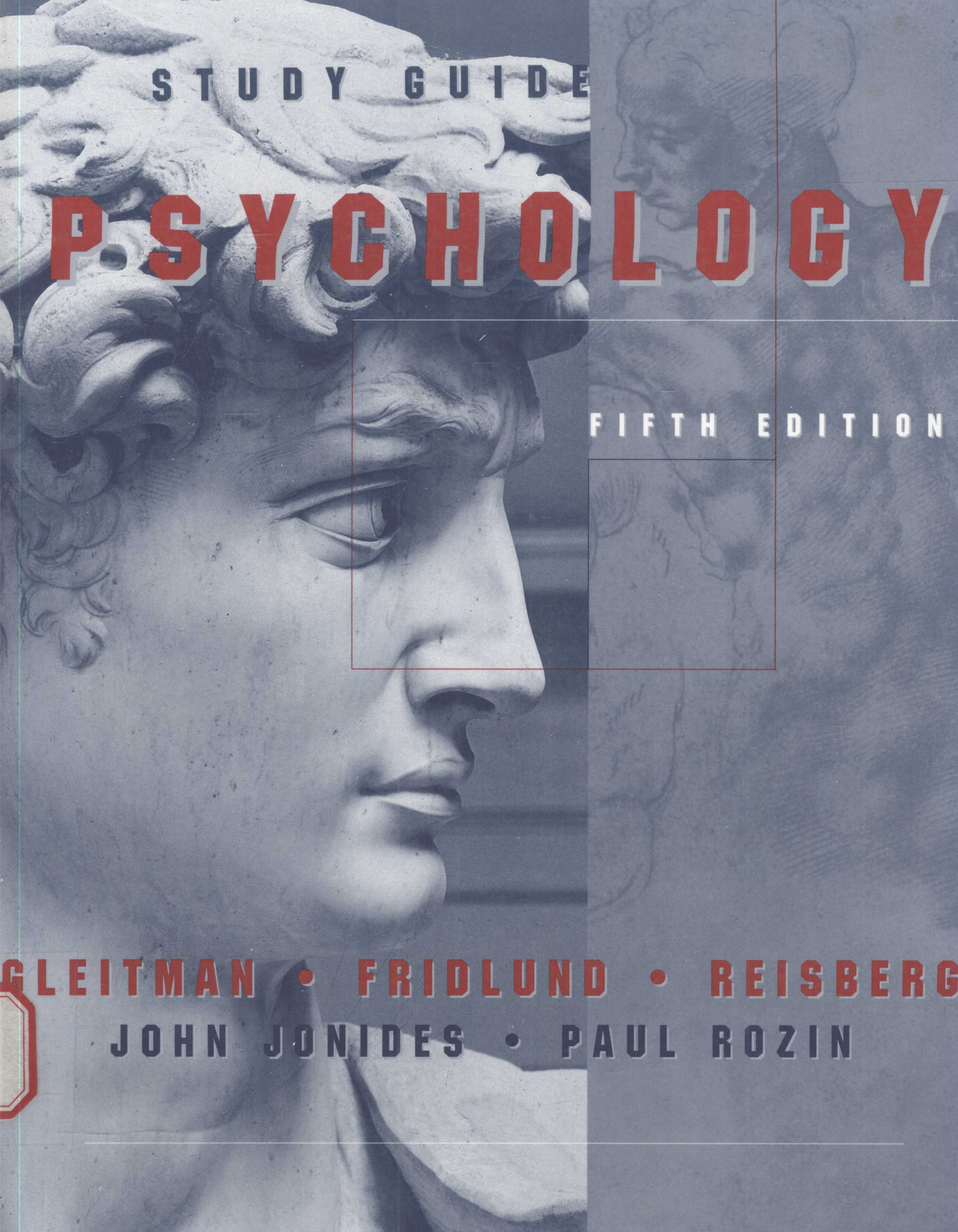

STUDY GUIDE

# PSYCHOLOGY

FIFTH EDITION

GLEITMAN • FRIDLUND • REISBERG

JOHN JONIDES • PAUL ROZIN

# Study Guide

## GLEITMAN, FRIDLUND, REISBERG
# Psychology
## Fifth Edition

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The authors of this guide are listed in alphabetical order on the title page.

# TO THE STUDENT

This study guide is designed to help you to understand and apply the material presented in *Psychology*, Fifth Edition, by Henry Gleitman, Alan Fridlund, and Daniel Reisberg. Each chapter in the study guide corresponds to one in the textbook. There are four sections in each study guide chapter: Learning Objectives, Programmed Exercises, Self Test, and Investigating Psychological Phenomena. The first three sections will help you determine the essential ideas of the chapter, as well as give you experience with possible test questions. The fourth section, Investigating Psychological Phenomena, allows you to extend your knowledge of some issues raised in the text. This section will also give you a feeling for how the data used by psychologists are collected, and how theories are tested in psychology. Let us briefly review the function of each of these sections.

## LEARNING OBJECTIVES

We have provided an outline of the key issues discussed in each chapter. Each entry in the outline refers to a basic fact, theory, or relationship that you should have learned from the chapter. These entries are listed in order of occurrence in the chapter and are arranged under the same headings used in the chapter. It may be useful to read the learning objectives before reading the chapter, as well as after. They will help to orient you to the major issues, or the "big picture," of the chapter.

## PROGRAMMED EXERCISES

For each chapter of the text, we have provided fill-in-the-blank questions. These questions test your basic knowledge of the key words and concepts of the chapter. These questions are very straightforward and can be looked up and verified in the text. So that you will know whether you are correct, the answer has been provided on the right side of the page. Be sure to cover that side of the page with your hand or a piece of paper as you do the exercises.

To facilitate locating the answers in the text, the programmed exercises are also arranged under the major headings of the textbook, and they follow the order of presentation in the text. This allows you to see which fact or theory pertains to which major point of the chapter.

## SELF TEST

For each chapter in the text, we have prepared a self test composed of multiple-choice questions. They also follow the order of the text. In general, these questions are more difficult than the fill-ins, though both types of questions cover the range of materials presented in the text. The multiple choices sometimes highlight subtle distinctions, ask for some amount of integration, or test your ability to apply some of the material in the text.

Since multiple-choice questions are commonly used in examinations, and since they can also be very instructive, we will spend some time in this section discussing how to answer them. We will also describe and illustrate some different types of multiple-choice questions used in this study guide.

First, some basic strategies. Most multiple-choice questions on examinations, and in this study guide, have four or five choices. On most examinations there is a penalty of –1/3 point for wrong answers of four-choice questions, and –1/4 point for wrong answers on five-choice questions. This would mean that wild guessing should net a score of zero. But if you can eliminate even one choice, it pays to guess among the remaining alternatives.

Read each question carefully. Try to understand the *point* of the question. Read through the alternatives. The answer may be obvious to you. If not, try to eliminate some of the choices. You may be able to eliminate choices on the following grounds:

1. The choice is inherently inconsistent, illogical, or actual nonsense (e.g., word salad: a bunch of usually relevant terms combined in a meaningless way).
2. The choice makes sense and may even be true, but it is not an *answer* to the question.
3. On the basis of your knowledge, the choice is just the wrong answer to the question.

Get used to sorting out sense from nonsense and relevant from irrelevant answers. These skills will stand you in good stead in many of your activities outside of this course. Work with the remaining choices (if more than one choice remains), and do the best you can to determine the best fit between the question and the answer.

We will illustrate a number of different types of multiple-choice questions, all represented in this study guide. For each example we will indicate the correct answer and add comments on some of the incorrect choices.

*Straight factual questions*. Many multiple-choice questions simply ask for your knowledge of facts: names, definitions, and basic concepts.

1. The Prime Minister of Great Britain at the end of World War II was:
   a. Neville Chamberlain
   b. Winston Churchill
   c. Harold Wilson
   d. Sir D. Winter
   e. Anthony Eden

Comment: This is a very straightforward question. You know it or you don't. The answer is *b*, Winston Churchill. The other names were selected to make the question somewhat difficult: Three of the other choices were prime ministers of Great Britain at the beginning or after the war, and one, Sir D. Winter, is a fictitious name.

2. The best way to describe inflation is:
   a. increase in the gross national product not accompanied by increased unemployment
   b. a general increase in prices
   c. a decrease in the money supply
   d. a decrease in the value of the monetary system, when associated with a gross national product
   e. another form of recession

Comment: This question is more difficult than 1. This is in part because the choices are more difficult. The correct answer is *b*. Answers *a*, *c*, and *e* are just wrong. Though *a* is consistent with inflation, it does not define it. Item *d* is inherently wrong; that is, it is sort of nonsense. What does it mean to decrease the value of the monetary *system* as opposed to money? And everything is associated with some gross national product. Keep your eyes open for nonsense. There is a lot of it in the world.

*Evaluating evidence for a theory.* In this type of question you are asked to judge whether particular results (real or hypothetical) support a particular theory (or which theory would be supported or opposed by a particular result). The theory and/or results may have been presented in the text, or they may be introduced in the question. The question tests both your knowledge of the materials, and your progress in understanding how to evaluate evidence. This type of question is often formulated in the negative—"Which of the following would be evidence against theory X?"—simply because it is usually easier to come up with results supporting major theories than results opposing them. We will assume, for the next sample question, that you have read in some text or other that Yentzel claimed that the crime rate increases as population mass and density increase. (Yentzel is a fictitious name.)

3. Which of the following would be evidence against Yentzel's theory? (Note: We assume that New York is larger than Philadelphia, which is larger than Tucson.)
   a. Philadelphia has a crime rate higher than Tucson.
   b. A few cities with increasing population also have increasing crime rates.
   c. A few cities with decreasing population have an increase in crime rate.
   d. Philadelphia has a lower crime rate than New York.
   e. The ratio of murder to robberies is lower in New York than in Tucson.

Comment: The correct answer is *c*, because this result is opposite to what would be predicted by Yentzel's theory. Answers *a*, *b*, and *c* are supporting evidence for the theory. Answer *e* is irrelevant: The theory says nothing about the types of crime, and *e* says nothing about the overall crime rate. (Note another clue to the right answer: *b* and *c* are opposites, so it is likely that one is evidence against the theory. However, clever exam writers know about this and sometimes put in opposites that are irrelevant to the question, to keep you on your toes.)

*Extending a principle or theory to a new situation.* This type of question tests your understanding of a principle, theory, or concept by asking you to apply it to a situation other than those presented in the text.

4. If the saying "a stitch in time saves nine" were applied to medicine, one would recommend:
   a. reducing the amount of sewing in surgery
   b. increasing the cost of medical insurance
   c. increasing the frequency of checkups
   d. increasing the number of physicians
   e. making prescription drugs available over the counter

Comments: The correct answer is *c*. To answer the question, one must understand the saying and translate it into medical terms. This translation would be something like: Medical precautions can lead to avoidance of major illnesses. Alternative *a* is irrelevant to the *real* meaning of the saying and simply follows the *literal* meaning. Answer *b* would not lead, in any direct way, to avoidance of illness. But *b* is a sort of correct answer, since one might assume that increasing the cost of medical insurance would lead to increased coverage. The answer says increasing the cost, not the amount of insurance. Answer *c* relates directly to the saying: More checkups should lead to early discovery of illnesses that might prove harmful if allowed to develop. While *d* might well cut down the rate of illnesses, it is not a direct way of arriving at prevention. Lastly, *e* is irrelevant to the issue raised in the saying.

*Relating different ideas or facts, or integrating materials.* This type of question often involves materials from different sections of a chapter, or perhaps from different chapters (we have refrained from the latter, since we don't know the order in which you will be reading the chapters in the book).

5. The President of the United States is related to the electoral college as a U.S. Senator is related to:*
   a. his or her own college faculty
   b. the voters of his or her state
   c. the members of the House of Representatives
   d. the state of his or her electors
   e. the state of his or her voters

Comment: The correct answer is *b*. The electoral college is the group of people who actually elect the president. The voters of a senator's state are the people who elect the senator. Item *a* is totally wrong and simply a play on the word college. Item *c* is factually wrong. Item *d* is wrong and doesn't make too much sense, and item *e* is a reversal of the correct answer and has no relation to the question.

## INVESTIGATING PSYCHOLOGICAL PHENOMENA

For each chapter of the text, we have presented one or two activities or experiments. These activities build upon concepts or theories presented in the chapter and extend and deepen your knowledge and understanding of these concepts or theories.

*This type of relation is often stated as "President of the U.S.: electoral college::U.S. Senator: _____"

The activities give you an opportunity to understand something about the progress of psychology as a science. While the text emphasizes our current understanding of psychology, the activities emphasize the process through which we arrive at this understanding. How is the theory tested? How do psychologists get data to describe basic relations or test theories? How do they analyze the data? We hope to give you a feeling for how progress is made, while at the same time indicating the problems and difficulties associated with the serious study of something as complex as the human mind.

We have attempted to provide you with a variety of activities. Some emphasize the generation or testing of theories, others data collection or analysis. We have tried to cover the major methods of data collection used by psychologists: Among all the activities are included examples of the experiment, the questionnaire, direct observation, and the interview. In many cases we provide data from studies we have done with introductory psychology students as a base for comparison with the data you collect. In each activity in which you collect data, we guide you through some analysis of the data and get you to try to interpret the data and relate it to issues raised in the text. If your instructor wishes to include the activities as part of the course, he or she may ask you to tear out the report (data) sheet pages, and hand them in. These sheets are duplicated at the end of the book in Appendix 3. Otherwise, you may consider these activities as a less formal extension of your education in psychology.

We have tried out all of these activities on undergraduate students like yourselves. We have only included studies that work out for the great majority of students. Of course, with people as variable as they are, all the studies that you do on one of a few students will not show the same results. But we expect that most of you will get most of the predicted results.

Many of the most important phenomena in psychology cannot be included in these activities because they must be measured under controlled conditions, which you could not easily arrange. Some involve expensive equipment, like timers that can time thousandths of a second, or panels of lights and switches. Some important relations are not striking enough to be seen in one or a few participants. We have tried to find, for each chapter, at least one activity that can be appreciated within the limits that you will be working under. We require no equipment other than pencil, paper, some sort of second indicator (stopwatch, digital watch with second indicator, or a watch with a second hand), and materials presented within this study guide. We have limited the time demands on you for any activity to less than one hour. In all but a few cases, we have limited the number of participants to a very few. At the beginning of each activity, we indicate the equipment involved and the time demands it will make on you and the participants.

These activities are designed to be both educational and entertaining. We hope that you find that they meet these goals.

# CONTENTS

CHAPTER 1

# Introduction

## Learning Objectives

### THE SCOPE OF PSYCHOLOGY

1. What is psychology?

*Electrically triggered images*

2. What do experiments on electrical stimulation of the brain tell us about the relationship between psychology and physiology?

*Ambiguous sights and sounds*

3. What determines the interpretation of an ambiguous stimulus?

*The perceptual world of infants*

4. How does the study of infants suggest that some abilities may be innate?

*Displays and the evolution of communication*

5. How is social interaction in animals mediated by displays? How do displays differ from one animal to another? Give examples.

*Complex social behavior in humans*

6. How are humans more complex in their social behavior than other animals?

### A SCIENCE OF MANY FACES

7. Discuss the range of phenomena studied by psychologists.

*Dreams as mental experiences*

8. How are private mental experiences, like dreams, studied by psychologists?
9. What does anecdotal evidence tell us about the makeup of dream content?

*Dreams as behavior*

10. What behaviors are indicative of dreams? How are rapid eye movements related to dreaming?
11. How does the EEG help us to study dreaming?

*Dreams as cognition*

12. What is meant by "cognition" and how is it related to dreaming?
13. What factors make for better dream recall?

*Dreams and natural selection*

14. Define the comparative approach and give an example of how it might apply to a behavior characteristic of dreaming.

*Dreams and social behavior*

15. How are dreams social?

*Dreams and culture*

16. How are dreams treated differently by different cultures?

*Dreams and internal conflict*

17. Understand the elements of Freud's theory of dreams.

*Dreams and human development*

18. Trace the development of the concept of a "dream" in children. How do children think of dreams?

*Dreams and individual differences*

19. What evidence tells us that differences in personalities are reflected in dreams?

*Perspectives on psychology*

20. What fields have contributed to the development of psychology? What are psychology's approaches to the study of the individual?

### THE TASK OF PSYCHOLOGY

21. What is, and what is not, the main purpose of psychology? How does it contrast with literature?

## Programmed Exercises

### THE SCOPE OF PSYCHOLOGY

1. Psychology involves not only the study of the mind, but also the study of _____. behavior
2. Electrical stimulation of the brain sometimes results in reports of _____. sensations
3. _____ is an important determinant of how we perceive an ambiguous figure. Context

4. The study of perceptual skills in infants using the visual cliff shows us that some skills are _____ while others are _____. learned, innate (built-in)
5. In animals, social interactions depend largely on _____ forms of communication. innate
6. Many types of animal communication are based on signals called _____. displays
7. The behavior of panicky crowds is determined not only by each individual, but also by individuals' _____ interactions. social (group)

**A SCIENCE OF MANY FACES**

8. According to Aristotle, dreams are mental _____ of events that occurred during the dreamer's waking life. evocations
9. A waking experience is most likely to appear in a dream if the experience was highly _____. emotional
10. The stage of sleep that is characterized by dreaming and rapid movement of the eyes is termed _____ sleep. REM
11. An important tool to study dreaming is the _____, which measures brain activity. EEG or electroencephalogram
12. When different species of animals are surveyed to gain insights about evolutionary change in behavior, this is called the _____ approach. comparative
13. According to Freud, dreams represent the individual's inner _____ between inner urges and societal constraints. conflict
14. Children have a hard time distinguishing _____ from _____ events. subjective, objective
15. _____ people often report dreams that are far more bizarre than those of other people. Schizophrenic

**THE TASK OF PSYCHOLOGY**

16. Psychology, like other sciences, seeks _____ principles to explain its phenomena, rather than concentrating on individual events. general

## Self Test

1. Psychology is the:
   a. science of the mind
   b. science of behavior
   c. both of the above
   d. none of the above
2. When the brain is stimulated electrically:
   a. visual experience may occur
   b. previous memories may be blocked
   c. new memories are blocked
   d. none of the above
3. If we are first shown a picture of a rat and then the ambiguous figure below, we will most likely see:

   a. the man
   b. the rat
   c. the rat or the man, depending on other factors
   d. neither the rat nor the man
4. The visual cliff results suggest that:
   a. perceptual skills are learned
   b. perceptual skills are innate
   c. perceptual skills could be innate
   d. none of the above
5. According to Aristotle, dreams:
   a. are outlets for creative energies
   b. are manifestations of physical discomfort during sleep
   c. are of telepathic origin
   d. are reoccurrences of events in the real world
6. Outside stimuli:
   a. always find their way into dreams
   b. never find their way into dreams
   c. sometimes find their way into dreams
   d. are all that dreams are made of
7. Dreams occur during:
   a. all types of sleep
   b. slow-wave sleep
   c. the end of the night only
   d. REM sleep
8. The comparative approach to the study of dreaming might involve:
   a. studying the EEG patterns of various animals while they are sleeping

b. studying the cycles of REM sleep in various animals
c. comparing humans and monkeys in how often they have slow-wave versus REM sleep during the night
d. all of the above

9. Culture:
a. has influence only on dream content
b. determines only how people interpret dreams
c. influences both dream content and interpretation
d. may or may not influence our dreams at all depending on the particular culture

10. In Freud's view, dreams:
a. are a result of physical discomfort during sleep
b. represent a compromise between biological urges and societal constraints
c. serve as reminders of the events of the day
d. pertain mostly to current events in real life

11. Young children think of dreams as:
a. physical objects
b. a special reality sent from outside
c. purely subjective experiences
d. both a and b

12. The dreams of schizophrenic individuals are often:
a. more sedate than those of others
b. more exciting than those of others
c. more bizarre than those of others
d. not substantially different from those of others

13. Psychology consists of the study of
a. mental experiences
b. cognition
c. social processes
d. all of the above

## Answer Key for Self Test

1. c p. 1
2. a p. 1
3. b p. 2
4. c p. 3
5. d p. 5
6. c p. 5
7. d p. 6
8. d p. 7
9. c p. 8
10. b p. 8
11. a p. 9
12. c p. 10
13. d p. 10

## Investigating Psychological Phenomena

### THE CONSISTENCY OF DREAMS

*Equipment:* None
*Number of participants:* One, yourself
*Time per participant:* Ten or twenty minutes
*Time for experimenter:* Ten to twenty minutes

Although Chapter 1 is meant as a general introduction to psychology, it also provides us with an opportunity to illustrate how a particular phenomenon can be studied scientifically. The text outlines various approaches that have been used to study the phenomenon of dreams. These approaches entail different kinds of experimentation to study dreaming. Let us illustrate one kind of experimental approach that is useful. The technique used in this approach involves collecting ratings or categorizations of various stimuli. Here are the specifics:

One of the fundamental issues in dream research concerns the extent to which dreams represent the realization of basic problems, wishes, needs, or areas of concern to the dreamer. Freud's theory of dreams, for example, claims that the content of dreams is determined primarily by these factors. This suggests that the dreams of any one dreamer ought to be identifiably more similar to one another than the dreams of several dreamers. The question then arises: Is there consistency in a dreamer's dreams?

To test this idea, nine dream reports have been transcribed below. These reports were collected from three individuals, with three reports collected per individual. Your task is to select which three dreams were produced by each of the three individuals who were sampled.

There are several criteria that you could use to classify the dreams. One caution: You might think to use the language characteristics, that is, the use of certain consistent phrases, but don't be led astray by such a strategy. Language characteristics would not be appropriate criteria, since the purpose is to assess whether there is evidence of consistency in dream *content*. So you should concentrate on the content of the dreams as a basis for classification.

#### DREAM 1

A girl and I were being chased through a woods. We entered a log cabin. We were hiding when two people came in after us. One of the men who entered was tall with a thick dark beard. He looked like a typical backwoodsman. His assistant, by contrast, was short and fat. I decided to outsmart them. I crawled into a back room and began to make some noise. I stood on a box holding a milk bottle in my hand. The man entered, I hit him over the head several times, but the bottle did not break and he only laughed. The next thing I knew, the man was pointing a two-barrelled shotgun at me. I noticed that the ends of the barrels seemed magnified. He shot me in the lower right stomach. I looked down at the hole, saw the blood, and felt very weak. Then I was driving in my car by some railroad tracks. The wheels of my car became stuck on the tracks; my car would only move backward. I saw a train approaching rapidly and somehow managed to move off the tracks. I watched a huge train go past. My car continued moving in reverse. I had to keep the car moving perfectly straight, which was a very difficult task, and the train only missed me by inches. As I sped backward, I noticed a fence alongside the tracks, I saw a spot where the fence had been pushed down. I got out, picked up my car, and climbed over the fence. As I did this, I noticed two wounds, the one from the shotgun and a similar mark on the other side of my body, I began to look for a girl, not sure if I was looking for the one who had been with me in the cabin. I searched through a series of backyards, hiding behind bushes. I felt guilty about something. I found the girl I was looking for; she helped me attempt an escape. She led me back over to the fence, which was on a hill above the tracks. I started to climb the fence, which resembled a baseball backstop, but I was too weak from my wounds to be successful. The girl climbed on ahead and offered to hold my shirt as I climbed. Suddenly, two men on the railroad tracks below caught my eye. They were shooting at me with a

bow and arrow. I told the girl not to worry; I thought I would be safe because the wind would deflect the arrows. Three or four of the arrows missed, but I was finally hit on my left front pocket. Luckily, the arrow had pierced my wallet instead of going into my leg. (In real life I keep my wallet in another pocket.)

**DREAM 2**

New York was being attacked by Germans. My mother told me not to worry. She told me that the last time the Germans attacked, only three persons who were in a cemetery had been killed. I went to warn my grandmother, who was at my uncle's basement apartment. My aunt was standing outside of the building. She also told me not to worry; she said she would wait outside for me. I walked down two flights of stairs. Strangely, the walls were made of dirt. I saw several of my relatives. Suddenly, I heard a loud noise. Water poured out of one of the walls. My uncle and cousin were covered with dirt. I dug them out just before they would have suffocated. I left with my grandmother. Then, things changed to a cemetery; I saw people walking behind a coffin. I was looking down from an aerial view. (I have had this kind of dream once before, several years ago.)

**DREAM 3**

I was with a group of people in the church I attended as a child. I knew most of the people there. I saw Paul Newman among the group. Guns appeared from somewhere; everyone grabbed one. Two groups formed; shooting started. I watched Newman fight a burly man. It seemed I became Newman—I could hear and feel everything he felt and heard. We threw "ourself" out into the open to try for a clear shot, but had no time to shoot before we were shot by the burly man. We felt the searing pain; I was sure death was imminent. Suddenly, the pain cleared. We shot the burly man, killing him. The fighting ended. We went inside, once again having our own identities. I saw Newman shaking his head, saying that it was only supposed to have been a game.

**DREAM 4**

I was on a highway, walking instead of driving. There were no cars, and everyone was walking, but I felt as if I were in a car. I saw someone I knew; we started talking. I got off at the exit to the beach. I walked up a circular ramp. The end of the ramp resembled a manhole. I had a bathing suit on under my clothes, but I had no towel. I started looking for one. I found two that looked as if they did not belong to anyone, so I took them. A woman approached me while I was lying on the sand. She said they were her towels. I told her I had taken them by mistake; she said she was going to call the police. I stayed; the police never came.

**DREAM 5**

I was in a restaurant or a cafeteria. I picked up some food. I thought it was a dessert and expected it to be sweet and delicious. Instead, I found that it tasted terrible. I thought someone had substituted salt for sugar in the recipe. I felt as though the salty taste grew and grew; I was now alone in a vast, dry wasteland with no relief in sight. (I woke up with the taste of salt still parching my mouth.)

**DREAM 6**

First, I was seated on the top bunk of my bed. I was with some friends. Then I found myself walking around piles of boards. My house had been destroyed—either it had collapsed or burned down—and my belongings were covered with rubble. Then I was outside the house digging a ditch longer than it was deep. Building materials lay nearby. While I dug, I got dirt in my hair. I wanted a hat, so I went to the part of the house where the boards were. After finding a hat, I started out of the rubble. Some of the boards fell out of place; they knocked my father's car, our dog, and a chair over a steep cliff. I did not look over the cliff. I could hear my father's car smash into pieces. Then I saw a large field below the cliff. The dog and the chair also broke into pieces. The pieces began moving end over end to the other side of the field. When they stopped rolling, they were reassembled. I felt very unhappy about all this. I returned to the ditch and saw my father. I told him not to worry as he would soon be getting a company car. Then things changed and I was driving in my convertible with three friends. We had a case of beer with us. The road was covered with snow, although it was only snowing lightly at that moment. We stopped at a house where I walked around to the yard. It was twenty-three minutes to six, and I had to be home at five, but I felt that I could not tell my friends this. I saw my roommate swinging on a pole in the backyard. He said he wanted to swing up onto a window ledge. I offered to help; he refused my offer. Eventually we both got up on the ledge. I looked in through the window. A lady was in the kitchen. By now it was almost six, so I jumped down from the ledge, saying I had to go. I was alone.

**DREAM 7**

I was in a room I am familiar with but cannot now identify. A girl I work with was also there. The room made me think of Patricia Hearst; perhaps she had lived there. I thought she might be close by. I searched for clues. I wanted to find the clue that would solve the kidnapping case. I found something small lying on the floor; it was thin and cylindrical with screwlike threads at one end. I felt that this might be the clue to the kidnapping that I was looking for, but when I showed it to the girl she said it was something of hers. She took it.

**DREAM 8**

My brother and I were standing on a patio waiting for something. Four or five large jet planes passed the yard. The planes were a few feet above the ground. As my brother went to get a better look, another plane came by and snatched him up. He was strapped into a seat like a baby's car seat. Next, I was inside a house. I was handed a tube about a foot long. The tube was clear; it had white caps at either end. Something was inside—something red and jellylike. It reminded me of lobster. I was shocked when they told me it was my brother. I wanted to let him out of the tube; I

was also afraid of what might happen. The organism was fighting violently; it was my brother. A strange-looking person entered the room then. He said he was my brother. I thought the person was wearing a disguise. I grabbed him; we started to fight. Somehow I was convinced it was my brother. I said, "I hate to do this, but it's for your own good." Next I found myself walking with two friends towards a building. I had books in my hand. I then noticed that all of the lights in the town were off, so that there was no sense in continuing to go where I had intended. I crossed the bridge and left my friends, telling them I was going back for something. I returned to the patio. People were coming towards me. My brother was standing beside me. A group of girls I knew walked out of the building; I then recognized it to be a movie theater. I walked over to one of the girls, who said that she had seen an "awfully strange movie." I was very relieved that everything that had just happened to me was only a movie, and that my brother was safe beside me.

**DREAM 9**

I was going to school in Paris. I did not feel that I was really in Paris, however. I received a letter from a friend. He had just spent two weeks in Lorraine. He thought I should also travel. I decided to go to Geneva.

Write your answers in the spaces below:

Dreamer A _____ _____ _____

Dreamer B _____ _____ _____

Dreamer C _____ _____ _____

After you have made your judgments, check the correct answers on the bottom of this page. How correct were you? Based on your results, what would you conclude about the consistency of people's dreams? What is the implication of these conclusions for a theory of dreams?

**ANSWERS TO DREAM EXPERIMENT**

Dreamer A _____ 8, 6, 1

Dreamer B _____ 9, 4, 2

Dreamer C _____ 7, 5, 3

# PART ONE

# ACTION

CHAPTER 2

# Biological Bases of Behavior

## Learning Objectives

1. Offer two answers to the question: Why should psychologists be interested in the nervous system?

### THE ORGANISM AS A MACHINE

2. Be familiar with Descartes' conception of the reflex, and how, in part, it still forms the basis of animal and human action.

### HOW THE NERVOUS SYSTEM IS STUDIED

3. What is a neuron, and approximately how many are in the human brain?

*Clinical observation*

4. Indicate the advantages and disadvantages of studying the human brain by clinical observations of patients with brain damage.

*Invasive techniques*

5. Describe the advantages and ethical limitations of using invasive techniques to study the human brain.
6. Contrast activation and inactivation techniques for studying brain function, indicating the nature of ablation, lesioning, transection, intracranial recording, intracranial stimulation, and chemical stimulation through cannulas.

*Neuroimaging techniques*

7. Understand the mode of operation of the neuroimaging instruments that reveal brain anatomy: CT (CAT) scan and MRI.
8. Understand how neuroimaging instruments can measure brain activity or function by using EEG, PET scan, and fMRI.
9. Be aware of the advantages and disadvantages of each of the neuroimaging and other techniques for exploring the brain. Evaluate ease of obtaining information, invasiveness, ethical concerns, and type of information (activity, structure) obtained.

### THE ARCHITECTURE OF THE NERVOUS SYSTEM

*The evolution of nervous systems*

10. Describe the tendency toward increasing centralization in the evolution of the nervous system.

*The developing nervous system*

11. Explain how the neural tube develops into the hindbrain, midbrain, and forebrain.

*The major structures of the central nervous system*

12. Describe the basic anatomy of the brain: What functions do the hindbrain, midbrain, and forebrain serve? Indicate the capacities and limitations of animals transected between hindbrain and midbrain (low-decerebrate animal), between midbrain and forebrain (high-decerebrate animal), and between cortex and the rest of the forebrain.
13. Describe the subcortical structures in the forebrain, and their function.

*The central nervous system's connections with the body*

14. Be able to distinguish the peripheral and the central nervous system, and the somatic and autonomic nervous system.

### THE CORTEX

15. Explain the nature and functions of the convolutions of the cortex.
16. Know the structure of the cerebral cortex, including the four lobes.

*Localization of function in the cortex*

17. Explain localization of function, and phrenology as an early, crude attempt to establish it.

*Projection areas*

18. Describe the function of projection areas of the brain, and indicate what determines how much space in these areas is devoted to different parts of the body.
19. What are nonprimary (association) areas?
20. What are apraxia, agnosia, and prosopagnosia?
21. What are the symptoms of the neglect syndrome and the Gerstmann syndrome, and what brain damage causes each?
22. Distinguish fluent and nonfluent aphasias in terms of site of brain damage and type of symptoms.
23. Describe some of the symptoms of prefrontal lobe damage.

### ONE BRAIN OR TWO?

24. Explain the meaning of lateralization, and how the brain organization of left-handers differs from that of right-handers.