CHAPTER 2

Doing Social Psychology Research

OUTLINE

I. Why Should You Learn About Research Methods?
II. Developing Ideas: Beginning the Research Process
   A. Asking Questions
   B. Searching the Literature
   C. Hypotheses and Theories
   D. Basic and Applied Research
III. Refining Ideas: Defining and Measuring Social Psychological Variables
   A. Conceptual Variables and Operational Definitions: From the Abstract to the Specific
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IV. Testing Ideas: Research Designs
   A. Descriptive Research: Discovering Trends and Tendencies
   B. Correlational Research: Looking for Associations
   C. Experiments: Looking for Cause and Effect
   D. Meta-Analysis: Combining Results across Studies
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V. Ethics and Values in Social Psychology
   A. Institutional Review Boards and Informed Consent: Protecting Research Participants
   B. Debriefing: Telling All
   C. Values and Science: Points of View
VI. Review
VII. Key Terms

LEARNING OBJECTIVES: GUIDELINES FOR STUDY

You should be able to do each of the following by the conclusion of Chapter 2.

1. Describe the process of generating research ideas in social psychology, searching the relevant literature, and developing hypotheses. Understand the differences between applied and basic research. \((pp. 24-27)\)
2. Distinguish between hypotheses and theories, and between conceptual variables and operational definitions. \((pp. 26-28)\)
3. Explain self-report and observational research practices, including the advantages and disadvantages of each. \((pp. 29-30)\)
4. Understand the usefulness of traditional research methodologies, such as archival studies and surveys, as well as explain the potential contributions of new technologies to contemporary social psychology research. \((pp. 31-34)\)
5. Contrast correlational research with descriptive research. Define the correlation coefficient, and explain what it means to say that two variables are negatively correlated, positively correlated, or
uncorrelated. Summarize the advantages and one major disadvantage of correlational research designs. (pp. 34-37)

6. Explain the importance of control and random assignment in experimental research. Differentiate random sampling from random assignment, as well as an independent variable from a dependent variable. (pp. 37-41)

7. Explain the importance of the following terms with regard to experimental research design: statistical significance, internal validity, and external validity. (pp. 41-43)

8. Discuss the function of ethics in social psychological research, including the use of deception and confederates. Describe the roles of institutional review boards, informed consent, and debriefing in protecting the welfare of human participants. Summarize the competing points of view about the role of values in science. (pp. 44-47)

MAJOR CONCEPTS: THE BIG PICTURE

Following are five basic issues or principles that organize Chapter 2. You should know these issues and principles well.

1. Learning about social psychology research methods should enable you to better understand the material presented in the textbook, as well as to improve your reasoning about real-life events.

2. The research process in social psychology begins with coming up with ideas, asking questions about one’s social world, and searching the relevant literature to determine what research has already been done on these issues. Social psychologists develop testable hypotheses and theories. An important aspect of social psychological hypotheses and theories is that they can be put to the test and eventually improved upon. Social psychologists test their hypotheses and theories both in basic and applied settings.

3. A challenging part of the research process is developing specific definitions and measurements of social psychological variables. Researchers typically begin with rather vague, abstract conceptualizations of the variables of interest and eventually make them more concrete and specific. Researchers may measure variables using self-report or observational techniques; each of these approaches has its strengths and potential weaknesses.

4. Social psychological researchers use descriptive, correlational, experimental, and meta-analytic methods to test their ideas. The goal of descriptive research is to describe people and their behavior. Correlational research examines the association between variables. Experimental research examines the cause-and-effect relationship between variables. Researchers analyze the results of their research and evaluate the research in terms of internal and external validity. Meta-analysis involves using statistical techniques to combine the results of a number of other studies that have already been conducted. Exciting new methods in cultural research can now analyze social data.

5. Ethical issues must always be considered when research is conducted. In social psychology, the use of deception can be of particular ethical concern. Through institutional review boards, informed consent, and debriefing, social psychologists try to ensure the welfare of their research participants. The issue of values is also important in social psychological research. There are differences of opinion about whether social psychological research – like other research – can or even should be value free.
KEY TERM EXERCISE: THE CONCEPTS YOU SHOULD KNOW

Below are all of the key terms that appear in boldface in Chapter 2. To help you better understand these concepts, rather than just memorize them, write a definition for each term in your own words. After doing so, look at the next section where you’ll find a list of definitions from the textbook for each of the key terms presented in random order. For each of your definitions, find the corresponding textbook definition. Note how your definitions compare with those from the textbook.

Key Terms
1. internal validity
2. theory
3. debriefing
4. experimental realism
5. correlational research
6. dependent variables
7. mundane realism
8. interrater reliability
9. meta-analysis
10. hypothesis
11. experiment
12. random sampling
13. basic research
14. experimenter expectancy effects
15. random assignment
16. subject variables
17. deception
18. external validity
19. correlation coefficient
20. informed consent
21. independent variables
22. construct validity
23. applied research
24. confederates
25. operational definition
26. main effect
27. interaction
Textbook Definitions

a. Variables that characterize pre-existing differences among the participants in a study.

b. The extent to which the measures used in a study measure the variables they were designed to measure and the manipulations in an experiment manipulate the variables they were designed to manipulate.

c. A set of statistical procedures used to review a body of evidence by combining the results of individual studies to measure the overall reliability and strength of particular effects.

d. A testable prediction about the conditions under which an event will occur.

e. An organized set of principles used to explain observed phenomena.

f. Research whose goal is to increase the understanding of human behavior, often by testing hypotheses based on a theory.

g. Research whose goal is to enlarge the understanding of naturally occurring events and to find solutions to practical problems.

h. A statistical measure of the strength and direction of the association between two variables. The correlation coefficient can range from -1.0 to +1.0.

i. A form of research that can demonstrate causal relationships because (1) the experimenter has control over the events that occur and (2) the participants are randomly assigned to conditions.

j. In an experiment, the factors experimenters manipulate to see if they affect the dependent variables.

k. In an experiment, the factors experimenters measure to see if they are affected by the independent variables.

l. The degree to which there can be reasonable certainty that the independent variables in an experiment caused the effects obtained on the dependent variables.

m. The effects produced when an experimenter’s expectations about the results of an experiment affect his or her behavior toward a participant and thereby influence the participant’s responses.

n. Accomplices of an experimenter who, in dealing with the real participants in an experiment, act as if they also are participants.

o. A method of selecting participants for a study so that everyone in a population has an equal chance of being in the study.

p. A method of assigning participants to the various conditions of an experiment so that each participant in the experiment has an equal chance of being in any of the conditions.

q. The degree to which the experimental situation resembles places and events that exist in the real world.

r. The degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously.

s. Research methods that provide false information to participants.

t. The degree to which different observers agree on their observations.

u. An individual’s deliberate, voluntary decision to participate in research, based on the researcher’s description of what will be required during such participation.
v. A disclosure made to participants after research procedures are completed in which the researcher explains the purpose of the research, attempts to resolve any negative feelings, and emphasizes the scientific contribution made by participants’ participation.

w. Research designed to measure the association between variables that are not manipulated by the researcher.

x. The degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations.

y. The specific procedures for manipulating or measuring a conceptual variable.

z. A statistical term indicating the overall effect that an independent variable has on the dependent variable, ignoring all other independent variables.

aa. A statistical term indicating that the effect that an independent variable has on the dependent variable is different as a function of another independent variable.
ANSWERS FOR KEY TERM EXERCISE

Answers for the key terms exercise are listed below.

1. l
2. e
3. v
4. r
5. w
6. k
7. q
8. t
9. c
10. d
11. i
12. o
13. f
14. m
15. p
16. a
17. s
18. x
19. h
20. u
21. j
22. b
23. g
24. n
25. y
26. z
27. aa
PRACTICE QUIZ: TEST YOUR KNOWLEDGE OF THE CHAPTER

Multiple-Choice Questions

1. Hannah developed an explicit, testable prediction about what kind of advertising campaign would be most effective in selling a particular product. Specifically, she predicted that a campaign that makes an emotional appeal would be more effective than one that focuses more on appeals to logic. She tested her prediction in an experiment that compared both types of appeals. Hannah’s prediction is an example of
   a. archival research.
   b. a hypothesis.
   c. a meta-analysis.
   d. survey research.

2. Which of the following studies is probably highest in experimental realism?
   a. Participants sit in a waiting room and are observed secretly using hidden video cameras while they wait for the experimenter to call them in to begin the study.
   b. Participants try to memorize a long list of words either alone or in the presence of other participants.
   c. Participants try to make judgments about each other’s personalities based on small clues about each other, with the incentive that the participants whose judgments are most accurate will win $50.
   d. Participants from several different countries are selected through random sampling to participate in this study, in which they receive a questionnaire asking them their opinions about a variety of global economic and health issues.

3. Drew conducted an experiment to examine the effects of uncomfortably loud noise on the likelihood that people will aggress against each other. He manipulated the amount of noise in the room, and he measured the number of times that the participants looked at each other in threatening, aggressive ways. After reporting the results of his experiment, some researchers criticized Drew’s measure of aggression as having poor construct validity. This criticism suggests that
   a. the operational definition of aggression that Drew used was flawed.
   b. the results of the study are not statistically significant.
   c. the independent variable was poorly designed.
   d. Drew did not use random assignment in his measure of aggression.

4. Some researchers conducted an experiment to examine the effects of noise and test difficulty on students’ test performance. The researchers manipulated how much noise was present in a room (either a little or a lot) and how difficult the test was (either easy or very difficult). The researchers analyzed the results of their experiment and found that the manipulation of noise had little effect on test performance when the test was easy, but that it had a strong effect when the test was difficult—students did much worse on the difficult test if the room was noisy than if it was quiet. This pattern of results suggests that
   a. there was an interaction between the two independent variables.
   b. there was a main effect for the variable of noise.
   c. the correlation between noise and test difficulty was positive.
   d. the manipulation of noise was strong in external validity.
5. Alan wanted to test his hypothesis that people are more likely to vote in presidential elections when the economy of the country is bad rather than good. He decided to conduct archival studies to test this. Which of the following is the kind of archival study that Alan would be most likely to do?
   a. Randomly assign some participants to conditions so that some read information indicating that the economy of the country is strong, and others read information indicating that the economy is weak and vulnerable. Next, give participants a chance to register to vote for an election.
   b. Look at existing records to determine the strength of the country’s economy at different points in time and at other records to record the percentage of the eligible population who voted in presidential elections.
   c. Collect a number of published studies on the topic and calculate statistically how strong the effects are.
   d. Randomly sample the population of registered voters and distribute a survey that asks them to describe their feelings about the economy, and then ask them if they voted in the last election.

6. Angelia recruits participants for an experiment on crowding. She randomly assigns some participants to a small room and other participants to a large room. Through random assignment, Angelia hopes to ensure that
   a. differences that appear between conditions cannot be attributed to differences in the personal characteristics of the participants in the two conditions.
   b. the study is high in external validity.
   c. she will have a representative sample and not have to resort to using a convenience sample.
   d. the welfare of the participants will be protected.

7. Some researchers investigated the relationship between smoking and the likelihood of dying of cancer. The researchers found that as the amount one smoked increased, the likelihood of dying of cancer increased as well. Similarly, as the amount of smoking decreased, the likelihood of dying of cancer decreased as well. Which of the following correlation coefficients is most likely to reflect this relationship between amount of smoking and the likelihood of dying of cancer?
   a. A correlation coefficient of –.30
   b. A correlation coefficient of +.30
   c. A correlation coefficient of –10.00
   d. A correlation coefficient of +100.00

8. Some researchers measured the amount of television a number of boys watched when they were five years old, and then measured how creative they were when they were fifteen years old. They found that the boys who were relatively high in amount of television watching at age five tended to be relatively low in creativity at age fifteen, and that those who had watched the least amount of television at age five were the most creative at age fifteen. This is an example of
   a. a representative sample.
   b. an experiment with four independent variables.
   c. experimental realism.
   d. a prospective correlation.
9. Some researchers found a negative correlation between the number of fans attending hockey games and the number of fights that occurred during the games. Several other groups of researchers found the same negative correlation between these variables. This suggests that
   a. there is a very weak relationship between the number of fans attending hockey games and the number of fights that occur during the games.
   b. the presence of relatively large crowds causes hockey teams to play in a way that produces fewer fights.
   c. there is a greater chance that fights will occur during a hockey game at which relatively few fans are present than during a game at which many fans are present.
   d. fans are turned off by violence in hockey games and will stay away from games between teams that tend to fight a lot.

10. Surveys are much more likely to produce accurate results if
   a. the participants were randomly assigned to conditions.
   b. they are high in experimental realism.
   c. the participants were chosen using a random sample of the population.
   d. their design has strong internal validity.

11. Imagine two alien species: the Romulans and the Klingons. The Romulans were interested in developing a technique for use in extracting secrets from Klingon prisoners. The Romulans wanted to test Klingons’ tolerance for pain under different conditions, so they gave some Klingons electric shocks after depriving them of sleep and gave other Klingons the same magnitude of shocks after letting them sleep as much as they wanted. They then measured the decibel level of the Klingons’ screams. The independent variable in this experiment is
   a. the amount of pain the Klingons could tolerate.
   b. the intensity of shock voltage.
   c. whether or not the Klingons were deprived of sleep.
   d. the loudness of screams of the Klingons.

12. Min wants to assess people’s attitudes about sex education in grade school. To do so, she mails a questionnaire to a large sample of individuals and asks the individuals to answer questions about their attitudes and then to mail the questionnaire back to her. Min’s method of measurement is a(n)
   a. event-contingent method.
   b. archival record.
   c. self-report measure.
   d. behavioral observation.

13. Researchers found that the results of their study were statistically significant. Thus they concluded that
   a. the research is relatively high in internal validity.
   b. there is only a very small probability that the results occurred by chance.
   c. the results should generalize to different populations in different settings.
   d. the correlation found between the variables was positive and strong.

14. To study aggression, Neil randomly assigns participants to one of two movies. He makes the specially prepared movies equal in every way except aggressive content. The experimenters are kept uninformed about the hypotheses of the study. This study appears to have
   a. statistical significance.
   b. experimental realism.
   c. a representative sample.
   d. internal validity.
15. Margot hires some research assistants to help her conduct a laboratory experiment. She trains them so that they know exactly what to say or do with participants. However, she does not tell them what the hypotheses or predictions of the research are. By omitting this information, Margot hopes to protect the experiment from
   a. unethical practices.
   b. convenience sampling.
   c. experimenter expectancy effects.
   d. mundane realism.

16. One way to increase the chances that a study will be high in external validity is to use
   a. random assignment.
   b. random sampling.
   c. behavioral observations.
   d. self-report measures.

17. Elissa is interested in seeing what kinds of leaders have the most positive impact on the efficiency of groups of soldiers. She designs a series of experiments to examine this issue. Elissa is most likely to be interested in
   a. laboratory research.
   b. archival research.
   c. social cognition research.
   d. applied research.

18. Greta wants to know whether racially diverse work groups typically perform better or worse as a function of how task-oriented the group leader is. She searches the literature on this topic and finds a number of previously conducted studies that have investigated this issue. She determines that, rather than focusing on any single study, a more reliable and valid conclusion could be reached by examining these studies together and combining their results statistically. To reach such a conclusion, Greta should conduct
   a. a prospective correlational study.
   b. an analysis of the interrater reliability of the studies.
   c. a concurrent correlational study.
   d. a meta-analysis.

19. The use of deception in some studies highlights the need for researchers to
   a. conduct a thorough debriefing at the conclusion of each study.
   b. conduct research that is not influenced by their own values.
   c. use self-reports as well as behavioral observations whenever possible.
   d. create operational definitions of their variables that are high in external validity.

20. At the start of his experiment, Conrad made sure to ask all participants whether they wanted to take part in the research. He also provided them with a great deal of information about what they could expect if they participated in the study. Conrad took these steps in order to
   a. obtain informed consent.
   b. increase the external validity of the experiment.
   c. minimize experimenter expectancy effects.
   d. create mundane realism.

21. An advantage of new cultural research methods is that they allow better tests of
   a. external validity.
   b. mundane realism.
   c. internal validity.
   d. deception in social research.
22. Social researchers can use brain-imaging technologies such as PET (positron emission tomography) and fMRI (functional magnetic resonance imaging) to explore
   a. thinking.
   b. decision-making.
   c. responding to audio or visual stimuli.
   d. All of the above are correct.
23. Basic research can best be described as
   a. an attempt to increase understanding of human behavior.
   b. an attempt to decrease understanding of human behavior.
   c. an attempt to understand naturally occurring events.
   d. using the correlational method to understand human behavior.
24. Applied research can best be described as
   a. an attempt to increase understanding of human behavior.
   b. an attempt to decrease understanding of human behavior.
   c. an attempt to understand naturally occurring events.
   d. using the correlational method to understand human behavior.

Essay Questions

25. Craig conducted a study in which he put some participants in very hot rooms and others in comfortably cool rooms, and then measured their levels of aggressiveness by observing their behavior. Craig found that those in the hot rooms were more aggressive than those in the cooler rooms. What further information would you need to determine whether this study was an experiment rather than a correlational study? What further information would you need to evaluate the external validity of this study?

26. Describe the primary disadvantages in using self-report measures in social psychology research. Then discuss the role of interrater reliability in another type of measure used by social psychologists.

27. Summarize three different positions that have been taken concerning the influence of values on science.

28. Describe how new technologies are being used in research by social psychologists.
ANSWERS TO THE PRACTICE QUIZ

Multiple-Choice Questions: Correct Answers and Explanations

1. b. **a hypothesis.** A hypothesis is a testable prediction about the conditions under which an event will occur; Hannah developed such a prediction for her research. The other three answers are specific types of research, rather than a type of prediction, and there is nothing indicated in the question to suggest that Hannah conducted any one of these types of studies. Archival research involves examining existing records of past events and behaviors. A meta-analysis is a set of statistical procedures used to review a number of previously conducted studies. Survey research involves asking people to indicate their attitudes, beliefs, or behaviors.

2. c. **Participants try to make judgments about each other’s personalities based on small clues about each other, with the incentive that the participants whose judgments are most accurate will win $50.** Experimental realism is the degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously. Trying to judge each other’s personalities and winning money should be relatively involving to the participants and motivate them to take the tasks in the study seriously. In contrast, the study set in the waiting room should be very low in experimental realism, although it may be high in mundane realism (the degree to which the experimental situation resembles places and events that exist in the real world), since sitting in a waiting room might be a familiar, ordinary situation for the participants. Trying to memorize a long list of words is likely to be a rather dull task, neither very engaging nor interesting to the participants; therefore, the experimental realism is not likely to be very high. Surveys like the kind described in the final option do not have experimental realism.

3. a. **the operational definition of aggression that Drew used was flawed.** In an experiment, a measure that is said to have poor construct validity does not correctly measure the conceptual variable it was designed to measure. In this case, the conceptual variable was “aggression,” and the specific way that Drew measured aggression was his operational definition of aggression. Drew operationally defined aggression in his study as the number of times participants looked at each other in threatening or aggressive ways; this definition is likely to be flawed, as such looks are likely to be ambiguous and may have little to do with aggression. Thus, the measure has poor construct validity. Statistical significance refers to the likelihood that the results of a study could have occurred by chance; this question indicates nothing about whether the results were analyzed statistically to determine whether or not they were statistically significant. The independent variable is the variable that the experimenter manipulated. Drew manipulated the amount of noise in the laboratory room; the validity of this manipulation was not questioned. In an experiment, participants are assigned randomly to the different conditions of the independent variable(s); there is no random assignment of the dependent variable, which in this case was the measure of aggression.

4. a. **there was an interaction between the two independent variables.** There is said to be an interaction between two independent variables if the effect that one of the independent variables has on the dependent variable depends on the other independent variable. In this study, the effect that the manipulation of noise had on the students’ test performance depended on the manipulation of test difficulty (the effect of noise was strong only if the test difficulty was high). A main effect is the effect of one independent variable without considering any other independent variables. In this study, there was no indication that either independent variable alone had a strong effect regardless of the other independent variable. A correlation is a measure of the association between two variables; the independent variables in this study were manipulated, not measured, and therefore there is no association to be measured. External validity refers to the degree to
which one can be reasonably confident that the same results would be obtained for other people and in other situations. There is nothing indicated in this question that is relevant to the issue of external validity.

5. b. **Look at existing records to determine the strength of the country’s economy at different points in time and at other records to record the percentage of the eligible population who voted in presidential elections.** Archival research involves examining existing records of past events and behaviors. Using existing records of economic indicators and voting patterns, Alan could test his hypothesis. The other three potential answers to this question describe kinds of research other than archival. Answer “a” describes an experiment, including random assignment to different conditions. Answer “c” describes a meta-analysis—statistical procedures used to review a number of previously conducted studies. The final option describes a survey rather than an archival study.

6. a. **differences that appear between conditions cannot be attributed to differences in the personal characteristics of the participants in the two conditions.** Random assignment is an essential characteristic of an experiment. By randomly assigning participants to the different conditions, the participants assigned to one condition should not initially be different from those assigned to any other condition. External validity is the degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations. The setting of the experiment and the type of sample used to obtain participants affect the external validity; random assignment cannot ensure high external validity. Random assignment also does not affect whether or not there is a representative sample, which is a sample of participants that reflects the characteristics of the population of interest; random sampling, in contrast, does affect whether a representative sample is likely to be obtained. The welfare of the participants is protected by following codes of ethics, including the use of informed consent and institutional review boards; random assignment by itself does not protect the welfare of human participants.

7. b. **a correlation coefficient of +.30.** Correlation coefficients range from +1.0 to –1.0. A positive correlation indicates that as one variable increases, so does the other, or that as one variable decreases, so does the other. This is the kind of relationship that the researchers found between amount of smoking and likelihood of dying of cancer. A negative correlation indicates that as one variable increases, the other decreases. This is the opposite of what the researchers found. Because correlation coefficients range from +1.0 to –1.0, correlation coefficients of –10.00 and +100.00 are not possible.

8. d. **a prospective correlation.** Prospective correlations are obtained at different times from the same individuals. A correlation is an association between two variables. These researchers examined the association between television viewing and creativity within the same individuals over time. There is no mention of the kind of sample used in this study, so there is no reason to assume that there was a representative sample, which is a sample of participants that reflects the characteristics of the population of interest. This study does not seem to have been an experiment; there was no random assignment to conditions, and the researchers did not control and manipulate any independent variables. Experimental realism is the degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously; again, this study was not an experiment, and the description of the study does not give any details of the procedure that would allow one to evaluate it.

9. c. **there is a greater chance that fights will occur during a hockey game at which relatively few fans are present than during a game at which many fans are present.** A negative correlation indicates that as one variable (such as the number of fans attending a game) increases, the other variable (such as the number of fights in the game) decreases. Correlations can be used to make accurate predictions about the relationship between two variables. A negative
correlation does not imply that the relationship is weak. Instead, the magnitude of the correlation coefficient, not the direction of the correlation (whether it is positive or negative), indicates the strength of the correlation—but the magnitude of the correlation coefficient is not indicated in this question. The other possible answers suggest that there is a causal relationship between the two variables, but one should never infer causality from a correlation.

10. c. the participants were chosen using a random sample of the population. Random sampling ensures that everyone in a population has an equal chance of being in a study. Surveys that use random sampling have a much better chance of truly representing the population and, therefore, of producing accurate results. Randomly assigning participants to conditions is important for experiments, rather than surveys; in addition, surveys typically do not have different conditions to which participants are assigned. Experimental realism, the degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously, is relevant for experiments, not surveys. Internal validity, which concerns how well an experiment establishes a causal relationship between the independent and dependent variables, is also relevant for experiments rather than surveys.

11. c. whether or not the Klingons were deprived of sleep. Independent variables are the factors manipulated in an experiment to see if they affect the dependent variable. The Romulans manipulated whether or not the Klingons were sleep deprived to see the effect of this manipulation on tolerance for pain. The amount of pain the Klingons could tolerate was the conceptual dependent variable, and the loudness of their screams was the operational definition of this conceptual dependent variable. The intensity of shock voltage was not varied in the study, so it was not an independent variable.

12. c. self-report measure. A self-report measure is one in which people are asked to tell about their own thoughts, feelings, and actions. Despite some limitations, questionnaires and other self-report measures are widely used. An event-contingent method is a specific method of using self-report measures. With event-contingent self-reports, respondents report on a designated set of events as soon as possible after such an event has occurred. Because Min did not ask the respondents to report on specific events as soon as the events occurred, Min’s study did not use an event-contingent method. Archival records are existing records of human behavior. This question does not suggest that Min consulted any such records. Behavioral observation involves the direct measurement of actions, in contrast to self-reports. Min did not observe her participants’ behaviors or measure their actions.

13. b. there is only a very small probability that the results occurred by chance. Statistical significance means that the odds that the results were obtained by chance alone are quite low (less than 5 out of 100). Internal validity refers to the degree to which there can be reasonable certainty that the independent variable in an experiment caused the effects obtained on the dependent variable. Although statistical significance indicates that the effects probably did not occur by chance, it does not indicate that the effects were necessarily caused by the independent variable itself; if, for example, the experiment did not contain the proper controls, there could be alternative explanations to account for the differences between conditions. Whether the results should generalize to different populations in different settings—in other words, whether the study is high in external validity—depends on the setting of the experiment and the sampling used; statistically significant results may not generalize to other settings or people if the study is low in external validity. There is no mention of whether the results of this study included any correlations; moreover, a negative correlation is just as likely as a positive correlation to be statistically significant.
14. d. **internal validity.** Internal validity is the degree to which there can be reasonable certainty that the independent variables in an experiment caused the effects obtained on the dependent variables. Neil’s use of random assignment and the control he used to ensure that the only difference between the conditions was the manipulated independent variable gives this study a high degree of internal validity. Statistical significance means that the odds that the results were obtained by chance alone are quite low (less than 5 out of 100); but there is no mention made of the results in this example. Experimental realism is the degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously; but in this example, there is no information given about how involving and real the procedures were for the participants. This question similarly offers no information about the sampling used, so there is no way to know whether a representative sample, which is a sample of participants that reflects the characteristics of the population of interest, was used.

15. c. **experimenter expectancy effects.** Experimenter expectancy effects refer to the influence of experimenters’ expectations on participants’ behavior. Margot tried to minimize the chances of these effects by keeping the research assistants unaware of the hypotheses and predictions so that they would be unlikely to have strong expectations that might influence their behavior toward the participants. Keeping the research assistants unaware of the hypotheses and predictions would not help protect the experiment from unethical practices; rather, the use of institutional review boards, informed consent, and debriefing are relevant to ethical considerations. Keeping the research assistants unaware of the hypotheses and predictions is irrelevant to the sampling procedure used (a convenience sample is a sample selected because the participants are readily available), and it is irrelevant to the mundane realism of the experiment (mundane realism is the degree to which the experimental situation resembles places and events that exist in the real world).

16. b. **random sampling.** External validity is the degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations. One way to increase this confidence is to have a sample of participants that is representative of the broader population. How can you get such a sample? One way is to use random sampling, in which every individual in a population has an equal chance of being in the study. Random assignment, in which all participants in an experiment have an equal chance of being assigned to any of the conditions, is essential for establishing cause-and-effect relationships in experiments but does not by itself increase external validity. Behavioral observations, which involve the direct measurement of actions, and self-reports, in which participants disclose their own thoughts, feelings, desires, and behavior, are two methods of measuring variables; neither method necessarily increases external validity.

17. d. **applied research.** The goal of applied research is to increase the understanding of naturally occurring events or to find solutions to practical problems; Elissa’s interest in factors affecting the efficiency of groups of soldiers is consistent with this approach. Elissa may or may not be interested in laboratory research—experiments conducted in a controlled setting such as in a university lab; it is very possible (and rather likely) that she would instead conduct field research—real-world settings outside of the laboratory. In archival research, records of previous behavior rather than on-going actions are studied. There is no evidence that Elissa is interested in using such methods; she clearly is interested, however, in doing experiments. Social cognition is the study of how people perceive, remember, and interpret information about themselves and others; there is no evidence that Elissa is interested in these topics.

18. d. **a meta-analysis.** A meta-analysis is a set of statistical procedures used to review a body of evidence by combining the results of individual studies to measure the overall reliability and strength of particular effects. This is exactly what Greta is interested in doing. Prospective correlational studies involve taking measures at different times from the same individuals (such as
having a group of individuals answer a set of questions on one day and then again five years later), and concurrent correlational studies involve taking measures of a number of individuals at a single point in time. Neither kind of correlational study involves combining the results of previously conducted studies. Interrater reliability refers to the degree to which different observers agree on their observations of the same behavior. Although interrater reliability may be relevant to some of the specific studies that Greta has discovered, it is not relevant to her general interest in combining the results of these studies.

19. a. **conduct a thorough debriefing at the conclusion of each study.** A debriefing is the disclosure made to participants after research procedures are completed in which the researcher explains the purpose of the research, attempts to resolve any negative feelings, and emphasizes the scientific contribution made by their participation. Deceptions are revealed during the debriefing, and the researchers explain the purpose of using deception. Failure to “correct” these deceptions during debriefing would be unethical. Although some people believe that it is unethical or poor science to conduct research that is influenced by the researchers’ own values, others believe that it is impossible to conduct value-free research, and still others believe that researchers should be encouraged to design their research according to their own values. While all are valid positions, there is no clear connection between the use of deception in studies and the role of values in research. Self-reports and behavioral observations are two ways of measuring variables; deception does not raise any issues concerning how best to measure variables. Operational definitions are the specific ways in which researchers manipulate or measure the variables they are studying, and external validity is the degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations; the use of deception in studies is not relevant to these issues.

20. a. **obtain informed consent.** Informed consent is an individual’s deliberate, voluntary decision to participate in research, based on the researcher’s description of what will be required during such participation; Conrad’s actions were taken in order to inform the participants and to obtain their informed consent. These actions would not increase the experiment’s external validity, which is the degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations. Experimenter expectancy effects refer to the influence of experimenters’ expectations on participants’ behavior; Conrad’s actions would not minimize the effects of such expectations (if anything, his actions could increase these effects if his expectations influenced the way he told the participants what the study was about). Finally, Conrad’s actions would not create mundane realism, which is the degree to which the experimental situation resembles places and events that exist in the real world.

21. a. **external validity.** One of the advantages of the cultural approach is that it provides better tests of the external validity of the research that has been conducted in any one setting. By examining whether the results of an experiment generalize to a very different culture, social psychologists can begin to answer questions about the universality or cultural specificity of their research. It is important to keep in mind that when a finding in one culture does not generalize well to another culture, this should be seen not simply as a failure to replicate but also as an opportunity—an opportunity to learn about potentially interesting and important cultural differences, and how and why these differences affect the issue being studied.

22. d. **all of the above are correct.** Most recently, social psychologists have begun opening a window into the live human brain. Social psychologists use brain-imaging technologies to take and combine thousands of images of the brain in action. Two of the most common imaging techniques in social psychology research today are PET (positron emission tomography) and fMRI (functional magnetic resonance imaging) scans. Both types of scanning provide researchers with visual images of activity in parts of the brain while the research subject is thinking, making decisions, and responding to audio or visual stimuli.
23. **a. an attempt to increase understanding of human behavior.** Basic research seeks to increase our understanding of human behavior and is often designed to test a specific hypothesis from a specific theory. Applied research has a different purpose: to make use of social psychology’s theories or methods to enlarge our understanding of naturally occurring events and to contribute to the solution of social problems.

24. **c. an attempt to understand naturally occurring events.** Applied research is an attempt to make use of social psychology’s theories or methods to enlarge our understanding of naturally occurring events and to contribute to the solution of social problems. On the other hand, basic research seeks to increase our understanding of human behavior and is often designed to test a specific hypothesis from a specific theory.

**Answers to Essay Questions: Sample Essays**

25. In order to determine whether the study was an experiment, one would need to know how much control the researcher had over the procedures and how the participants were assigned to the two conditions (i.e., to the hot versus comfortably cool rooms). This study would be an experiment if the researcher had control over the experimental procedures (i.e., if all those who participated in the study were treated in exactly the same manner except for the specific differences the experimenter wanted to create) and if the participants were assigned randomly to the two conditions. External validity is the degree to which one can be reasonably confident that the same results would be obtained for other people and in other situations. Both the participants in the study and the setting of the study have an impact on external validity, so one would need to know information about these two factors. To the extent that the sample of participants used in the study resembles a representative sample, which is a sample that reflects the characteristics of the population of interest, external validity should be higher than if the sample is a convenience sample, which is a sample selected because the participants are readily available. External validity may also be affected by the mundane realism and/or experimental realism of the study. There is a difference of opinion concerning the relative importance of these two types of realism. Mundane realism is the degree to which the experimental situation resembles places and events that exist in the real world, and experimental realism is the degree to which experimental procedures are involving to participants and lead them to behave naturally and spontaneously. To assess either form of realism in this study, one must know more both about the details of the procedure and about how the participants perceived the procedure. If the participants felt that the situation in which they found themselves resembled situations from their everyday lives, the study would be high in mundane realism; if the procedures were very involving to the participants and led them to behave spontaneously, the study would be high in experimental realism. If the study is high in both types of realism, external validity would be increased. If it is low in both, external validity would be decreased.

26. **Self-reports** are the most widely used measurement technique. In self-reports, participants disclose their own thoughts, feelings, desires, and behavior. Self-reports can give researchers direct access to an individual’s beliefs and perceptions. But self-reports are not always accurate and can be misleading. Participants’ concerns with looking good – both to themselves and to others – can bias their responses on self-report measures. The wording or ordering of questions can also affect their responses. For example, the way a question is structured, the “political correctness” of the terms used, and the available response alternatives can all affect participants’ responses. In addition, participants may be unaware of some of their own desires or behaviors, or of the causes of their own actions, and thus give inaccurate responses. Interrater reliability is an important concern with observational measures. In contrast to self-reports, observational measures involve researchers observing people’s actions. Interrater reliability refers to the level of agreement among
multiple observers of the same behavior. The data collected using observational measures can be trusted to the extent that interrater reliability is high.

27. One position is that science should be value free. Adherents of this position argue that science should be totally objective and unbiased. A second position is that science cannot be value free and, thus, political advocacy is appropriate. That is, given that values always influence science, it would be irresponsible of researchers to try to ignore these influences. Instead, scientists should acknowledge the role of values in their work and use their research to help advocate for these values. A third position also acknowledges that science cannot be value free, but this position differs from the second position by advocating methods that try to reduce the biasing influence of these values. By adhering rigorously to the scientific method, scientists can attempt to free themselves of their preconceptions and weaken the influence of their values on their research as much as possible.

28. Social psychologists use more than merely their eyes and ears to observe their subjects. Advances in technology offer researchers exciting new tools that enable them to make extremely precise, subtle, and complex observations that were beyond the methods of social psychologists just a generation ago. Various kinds of apparatus are used to measure physiological responses such as changes in heart rate, levels of hormones, and sexual arousal. Computers are used to record the speed with which participants respond to stimuli, for example how quickly they can identify the race of people in photographs, or the presence of a weapon in the hands of a white or black man. Eye-tracking technology can be used to measure exactly where and for how long participants look at particular parts of a stimulus, such as the face, an advertisement, or a video.