at him more often than people without dogs. Chaim concludes that owning dogs makes people happier. Based on the principles of psychological research there are many problems with Chaim's conclusion. What is the biggest problem?

- A. just because someone is walking a dog doesn't mean the person owns that dog
- B. chaim did not observe people with cats before coming to his conclusion
- C. correlation does not prove causation; the association may be spurious
- D. Chaim did not operationalize dogs
- E. just because someone owns a dog doesn't mean that they walk it themselves

Researchers cannot draw causal conclusions from correlational data, which is the major disadvantage of correlational research.

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Blooms: Apply

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-08 Correlational Research: Measuring Associations between Events

19. Lelani wants to know what percentage of all American college students receive financial aid in their freshman year. She attends a two-year community college, to which many students commute to campus every day. She stands outside the dining hall one weekday evening and hands out surveys to every third person entering the hall for dinner. Her data will

- A. be completely valid.
- B. be completely invalid, because evenings are never a good time to do research.
- C. be valid and generalizable, because she used random sampling and a representative sample.
- D. be valid and generalizable as long as she continues to stand there; her presence will compel people to return the surveys to her.
- E. not be generalizable to all American college students, because she did not use a representative sample.

A representative sample is one that reflects the important characteristics of the population. To obtain a representative sample, survey researchers typically use a procedure called random sampling, in which every member of the population has an equal probability of being chosen to participate in the survey.

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Blooms: Analyze

Difficulty: Hard

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

20. Imagine that data from survey research uncovers a strong positive correlation between education level and reading ability. Which of the following causal conclusions can be drawn?

- A. more education causes better reading skills
- B. having better reading skills causes people to pursue education for longer
- C. reading more when you are younger leads to better reading skills, and a greater tendency to stay in school
- D. none of these response options is correct; correlation and causation are not the same thing**
- E. reading books influences education level, and vice versa

Researchers cannot draw causal conclusions from correlational data, which is the major disadvantage of correlational research.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-08 Correlational Research: Measuring Associations between Events

21. Gary's son Sam is learning to drive. Each night, Gary takes Sam out in the family car for driving lessons. Gary notices that Sam improves more in lessons in which Gary is extremely critical. In fact, the more critical Gary is, the more Sam improves. After Sam gets his driver's license, Gary's wife Chrissy tells him that every time Gary was critical of Sam, she took him out so he could improve before his next lesson with his father. What was the problem with Gary's initial interpretation of Sam's improvement?

- A. parsimonious problem
- B. nonrepresentative sample problem
- C. generalizability problem
- D. bidirectionality problem
- E. third variable problem**

The third-variable problem states that if variables X (e.g., level of happiness) and Y (e.g., quality of social relationships) are correlated, a third variable, Z (e.g., personality style), may be mixed up with X and Y, so we cannot tell what has caused what. Thus, Z is just another type of confounding variable.

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Blooms: Analyze

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-11 Confounding of Variables

22. Ashley does a correlational study and learns that the less students' study, the lower their grades are. She has gotten a strong _____ correlation.

- A. negative
- B. perfect
- C. scatterplot
- D. there is no correlation
- E. positive**

A positive correlation means that higher scores on one variable are associated with higher scores on a second variable.

Accessibility: Keyboard Navigation

Blooms: Remember

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-08 Correlational Research: Measuring Associations between Events

23. A researcher interested in applied work in the field of education wonders if the possible benefits of using computers during lectures outweighs the possible drawbacks. Anecdotally, they've noticed that students who use computers often look distracted while they're teaching. What would be the most suitable method to determine whether a causal relationship exists between computer use and performance in a course?

- A. survey students to determine how computer use relates to course performance
- B. randomly assign some students to use a computer and some to not in an experiment**
- C. ask students which method they find most effective
- D. None of these response options would be suitable to address that research question.
- E. any of the above methods could determine causal relationships

Only a true experiment would allow inferences about cause and effect to be made.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

24. Which of the following questions is *least* relevant when considering what could potentially be pseudoscientific misinformation?

- A. Who is making the claim?
- B. What is the evidence?
- C.** How many other people have 'bought into' the claim?
- D. What is the claim?
- E. What is the evidence for the claim?

The other three options are all basic questions to ask when thinking critically about something.

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Blooms: Remember

Difficulty: Medium

Learning Objective: 02-05 Critical Thinking in Science and Everyday Life.

Topic: 02-18 Critical Thinking in Science and Everyday Life

25. Maddie does an experiment to test whether exercising gives her more energy. She spends one week exercising every day, and one week not exercising at all. For both weeks, she rates her energy level at the end of the day on a scale of 1-10. In her study, the independent variable is

- A. her daily rating
- B.** whether or not she exercises on a given day
- C. her average daily rating for each week
- D. Maddie
- E. none of the above are independent variables

The term independent variable refers to the factor that is manipulated or controlled by the experimenter.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

26. Madison does a study to find out if using a smart phone in the evening negatively affects her sleep. In her study, the dependent variable could be

- A. the latest she uses her smart phone in the day
- B. the amount of time she uses her smart phone throughout the day**
- C. her level of fatigue before she goes to sleep
- D. her subjective rating of how rested she feels every morning
- E. none of the above are dependent variables

The dependent variable is the factor that is measured by the experimenter and that may be influenced by the independent variable.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

27. Suppose you are a sports psychologist who notices that athletes who perform poorly frequently report low levels of motivation. While it may be the case that low, motivation contributes to poor performance, it may also be the case that poor performance contributes to low motivation. What problem does this illustrate?

- A. choosing an irrelevant dependent variable
- B. measurement bias
- C. indirect causation
- D. third variable problem
- E. bidirectionality problem**

The bidirectionality problem relates to situations in which the direction of causality is not clear. In this case, causal effects in either direction are plausible.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-08 Correlational Research: Measuring Associations between Events

28. Stephanie conducts an experiment to test whether dramas or comedies are more popular amongst the general population. She surveys a sample of 100 people who walk past the student union building that evening between 5 and 8 pm. Just before finishing her data collection, she overhears someone talk about the comedy improve show that just happened in the student union building. She realizes that her results may be invalid due to

- A. measures that were not obtrusive enough
- B. a poorly defined population
- C. a fourth variable
- D. measures that were too obtrusive
- E. a confounding of variables

Confounding of variables means that two variables are intertwined in such a way that we cannot determine which one has influenced a dependent variable.

Accessibility: Keyboard Navigation

Blooms: Analyze

Difficulty: Hard

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-10 Threats to the Validity of Research

29. Matthew is conducting research to determine whether drinking caffeine will improve how much information students are able to recall during a study session. Matthew assigns the first 10 people who arrive to his coffee group, the next 10 people to his tea group, and the last 10 people to his control group. What mistake has Matthew already made?

- A. he didn't ask if anyone has negative associations with coffee or tea
- B. he forgot to ask how much coffee/tea each participant typically drinks in a day
- C. he failed to use random assignment
- D. his control group did not have enough participants
- E. his experimental groups did not have enough participants

Researchers must use random assignment, a procedure in which each participant has an equal likelihood of being assigned to any one group within an experiment. This evenly distributes whatever differences have not been controlled for.

Accessibility: Keyboard Navigation

Blooms: Analyze

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

30. In a memory experiment, the subjects are asked to learn three lists of words. Each of the word lists is of equivalent difficulty. The first list contains university names, the second list is of dog breeds, and the third list contains kitchen appliances. After running 20 participants, the researchers notice that recall of university names, the first list that the participants learn, is much higher than recall for either of the other two lists. How can the researchers make sure that one list is actually easier to recall and not just a result of the way the test is set up?

- A. confound one of the variables
- B. take a random sample of the participants' answers
- C. change all of the university names to non-American proper names
- D.** counterbalance the word lists
- E. attempt to replicate the results

Researchers use counterbalancing, a procedure in which the order of conditions is varied so that no condition has an overall advantage relative to the others.

Accessibility: Keyboard Navigation

Blooms: Analyze

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

31. Emily does a study to see if people who are learning difficult tasks are hungrier than people who are learning easy tasks. She carefully develops one task that is easy and one that is difficult, controls the temperature and noise of the room for each group, and randomly assigns people to either the difficult or the easy group. She provides each group with ice cream and observes how many people eat it in each group. There is a confounding variable in her experiment. What is it?

- A. she shouldn't have controlled for noise and temperature
- B. some people might be offended that they got the easy group rather than the difficult group or vice versa
- C. she did not use deception
- D. she did not treat her subjects equally in all respects except for the variable that is of particular interest
- E. some people might not like or be able to eat ice cream

Confounding of variables means that two variables are intertwined in such a way that we cannot determine which one has influenced a dependent variable.

Accessibility: Keyboard Navigation

Blooms: Analyze

Difficulty: Hard

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-11 Confounding of Variables

32. Dr. Sesay is testing a new antidepressant. He carefully screens his subjects and assigns them to either the control group or the experimental group. He gives one group the new medication and the other group sugar pills that look exactly the same as the real medication. By doing this, he is hoping to control for _____ effects.

- A. correlational
- B. expectancy
- C. placebo
- D. meta-analytical
- E. compensatory

In medical research, the term placebo refers to a substance that has no pharmacological effect.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-12 Placebo Effects

33. Dr. Sesay is testing a new antidepressant. He gives the experimental group the new medication and the control group sugar pills that look exactly the same as the real medication. However, some of the people who are taking the sugar pills start to feel less depressed. What is the *most likely* explanation?

- A. sugar relieves depression to some extent
- B. the subjects are secretly taking other antidepressants on the side
- C. Dr. Sesay accidentally gave them the real antidepressants
- D. they expect to feel better, which makes them feel better**
- E. random variation

The placebo effect occurs if people receiving a treatment show a change in behaviour because of their expectations, not because the treatment itself had any specific benefit (Leech et al., 2012; Ray, 2000).

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-12 Placebo Effects

34. Dr. Sesay is testing a new antidepressant. He gives the experimental group the new medication and the control group sugar pills that look exactly the same as the real medication. He is excited about all the good he believes this new medication will do for people. When he gives his control group the sugar pills, he shows little emotion, but when he hands out the antidepressants, he unintentionally grins at his participants. To control for _____, Dr. Sesay should use a _____ design instead.

- A. placebo effects; double-blind
- B. placebo effects; correlational
- C. experimenter expectancy effects; correlational
- D. experimenter expectancy effects; double-blind**
- E. rrder; counter-balanced

The double-blind procedure, in which both the participant and the experimenter are kept blind as to which experimental condition the participant is in, simultaneously minimizes participant placebo effects and experimenter expectancy effects.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Hard

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-13 Experimenter Expectancy Effects

35. Dr. Howard really wants her newly developed antianxiety medication to help people, but by smiling at the people who are getting the new drug and not at those who are getting the placebo, she is influencing her experimental subjects to respond differently than her control group subjects. In other words, she is contributing to

- A. validity replication
- B. placebo effects
- C. correlational effects
- D. experimenter expectancy effects**
- E. the effect of the dependent variable

Experimenter expectancy effects refer to the subtle and unintentional ways researchers influence their participants to respond in a manner that is consistent with the researcher's hypothesis.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-13 Experimenter Expectancy Effects

36. In 1971, Phillip Zimbardo and colleagues conducted an experiment to learn about the power of roles. The subjects were randomly assigned to a "prisoner" group or a "guard" group. The guards were to do whatever they deemed necessary to maintain control. Less than two days into the experiment, one prisoner had a "nervous breakdown." Because the experimenters believed that the prisoner was trying to trick them into releasing him, they laughed at him for being weak and made him stay. If this experiment were done today, it would be in violation of the APA's ethical standards for informed consent, because

- A. studies are not permitted to last for multiple days
- B. it is unethical to study prison situations
- C. the researchers lied about what they were studying
- D. the study would be ethical if it were done today
- E. the participant was not allowed to leave freely without penalty**

Modern ethical standards require that all participants be allowed to freely withdraw from any study, at any point, for any reason.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Hard

Learning Objective: 02-04 Ethical Principles in Human and Animal Research.

Topic: 02-16 Ethical Standards in Human Research

37. Samantha conducts a study on her campus to better understand voting behaviour. She finds that the majority of students support one candidate. Samantha may not be able to generalize her findings to the larger population of all Canadians, because most of the students at her school are within a certain age group, and many have similar socioeconomic backgrounds. Samantha's problem is a lack of

- A. internal validity
- B. descriptive norms
- C. external validity**
- D. a control group
- E. an experimental group

External validity refers to the degree to which the results of a study can be generalized to other populations, settings, and conditions.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-14 Replicating and Generalizing the Findings

38. Dr. Deshi has gathered the results of 52 studies on antenatal (during pregnancy) and subsequent postpartum depression to learn whether antenatal depression is a significant risk factor for postpartum depression. To most efficiently combine the results of all 52 studies in a way that allows her to easily see how strongly the two problems are related, she should use a

- A. correlation coefficient
- B. case study
- C. modal design
- D. meta-analysis**
- E. pooled experimental design

Meta-analysis is a statistical procedure for combining the results of different studies that examine the same topic to test the overall significance of the findings. In a meta-analysis, each study is treated as a "single participant," and its overall results are analyzed with those of the other studies.

Accessibility: Keyboard Navigation

Blooms: Remember

Difficulty: Medium

Learning Objective: 02-03 Threats to the Validity of Research.

Topic: 02-14 Replicating and Generalizing the Findings

39. Dr. Graham submitted a research proposal to the Ethics Review Board (ERB) at his university in late November. He is studying student's gender identification and life satisfaction. He tells you (his colleague) that he plans to do some interviews with students before they leave for Christmas, so he would have some data to look at over the holidays. He has not received ERB approval for his study, but knows it is a simple research design that will surely be approved. As a colleague of his, you should

- A. tell him not to do any interviews until ERB approval is received.
- B. recommend he gets started right away and then just get retroactive approval.
- C. be surprised that Dr. Graham thought any research approvals were needed for a simple interview, as it is a harmless procedure.
- D. not get involved. If anything happens it will only affect Dr. Graham's research program.
- E. encourage him to do whatever he personally believes is right.

ERB approval is required for all research undertaken in a University setting.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Medium

Learning Objective: 02-04 Ethical Principles in Human and Animal Research.

Topic: 02-16 Ethical Standards in Human Research

40. If a researcher wants to use some form of deception in an experiment, what are the ethical limitations?

- A. they may only use deception that is considered necessary by their research ethics board, and it must be disclosed to their participants during debriefing
- B. they may only use deception with adult participants
- C. the researcher may use whatever form of deception they consider necessary, provided they disclose it to their participants during debriefing
- D. they may not use deception under any circumstances
- E. there are no ethical limitations surrounding the use of deception

Deception must be approved by the REB, as well as explained to the affected participants during debriefing.

Accessibility: Keyboard Navigation

Blooms: Remember

Difficulty: Hard

Learning Objective: 02-04 Ethical Principles in Human and Animal Research.

Topic: 02-16 Ethical Standards in Human Research

41. Dr. Doucette is preparing a new research study looking at novel treatments for acute strokes in adult rats. She will have to

- A. Submit a research plan to the ethics review board (ERB).
- B. Contact the Canada Council on Animal Care to determine if all ethical guidelines are adhered to.
- C. Just start the experiment because her PhD gave her the training she needs to plan any research project she wants.
- D. Change her research plan because animals cannot be subjected to conditions that could induce strokes, even if scientifically justified.
- E. Nothing, non-human animal research is not required to conform to any ethical guidelines.

The Canadian tri-council granting agency requires university ERBs (which usually include nonscientists) to review and approve all animal research proposals.

Accessibility: Keyboard Navigation

Blooms: Remember

Difficulty: Medium

Learning Objective: 02-04 Ethical Principles in Human and Animal Research.

Topic: 02-17 Ethical Standards in Animal Research

42. Katie just saw a report on CBS about one man that had taken a smart pill, modafinil, on the recommendation of friends. "It really helped me stay on top of things," he said. "I was able to manage everything pretty well, better than if I hadn't taken it." A scientist would be most likely to recommend that Katie should

- A. Buy some modafinil right away to increase her intelligence.
- B. Find out if there is data to support this claim before buying anything.
- C. Know there has never been and will never be a pill that can enhance cognitive function of any kind.
- D. Disbelieve this because there is only one story to support the claim. If there were lots of success stories, then she should consider it more seriously.
- E. Buy some modafinil, but only if her colleagues are also using it.

Critical thinking is an important life skill. However, we should also be open-minded to ideas that are supported by solid evidence, even when they conflict with our preconceptions.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-05 Critical Thinking in Science and Everyday Life.

Topic: 02-18 Critical Thinking in Science and Everyday Life

43. A researcher decides to collect some data to test the hypothesis that playing violent video games is related to violent behaviour. They ask a group of parents from a local elementary school to estimate two things over the last six months: how many hours per week of violent video games their children played, as well as the number of violent incidents they can recall their children being involved in. What kind of design is this?

- A. experiment
- B. mixed observational
- C. case study
- D. naturalistic observation
- E. survey**

Survey research involves obtaining information about a topic by administering questionnaires or interviews to many people.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-07 Descriptive Research: Recording Events

44. A researcher decides to collect some data to test the hypothesis that playing violent video games is related to violent behaviour. They ask a group of parents from a local elementary school to estimate two things over the last six months: how many hours per week of violent video games their children played, as well as the number of violent incidents they can recall their children being involved in. If playing violent video games contributes to violent tendencies, we would expect to see:

- A. a negative correlation between hours spent playing and violent incidents
- B. a positive correlation between hours spent playing and violent incidents**
- C. a perfect correlation between hours spent playing and violent incidents
- D. a curvilinear correlation between hours spent playing and violent incidents
- E. a skewed correlation between hours spent playing and violent incidents

Positive correlations occur when higher scores on one variable are also associated with higher scores on another.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-08 Correlational Research: Measuring Associations between Events

45. A researcher decides to collect some data to test the hypothesis that playing violent video games is related to violent behaviour. They ask a group of parents from a local elementary school to estimate two things over the last six months: how many hours per week of violent video games their children played, as well as the number of violent incidents they can recall their children being involved in. Which of the following is not a limitation inherent to this design?

- A. causal conclusions cannot be drawn
- B. the social desirability bias might affect the estimates provided by the parents
- C. the results might not generalize beyond whatever age are represented in these data
- D. these data will be very time consuming to collect (relative to other methods)**
- E. none of the above are limitations inherent to this design

One advantage of survey work is in fact the opposite of what is stated in the fourth choice (data collection is particularly efficient relative to other methods).

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Hard

Learning Objective: 02-02 Methods of Research.

Topic: 02-07 Descriptive Research: Recording Events

46. A researcher is conducting an experiment to gather evidence about the most effective study techniques for committing material to memory. They randomly assign students to one of three groups that are instructed to learn a list of words using one of three techniques. If every participant studies one list of words in each of the three conditions, what kind of design is this?

- A. between groups
- B. repeated measures (or within subjects) design**
- C. mixed design
- D. crossover design
- E. structured

In repeated measures (or within subjects) designs, each participant is exposed to all the levels/conditions of an independent variable.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Hard

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

47. A researcher is conducting an experiment to gather evidence about the most effective study techniques for committing material to memory. They randomly assign students to one of three groups that are instructed to learn a list of words using one of three techniques. If the researcher does not _____ the order of lists across participants, the _____ will be low.

- A. counterbalance; internal validity
- B. counterbalance; external validity
- C. randomize; internal validity
- D. randomize; external validity
- E. reverse; replication rate

Counterbalancing is a procedure in which the order of conditions is varied so that no condition has an overall advantage relative to the others. In this case for example, if the same condition always occurs first then performance in that condition might demonstrate better memory simply because participants are less tired and/or experience less interference while completing that condition, as compared to during the other two conditions.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Medium

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

48. A researcher is conducting an experiment to gather evidence about the most effective study techniques for committing material to memory. They randomly assign students to one of three groups that are instructed to learn a list of words using one of three techniques. In this design, what is the dependent variable?

- A. the word lists
- B. performance on the word lists
- C. the order of the lists
- D. the specific study technique applied to each list
- E. the order of the participants

The dependent variable is the factor that is measured by the experimenter and that may be influenced by the independent variable.

Accessibility: Keyboard Navigation

Blooms: Remember

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

49. Imagine that a study has just been published which shows a relationship between a certain nutritional supplement and a lower incidence of cold and flu. This study was based on survey data and asked people to report whether or not they used this supplement in the last four months, as well as estimate the amount of times they were ill in that same period, and the average duration associated with those illnesses. Their results show that people who take the supplement report being ill less often and/or for less time. The company selling the supplement wants to claim that this is scientific proof their product works. Which of the following is *not* a possible alternative explanation to the idea that the supplement reduces frequency and/or duration of illness?

- A. placebo effect
- B. the third-variable problem
- C. the bidirectionality problem**
- D. all of the above are plausible alternative explanations
- E. none of the above are plausible alternative explanations

While the first two options are entirely plausible alternative interpretations, the bidirectionality problem would not make sense as an alternative account here. That is because there is no reason to think that getting sick less often would cause someone to be more likely to use supplements (although the opposite could be plausible, i.e. if these data found that people who get sick more often are also more likely to buy supplements, which could be to try to combat their chronic illnesses).

Accessibility: Keyboard Navigation

Blooms: Analyze

Difficulty: Hard

Learning Objective: 02-02 Methods of Research.

Topic: 02-07 Descriptive Research: Recording Events

50. Imagine that a study has just been published which shows a relationship between a certain nutritional supplement and a lower incidence of cold and flu. This study was based on survey data and asked people to report whether or not they used this supplement in the last four months, as well as estimate the amount of times they were ill in that same period, and the average duration associated with those illnesses. Their results show that people who take the supplement report being ill less often and/or for less time. The company selling the supplement wants to claim that this is scientific proof their product works. What would the company need to do in order to support that claim?

- A. collect a larger sample
- B. collect a more diverse sample
- C. conduct an experiment
- D. use a double-blind procedure
- E. replicate the results

To support causal claims, a true experiment would have to be performed.

Accessibility: Keyboard Navigation

Blooms: Apply

Difficulty: Easy

Learning Objective: 02-02 Methods of Research.

Topic: 02-09 Experiments: Examining Cause and Effect

51. Imagine that a study has just been published which shows a relationship between a certain nutritional supplement and a lower incidence of cold and flu. This study was based on survey data and asked people to report whether or not they used this supplement in the last four months, as well as estimate the amount of times they were ill in that same period, and the average duration associated with those illnesses. Their results show that people who take the supplement report being ill less often and/or for less time. The company selling the supplement wants to claim that this is scientific proof their product works. Why are participants in this study asked about both the number and duration of illnesses?

- A. they are different ways of reducing consumer bias
- B. they are different ways to operationalize the independent variable(s)
- C. one relates to internal validity and the other to external validity
- D. one relates to external validity and the other to internal validity
- E. they are different ways to operationalize the dependent variable(s)

Operationalizing a variable involves defining it in terms of the specific procedures used to measure or produce it.

Accessibility: Keyboard Navigation

Blooms: Understand

Difficulty: Medium

Learning Objective: 02-01 Scientific Principles in Psychology.

Topic: 02-05 Defining and Measuring Variables