

APPENDIX C - ANSWERS TO THE STOP AND THINK QUESTIONS

CHAPTER 1

- 1.1. Answers will vary, but should use some of the ways of knowing: intuition, deduction, authority, and observation.
- 1.2. Answers will vary, but should include a measure that will indicate anxiety based on some type of observable behavior.
- 1.3. Psychology and biology both have research and practice areas, where the two areas inform each other.
- 1.4. parsimony, empiricism
- 1.5. Confirmation bias can hinder decision-making in keeping you from considering all evidence for something because you are focused on finding evidence to support your own beliefs.
- 1.6. Replication is important because each individual study is based on just a small subset of participants, and chance factors could be causing the results obtained.
- 1.7. External validity is typically higher in applied studies than basic studies, because applied studies are designed to solve a real-world problem, whereas basic studies are designed to understand a fundamental process of behavior with control over extraneous factors.
- 1.8. Answers will vary, but will be focused on considering evidence for something before deciding on things relevant for your life.

CHAPTER 2

- 2.1. (a) descriptive, (b) causal, (c) causal
- 2.2. A literature review helps researchers determine what the open questions still are in a field, what hypotheses they should make, and what methodologies work best in that area.
- 2.3. The purpose of a journal article is to report to others what was found in a research study.

- 2.4. Reading journal articles can help researchers determine what research questions they should ask, what hypotheses they should make, and what methodologies work best in that area.
- 2.5. Peer review is conducted to improve the quality of a journal article by having experts in an area provide suggestions to improve the writing, research design, or conclusions of the authors. It also helps determine whether a study gets published.
- 2.6. Abstract—short summary; introduction—provides research questions, hypotheses, and relevant background and purpose for a study; method—provides details of the methodology such that other researchers could replicate the study if they wish; results—summarizes data collected in a study and provides tests of the hypotheses for the data; discussion—describes conclusions from the results of the study; references—provides full references for all sources cited in a paper.
- 2.7. Theory-driven hypotheses are those based on a theory or description of how behavior works. Data-driven hypotheses are based on results from similar, past studies. Some hypotheses are based on both theory and past results.
- 2.8. Reading journal articles can help a researcher make both theory-driven and data-driven hypotheses. The articles will describe hypotheses and theories developed by other researchers and also report the results that support or do not support those hypotheses and theories.
- 2.9. A theory is a description of how behavior operates. A hypothesis is a prediction about how results will turn out in a study that might provide a test of a theory. Hypothesis are typically stated in an If . . . then . . . format.
- 2.10. Answers will vary, but some examples are the Beck Anxiety Inventory (BAI; Steer & Beck, 1997) and elevated heart rate.

CHAPTER 3

- 3.1. Participation is voluntary, participants cannot be coerced and must be informed about the research, unnecessary harm/risk must be reduced and the benefits must outweigh the risks, and participants can end their participation at any time.
- 3.2. Obtaining informed consent involves informing the participant about what will occur in the study, including any risks involved and the participant's right to withdraw at any time, and then obtaining their consent to participate after they have been informed about the research.
- 3.3. Answers will vary, but may include coercion, risks outweighing the benefits, and/or not reducing unnecessary risks.

- 3.4. The IRB reviews proposed research studies to ensure that ethical guidelines are followed.
- 3.5. It does not provide opportunities for information about how the drug affects women. It violates the justice principle because, if only men are tested, women do not obtain the benefits of the testing.
- 3.6. Debriefing typically takes place to ensure that participants understand the purpose of the research and any deception used without introducing bias from this information that might be present if a briefing occurred before the study.
- 3.7. More care of the animals is needed than with humans and there is no informed consent process as with humans.
- 3.8. Violations of ethics in reporting research occur if authors report false data or plagiarize from other sources without providing citations to those sources.

CHAPTER 4

- 4.1. (a) external validity, (b) reliability, (c) internal validity
- 4.2. Closed-ended responses might be poorly written such that they bias participants toward a particular response. They also don't allow for responses that do not fit the scale chosen by the researcher.
- 4.3. (a) Systematic observation, (b) survey/questionnaire, (c) naturalistic observation, archival data (d) where indicated
- 4.4. Answers will vary, but any of the data collection techniques could be used in different ways.
- 4.5. (a) correlational study, (b) experiment, (c) quasi-experiment
- 4.6. Case studies examine just one or a small group of individuals. Thus, it may be difficult to generalize the results from a case study to others because the individual(s) tested may be unique.
- 4.7. Answers will vary, but the most likely option is a quasi-experiment. A quasi-experiment could be used as a pretest–posttest design, with productivity compared both before and after the cappuccino machine is introduced. A quasi-experiment could also be used if you observed which coworkers use the cappuccino machine and then compared productivity for those who use the machine and those who do not.
- 4.8. Answers will vary.

CHAPTER 5

- 5.1. (a) ratio, (b) ordinal, (c) nominal
- 5.2. Answers will vary, but two examples are (a) rating on a scale of 1 to 7 to indicate hunger, and (b) how much food a person eats when food is offered.
- 5.3. Face validity means that, intuitively, the measure seems to get at what it is intended to measure. Some examples of introversion measures might be a survey with items that ask about preferred social and nonsocial activities or asking someone to indicate the number of friends they have.
- 5.4. You can compare the scores on your measure with other measures already known to measure mindfulness to see if they are similar or related.
- 5.5. room size (small, medium, large), time of measure (before and after the game), game condition (inclusion, exclusion) and treatment condition (current, new)
- 5.6. age of participant, participant's height (unless you have them stand on something)
- 5.7. In single-blind designs, the participant does not know which condition they receive. This design should be used when demand characteristics are of concern. In double-blind designs, the researcher also does not know which condition a participant receives. This design is used when experimenter bias is of concern.
- 5.8. Because participants take the same test both times, they could remember some of the questions and do better the second time simply because they have remembered them and paid attention to or looked up the answer.

CHAPTER 6

- 6.1. When they are concerned about a characteristic in the population not being represented in equal proportions in the sample, stratified random samples are used to make sure the proportions are the same to make the sample more representative.
- 6.2. Everyone in the population must have an equal chance of being selected at the start, and it can be difficult to identify everyone in a large population to make sure they have an equal selection chance.
- 6.3. Answers will vary, but convenience samples may make some studies harder to generalize to larger populations. It may depend to some degree on the behavior being studied.
- 6.4. You must first identify the proportions in the population for different racial groups. Then you must recruit your sample to match those same proportions.

CHAPTER 7

- 7.1. The mean is most affected by extreme scores (i.e., outliers).
- 7.2. The range is measured using only two scores from the distribution, the highest and lowest scores. This means that all the other scores are ignored in this measure, making the range less informative about the spread of the scores across the distribution than the standard deviation or variance measures.
- 7.3. A scatterplot shows a data point for each individual with one measure on the x -axis and one measure on the y -axis. A line graph shows data points for means for a continuous independent (or quasi-independent) variable on the x -axis and the dependent variable on the y -axis.
- 7.4. (a) one-tailed test, (b) one-tailed test, (c) two-tailed test, (d) two-tailed test
- 7.5. Alternative: A population of people who take aspirin will have fewer heart attacks than a population who does not take aspirin.
Null: A population who takes aspirin will have more or the same number of heart attacks as a population who does not take aspirin.
Alternative: A population of people who quiz themselves will have higher test scores than a population who rereads their notes.
Null: A population who quizzes themselves will have lower test scores than or equal test scores to a population who rereads their notes.
Alternative: A population of people who complete a puzzle with a time constraint will have different accuracy than a population with no time constraint.
Null: A population who completes a puzzle with time constraint will have the same accuracy as a population with no time constraint.
Alternative: A population of people who sleep a lot will have different depression levels than a population who does not sleep a lot.
Null: A population who sleeps a lot will have the same depression levels as a population who does not sleep a lot.
- 7.6. (a) Type II error, (b) correct decision, (c) Type I error
- 7.7. (a) Null: There is no difference in food choice ratings across the food choices in the population. Alternative: There is a difference in food choice ratings across the food choices in the population. (b) Your p value is above alpha, so you would retain/fail to reject the null hypothesis. This means you have no evidence for the alternative hypothesis from your study and cannot conclude from these data that one of these restaurants is preferred over the others.

CHAPTER 8

- 8.1. (a) results; (b) method (materials subsection); (c) abstract (maybe), introduction, and discussion; (d) discussion; (e) results (also possibly a table/figure)
- 8.2. The goal of a method section is to provide enough detail that someone could replicate the study if they wish. This will also ensure that the reader has enough information to understand how the study was conducted in order to evaluate the conclusions made.
- 8.3. More detailed information is provided in a paper report than in oral/poster presentations. Oral/poster presentations typically cover main ideas about the study in bullet points for speedy understanding of the study. However, the main ideas of the study (why, how, what was found, and what was learned) are provided in all types of presentations.

CHAPTER 9

- 9.1. Power is the ability of a test to detect an effect of a factor when one exists. Having more power increases the chance of detecting an effect that exists in the population.
- 9.2. Sampling error is estimated from the variability in the data.
- 9.3. (a) paired-samples t test, (b) independent-samples t test, (c) one-sample t test, (d) paired-samples t test
- 9.4. (a) main effect, (b) interaction, (c) main effects (This is a factorial design, however, so an interaction, which is not described, would be tested as well.)
- 9.5. That type of music affects mood, but they cannot determine which type of music showed better mood without follow-up tests or planned comparisons.
- 9.6. Chi-square tests are used with nominal/ordinal scales. Correlational analyses are more appropriate for continuous scales (e.g., interval/ratio).
- 9.7. That there is a relationship between these factors. The test was significant.

CHAPTER 10

- 10.1. Using open-ended questions allows participants to respond in any way. This can be helpful if there are possible answers that the researcher cannot predict but can be more difficult to score than closed-ended questions because there may be responses that do not clearly fit into one category of response.
- 10.2. Answers will vary, but should consider clear wording and whether there are clear closed-ended options you want to include.

- 10.3.** Test–retest reliability measures whether scores are similar over different administrations of the survey. Split-half reliability measures whether scores are similar within the survey over items that measure the same concept in different parts of the survey.
- 10.4.** Attrition can affect the reliability of a survey in having people with specific characteristics drop out before the survey is complete (e.g., across different administrations). Testing effects can affect reliability by affecting scores, with some participants changing their responses as the survey continues (e.g., from fatigue or practice effects).
- 10.5.** Answers will vary, but the goal is to encourage all the individuals chosen in a population for the sample to complete the survey.

CHAPTER 11

- 11.1.** Because there are always extraneous factors that can affect the results in a correlational study, correlational studies can only answer descriptive and predictive research questions. There is not enough control to rule out alternate explanations of the results.
- 11.2.** (a) Predictor: ACT/SAT score, outcome: graduation GPA; (b) Predictor: amount of sleep, outcome: anxiety level; (c) Predictor: amount of exercise (or frequency of exercise), outcome: test scores
- 11.3.** (a) negative, (b) positive, (c) negative, (d) none

CHAPTER 12

- 12.1.** Advantages: No carryover effects from one condition to another, participants' participation is short. Disadvantages: Group differences may be present, need more participants.
- 12.2.** Advantages: Group differences are controlled, don't need as many participants. Disadvantages: Carryover effects from one condition to another may occur, need participants for longer period of time.
- 12.3.** Answers will vary.
- 12.4.** Biological—type of trial (right stimulation, left stimulation, sham) DV: percentage of trials showing first-person perspective (see Figure 12.6)
 Social—pain group (pain, no pain) DV: rating for feelings of bonding with others (see Figure 12.7)
- 12.5.** Answers will vary.
- 12.6.** This reduced the possible bias due to the type of tasks used (e.g., arm in water regardless of temperature, physical activity regardless of pain).

CHAPTER 13

- 13.1. No, this would be a main effect of amount of chips.
- 13.2. No, this would be a main effect of type of vanilla.
- 13.3. Answers will vary, but one possible issue is how often the participants thought about the events between sessions.
- 13.4. Answers will vary, but one possible issue could be whether the participants pay attention to the game enough to notice the inclusion/exclusion aspect of the study.

CHAPTER 14

- 14.1. Answers will vary, but should involve testing before and after you try the technique.
- 14.2. In these designs, testing is always done multiple times. Thus, giving the same or a similar test more than once can result in fatigue or practice testing effects.
- 14.3. Answers will vary, but the quasi-experiment will involve either preexisting groups or pretest–posttest without a control group, and the experiment will involve random assignment to treatment groups.
- 14.4. Answers will vary.

CHAPTER 15

- 15.1. (a) cross-sectional, (b) longitudinal, (c) cohort-sequential
- 15.2. Answers will vary, but cross-sectional designs may have generational/cohort effects, and longitudinal designs may have attrition and testing effects.
- 15.3. Small-*n* designs are typically conducted with within-subjects independent variables, making them experiments.
- 15.4. Discrete trials designs typically examine fundamental processes of behavior that operate similarly across individuals (i.e., few or no individual differences). Baseline designs are typically used to examine the effectiveness of an intervention on an individual's behavior.