

## 3:

## Nature, Nurture, and Human Diversity

## CHAPTER OVERVIEW

Chapter 3 is concerned with the ways in which our biological heritage, or nature, interacts with our individual experiences, or nurture, to shape who we are. After a brief explanation of basic terminology, the chapter explores the fields of behavior genetics, which studies twins and adopted children to weigh genetic and environmental influences on behaviors, and molecular genetics, which focuses on the specific genes that influence behavior. The next section discusses psychology's use of evolutionary principles to answer universal questions about human behavior.

The next two sections of the chapter shift the spotlight to focus on environmental influences on behavior. The impact of parents, the prenatal environment, early experience, peers, and culture on the development of the brain and behavior are each discussed in depth. The final section of the chapter explores how genes and environment interact to shape both the biological and social aspects of our gender. In the end, the message is clear: our genes and our experience together form who we are.

NOTE: Answer guidelines for all Chapter 3 questions begin on page 87.

## CHAPTER REVIEW

First, skim each section, noting headings and boldface items. After you have read the section, review each objective by answering the fill-in and essay-type questions that follow it. As you proceed, evaluate your performance by consulting the answers beginning on page 87. Do not continue with the next section until you understand each answer. If you need to, review or reread the section in the textbook before continuing.

## Introduction (pp. 95–96)

Objective 1: Give examples of differences and of similarities within the human family.

1. Our differences as humans include our \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ and \_\_\_\_\_ backgrounds.
2. Our similarities as human beings include our common \_\_\_\_\_, our shared \_\_\_\_\_ architecture, our ability to use \_\_\_\_\_, and our \_\_\_\_\_ behaviors.
3. A fundamental question in psychology deals with the extent to which we are shaped by our heredity, called our \_\_\_\_\_, and by our life history, called our \_\_\_\_\_.

## Behavior Genetics: Predicting Individual Differences (pp. 96–107)

David Myers at times uses idioms that are unfamiliar to some readers. If you do not know the meaning of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 93–94 for an explanation: *To disentangle the threads of heredity and environment, behavior geneticists often use two sets of tweezers; blue-collar families; stories of startling twin similarity; "Mom may be holding a full house while Dad has a straight flush"; yen; the area of a field is more the result of its length or width; sleuth; Blueprints; two-edged sword.*

Objective 2: Describe the types of questions that interest behavior geneticists.

1. Researchers who specifically study the effects of genes on behavior are called \_\_\_\_\_.
2. The term *environment* refers to every \_\_\_\_\_ influence.

Objective 3: Define *chromosome*, *DNA*, *gene*, and *genome*, and describe their relationships.

3. The master plans for development are stored in the \_\_\_\_\_. In number, each person inherits \_\_\_\_\_ of these structures, \_\_\_\_\_ from each parent. Each is composed of a coiled chain of the molecule \_\_\_\_\_.
4. If chromosomes are the "books" of heredity, the "words" that make each of us a distinctive human being are called \_\_\_\_\_.
5. The complete instructions for making an organism are referred to as the human \_\_\_\_\_. Human traits are influenced by many genes acting together in \_\_\_\_\_.

Objective 4: Explain how identical and fraternal twins differ, and cite ways that behavior geneticists use twin studies to understand the effects of environment and heredity.

6. To study the power and limits of genetic influences on behavior, researchers use \_\_\_\_\_ and \_\_\_\_\_ studies.
7. Twins who developed from a single egg are genetically \_\_\_\_\_. Twins who developed from different fertilized eggs are no more genetically alike than siblings and are called \_\_\_\_\_ twins. In terms of the personality traits of extraversion and neuroticism, identical twins are \_\_\_\_\_ (more/no more) alike than are fraternal twins.
8. Divorce rates are \_\_\_\_\_ (more/no more) similar among identical twins than among fraternal twins.

Identify other dimensions that show strong genetic influences.

9. Through research on identical twins raised apart, psychologists are able to study the influence of the \_\_\_\_\_.

Objective 5: Cite ways that behavior geneticists use adoption studies to understand the effects of environment and heredity.

10. Studies tend to show that the personalities of adopted children \_\_\_\_\_ (do/do not) closely resemble those of their adoptive parents.
11. Adoption studies show that parenting \_\_\_\_\_ (does/does not) matter. For example, adopted children often score \_\_\_\_\_ (higher/lower) than their biological parents on intelligence tests.

Objective 6: Discuss how the relative stability of our temperament illustrates the influence of heredity on development

12. The term that refers to the inborn personality, especially the child's emotional excitability, is \_\_\_\_\_, which \_\_\_\_\_ (does/does not) endure over time.
13. From the first weeks of life, \_\_\_\_\_ babies are more \_\_\_\_\_, and \_\_\_\_\_. In contrast, \_\_\_\_\_ babies are \_\_\_\_\_, and \_\_\_\_\_.
14. Faced with a new or strange situation, high-strung infants become \_\_\_\_\_ (more/less) physiologically aroused than less excitable infants.

**Objective 7:** Discuss heritability's application to individuals and groups, and explain what we mean when we say genes are self-regulating.

15. The proportion of variation in a trait within a group that is attributable to genes is called its \_\_\_\_\_.
16. As environments become more similar, heredity as a source of differences becomes \_\_\_\_\_ (more/less) important.
17. Heritable individual differences \_\_\_\_\_ (imply/need not imply) heritable group differences.
18. For \_\_\_\_\_ phenomena, human differences are nearly always the result of both \_\_\_\_\_ and \_\_\_\_\_ influences.

**Objective 8:** Give an example of a genetically influenced trait that can evoke responses in others, and give another example of an environment that can trigger gene activity.

19. Throughout life, we are the product of the \_\_\_\_\_ of our \_\_\_\_\_ predispositions and our surrounding \_\_\_\_\_.
20. Environments trigger activity in \_\_\_\_\_, and our genetically influenced traits evoke \_\_\_\_\_ in other people. This may explain why \_\_\_\_\_ twins recall greater variations in their early family life than do \_\_\_\_\_ twins.

**Objective 9:** Identify the potential promise and perils of molecular genetics research.

21. The subfield of biology that investigates the specific genes that influence behavior is \_\_\_\_\_.
22. Genetic tests can reveal at-risk populations for specific \_\_\_\_\_.
23. One result of research in this field, genetic screening, allows expectant parents to ascertain, and even choose, the \_\_\_\_\_ of their offspring. Prenatal screening, however, raises many \_\_\_\_\_ issues.

**Evolutionary Psychology: Understanding Human Nature** (pp. 107–113)

If you do not know the meaning of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 94–95 for an explanation: *cash strapped; tight genetic leash; Casual, impulsive sex; sexual come-on; In our ancestral history, females most often sent their genes into the future by pairing wisely, men by pairing widely; stick-around dads over likely cads; mobile gene machines.*

**Objective 10:** Describe the area of psychology that interests evolutionary psychologists.

1. Researchers who study natural selection and the adaptive nature of human behavior are called \_\_\_\_\_.
2. Researchers in this field focus mostly on what makes people so \_\_\_\_\_ (much alike/different from one another).

**Objective 11:** State the principle of natural selection, and point out some possible effects of natural selection in the development of human characteristics.

3. According to the principle of \_\_\_\_\_, traits that contribute to reproduction and survival will be most likely to be passed on to succeeding generations.
  4. Genetic \_\_\_\_\_ are random errors in genetic replication that are the source of all genetic \_\_\_\_\_.
  5. Genetic constraints on human behavior are generally \_\_\_\_\_ (tighter/looser) than those on animal behavior. The human species' ability to \_\_\_\_\_ and to \_\_\_\_\_ in responding to different \_\_\_\_\_ contributes to our \_\_\_\_\_, defined as our ability to \_\_\_\_\_ and \_\_\_\_\_.
- Because of our genetic legacy, we love the tastes of sweets and \_\_\_\_\_, which we tend to \_\_\_\_\_, even though famine is unlikely in industrialized societies.

**Objective 12:** Identify some gender differences in sexuality.

6. The characteristics by which people define *male* and *female* constitute \_\_\_\_\_. These characteristics are subject to \_\_\_\_\_ and \_\_\_\_\_ influences.
7. Compared to females, males are \_\_\_\_\_ (equally/more/less) likely to engage in casual, impulsive sex, and they are \_\_\_\_\_ (equally/more/less) likely to initiate sexual activity. This is an example of a \_\_\_\_\_ difference.
8. Men have a \_\_\_\_\_ (higher/lower) threshold for perceiving a woman's friendliness as a sexual come-on. This helps explain men's greater sexual \_\_\_\_\_.

**Objective 13:** Describe evolutionary explanations for gender differences in sexuality.

9. The \_\_\_\_\_ explanation of gender differences in attitudes toward sex is based on differences in the optimal strategy by which women and men pass on their \_\_\_\_\_. According to this view, males and females \_\_\_\_\_ (are/are not) selected for different patterns of sexuality.
10. Cross-cultural research reveals that men judge women as more attractive if they have a \_\_\_\_\_ appearance, whereas women judge men who appear \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ as more attractive.

**Objective 14:** Summarize the criticisms of evolutionary explanations of human behaviors, and describe the evolutionary psychologists' responses to these criticisms.

11. Critics of the evolutionary explanation of the gender sexuality difference argue that it often works \_\_\_\_\_ (forward/backward) to propose a \_\_\_\_\_ explanation.
12. Another critique is that gender differences in sexuality vary with \_\_\_\_\_ expectations and social and family structures.

13. Gender differences in mate preferences are largest in cultures characterized by greater gender \_\_\_\_\_ (equality/inequality).
14. Evolutionary psychologists counter the criticisms by noting that the sexes, having faced similar adaptive problems, are more \_\_\_\_\_ (alike/different) than they are \_\_\_\_\_ (alike/different). They also note that evolutionary principles offer testable \_\_\_\_\_.

**Parents and Peers** (pp. 114–118)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 95 for an explanation: *while the excess connections are still on call; pathways through a forest; shuffle their gene decks; as a potter molds clay; vapors of a toxic climate are seeping into a child's life.*

**Objective 15:** Describe some of the conditions that can affect development before birth.

1. Environmental influences begin during the period of \_\_\_\_\_ development.
2. Even identical twins may differ in this respect, because they may or may not share the same \_\_\_\_\_.
3. Compared with same-placenta identical twins, twins who develop with different placentas are less similar in their \_\_\_\_\_ traits.

**Objective 16:** Describe how experience can modify the brain.

4. Rosenzweig and Krech discovered that rats raised from a young age in enriched environments had \_\_\_\_\_ (thicker/thinner) cortexes than animals raised in isolation.

Describe the effects of sensory stimulation on neural development.

- Experience shapes the brain by preserving activated \_\_\_\_\_ connections and allowing unused connections to \_\_\_\_\_. This process, called \_\_\_\_\_, results in a massive loss of unused connections by \_\_\_\_\_.

**Objective 17:** Explain why we should be careful about attributing children's successes and failures to their parents' influence.

- The idea that parents shape their children's futures came from \_\_\_\_\_ and \_\_\_\_\_.
- Parents do influence some areas of their children's lives, such as their \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- In areas such as \_\_\_\_\_, the environment siblings share at home accounts for less than \_\_\_\_\_ percent of their differences.

**Objective 18:** Evaluate the importance of peer influence on development.

- Experiences with \_\_\_\_\_ have a powerful effect on how children develop, partly as a result of a "\_\_\_\_\_ effect" by which kids seek out others with similar attitudes and interests.
- A group of parents can influence the \_\_\_\_\_ that shapes the peer group through what Judith Harris calls \_\_\_\_\_ effects.

**Cultural Influences** (pp. 119-126)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 95-96 for an explanation: *cerebral hard drive*; ... *cultural software*; *norms grease the social machinery*; *cultures collide*; *standoffish*.

**Objective 19:** Discuss the survival benefits of culture.

- The enduring behaviors, ideas, attitudes, and traditions of a group of people and transmitted from

one generation to the next defines the group's \_\_\_\_\_.

- One landmark of human culture is the preservation of \_\_\_\_\_, which is derived from our mastery of \_\_\_\_\_, so that we can pass it on to future generations.

**Objective 20:** Describe some ways that cultures differ.

- All cultural groups evolve their own rules for expected behavior, called \_\_\_\_\_.
- One such rule involves the buffer zone that people maintain around their bodies, called \_\_\_\_\_.

Identify several cultural differences in personal space, expressiveness, and pace of life.

**Objective 21:** Explain why changes in the human gene pool cannot account for culture change over time.

- Cultures change \_\_\_\_\_ (slowly/rapidly).
- Many changes in Western culture have been driven by the discovery of new forms of \_\_\_\_\_.
- The speed at which culture changes is much \_\_\_\_\_ (faster/slower) than the pace of evolutionary changes in the human \_\_\_\_\_.

**Objective 22:** Identify some ways a primarily individualist culture differs from a primarily collectivist culture, and compare their effects on personal identity.

- Cultures based on \_\_\_\_\_ value personal \_\_\_\_\_ and individual \_\_\_\_\_. Examples of such cultures occur in the \_\_\_\_\_.

\_\_\_\_\_, and \_\_\_\_\_.

- In contrast, cultures based on \_\_\_\_\_ value \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. Examples of such cultures occur in parts of \_\_\_\_\_ and \_\_\_\_\_.

- Whereas people in \_\_\_\_\_ cultures value freedom, they suffer more \_\_\_\_\_, divorce, and \_\_\_\_\_-related disease.

**Objective 23:** Describe some ways that child-rearing differs in individualist and collectivist cultures.

- Whereas most Western parents place more emphasis on \_\_\_\_\_ (emotional closeness/independence) in their children, many Asian and African parents focus on cultivating \_\_\_\_\_ (emotional closeness/independence).
- Children in collectivist cultures grow up with a strong sense of \_\_\_\_\_.

**Objective 24:** Describe some ways that humans are similar, despite their cultural differences.

- In general, differences between groups are \_\_\_\_\_ (smaller/larger) than person-to-person differences within groups.

**Gender Development** (pp. 126-134)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 96 for an explanation: *surface early*; *throws a master switch*; *"tomboyish"*; *initiate dates*; ... *pick up the check*; *With the flick of an apron*.

**Objective 25:** Identify some biological and psychological differences between males and females.

- Among your \_\_\_\_\_ (how many?) chromosomes, \_\_\_\_\_ (how many?) are unisex.

- Compared to the average man, an average woman has more \_\_\_\_\_, less \_\_\_\_\_, and is a few inches \_\_\_\_\_ . Women are more likely than men to suffer from \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

- Compared to women, men are more likely to commit \_\_\_\_\_ and to suffer \_\_\_\_\_ . They are also more likely to be diagnosed with \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

**Objective 26:** Summarize the gender gap in aggression.

- Aggression is defined as \_\_\_\_\_ or \_\_\_\_\_ behavior that is \_\_\_\_\_ to hurt someone.
- Throughout the world, men are more likely than women to engage in \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- The aggression gender gap pertains to \_\_\_\_\_ rather than \_\_\_\_\_ aggression.

**Objective 27:** Describe some gender differences in social power.

- Compared to women, men are perceived as being more \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. As leaders, they tend to be more \_\_\_\_\_, while women are more \_\_\_\_\_.
- Compared to men, women are perceived as being more \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- These perceived differences occur \_\_\_\_\_ (throughout the world/only in certain cultures).

**Objective 31:** Describe the biopsychosocial approach to development.

1. As \_\_\_\_\_ becomes more and more irrelevant to power and status, gender roles are \_\_\_\_\_ (converging/ diverging).
2. We are the product of both \_\_\_\_\_ and \_\_\_\_\_, but we are also a system that is \_\_\_\_\_.
3. The principle that we should prefer the simplest of competing explanations for a phenomenon is called \_\_\_\_\_.