

# 10. Intelligence

## Objectives

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- Define intelligence and summarize the history of intelligence testing
- Name and discuss the major issues surrounding IQ testing
- Explain the ways in which heredity and environment affect intelligence
- Explain the two major approaches to understanding intelligence
- Define giftedness, creativity, and mental retardation

## Vocabulary

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|---------------------|------------------------|----------------------------|--------------------|
| convergent thinking | <b>G</b>               | intelligence               | psychometrics      |
| creativity          | genetic inheritability | intelligence quotient (IQ) | reliable           |
| cultural bias       | giftedness             | mental age                 | savants            |
| divergent thinking  | group test             | mentally retarded          | shared environment |
| factor analysis     | individual test        | nonshared environment      | valid              |

## Background

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Most students feel great pressure to achieve academically and to demonstrate their intelligence through standardized tests. Their lives and futures are profoundly affected by the concept of intelligence and by issues surrounding intelligence testing. Though psychologists disagree about its definition, the chapter defines intelligence as “the ability to learn and to adapt to the environment.” Students learn that some psychologists believe that there is one measurable, general intelligence and that some believe that there are multiple intelligences.

Students begin their study of intelligence by reviewing various definitions of intelligence and surveying the origins and history of intelligence testing. They examine common intelligence tests, including the Stanford-Binet Intelligence Scale, the Wechsler Scale, and group tests.

Next, students review issues and questions related to testing: the factors that make a good test, the meaning of test scores, and the possibility of bias in testing.

Where does intelligence come from? Students learn that heredity and environment both affect intelligence.

They discover what psychologists have learned about influences of heredity and environment, including reviews of twin studies and recent research. Students can use this information to evaluate their own heredity and environmental influences.

One of the chapter’s key issues is of great interest to students. Is there one measurable intelligence or are there multiple intelligences? Students find out that psychologists disagree on this issue. The chapter reviews multiple intelligence theories as proposed by several psychologists, with special attention to Howard Gardner’s eight types of intelligence and Sternberg’s triarchic theory of intelligence. Students find ample material for discussion and reflection here.

The chapter closes with a discussion of the diversity of mental ability—giftedness, creativity, and mental retardation.

### Further Resources

- Gardner, Howard. *Multiple Intelligences: The Theory in Practice*. New York: Basic Books, 1993.
- Howard, Robert. *All About Intelligence: Human, Animal, and Artificial*. Australia: New South Wales University Press, 1991.

## For Discussion

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### Review

1. Into what two groups do psychologists who measure intelligence fall?
2. What are the criteria for a good psychological test?
3. Why are twin studies important in researching causes of intelligence?
4. What is the factor that Charles Spearman called “G”?

### Critical Thinking

1. What kinds of environmental influences—shared and nonshared—do you think can improve a person’s intelligence?
2. Why do you think that psychologists disagree about what intelligence is?
3. Of Gardner’s eight intelligences, which do you think are most valued in today’s society?
4. Of Gardner’s eight intelligences, which do you think are least valued in today’s society?
5. To what degree do you think that high scores on tests such as the SATs are predictors of success?

## Activities

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### 1. A Debate on IQ Testing

Organize a class debate about the issue discussed in the Critical Thinking feature: are IQ tests useful tools or should they be discarded?

### 2. Interviews: “What Is Intelligence?”

Have students interview students, teachers, and administrators at your school regarding their definitions of intelligence. List results on the board.

### 3. Internet: Test Preparation Resources

Have students explore the Internet to find resources that can assist them in preparing for standardized tests such as the SATs. Have them print pages from useful sites and report their findings to the class.

### 4. Special Sources: Psychological Journals

Have students review psychological journals and magazines to find current articles on intelligence and testing. Have them write short summaries of any interesting findings.

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As you read Chapter 10, write an answer to each question below.

1. What are some of the ways in which psychologists have defined intelligence?

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2. In your view, how important to success in life are creativity, wisdom, practical sense, and sensitivity—things not measured by traditional intelligence tests?

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3. What are some of the types of multiple intelligences identified by theorists? Which of these theories do you find most accurate and why?

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4. How would you define giftedness?

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5. Do you think that scores on standardized tests should be taken as a measure of a person's intelligence? Why or why not?

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Name \_\_\_\_\_

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Find the best answer for each item. Then circle that answer.

1. What makes a test valid?
  - a. correlates with other tests
  - b. has a psychologist present
  - c. measures what it should be measuring
  - d. yields similar results if repeated
2. What is a condition of having an IQ below 70–75 and significant limitation in daily life skills?
  - a. savants
  - b. giftedness
  - c. mental retardation
  - d. divergent thinkers
3. What is the term for high intelligence and high performance in visual and performing arts, creativity, leadership, and physical dexterity?
  - a. alienation
  - b. giftedness
  - c. creativity
  - d. psychometrics
4. What is the term for a person with an IQ below 70 with extraordinary abilities in one area of competence?
  - a. mentally retarded
  - b. trainable
  - c. gifted
  - d. savants
5. What is divergent thinking?
  - a. a term for family arguments
  - b. thought process that leads to one logical choice
  - c. thought process that results in many original or different solutions or ideas
  - d. favoring one cultural group
6. What is the term for a thought process that leads to one logical choice from among several?
  - a. convergent thinking
  - b. divergent thinking
  - c. group testing
  - d. shared environment
7. What is intelligence?
  - a. ability to learn and to adapt to the environment
  - b. high physical dexterity
  - c. ability to develop original ideas
  - d. problem solving ability
8. What is the one measurable factor of general intelligence that is shared by all mental processes?
  - a. savants
  - b. shared environment
  - c. convergent thinking
  - d. G
9. What is cultural bias?
  - a. favoring one culture group over others
  - b. racial prejudice
  - c. using only one language on a test
  - d. retesting several times to establish validity
10. What is the ability to develop original ideas or products that are valued and useful?
  - a. savants
  - b. reliability
  - c. brainstorming
  - d. creativity

Name \_\_\_\_\_

## 10. Intelligence

Read each description, and write the letter of the correct term on the line.

1. The two standard intelligence tests against which any new tests are compared are \_\_\_\_\_.
  - a. Stern and Galton
  - b. Stanford-Binet and Galton
  - c. Stanford-Binet and Wechsler
  - d. Wechsler and the SAT
2. The field of psychology that measures psychological characteristics, such as intelligence, is \_\_\_\_\_.
  - a. genetics
  - b. psychometrics
  - c. psychoanalysis
  - d. sociology
3. The first person to develop an intelligence test was \_\_\_\_\_.
  - a. Charles Darwin
  - b. Sir Frances Galton
  - c. William Stern
  - d. Alfred Binet
4. Studies of identical twins who are raised apart have shown that \_\_\_\_\_ in determining intelligence.
  - a. environment is more important than heredity
  - b. heredity is more important than environment
  - c. heredity and environment are equally important
  - d. a shared environment is important
5. Mental retardation can be caused by \_\_\_\_\_.
  - a. abnormal genes
  - b. a pregnant mother's use of alcohol or drugs
  - c. premature birth, disease, or head injury
  - d. all of the above
6. J. P. Guilford argued that traditional intelligence testing measures only \_\_\_\_\_.
  - a. read-only memory
  - b. divergent thinking
  - c. convergent thinking
  - d. creativity
7. The psychometric view of intelligence holds that \_\_\_\_\_.
  - a. environment determines intelligence more than heredity does
  - b. intelligence is more than a test score
  - c. intelligence can be defined by variations in test scores
  - d. intelligence can be determined by measuring people's heads
8. IQ tests are criticized for \_\_\_\_\_.
  - a. being culturally biased
  - b. yielding unreliable test scores
  - c. measuring heredity intelligence only
  - d. failing to measure verbal ability
9. According to some, group tests such as the SATs are limited because they \_\_\_\_\_.
  - a. fail to yield reliable data
  - b. test only multiple intelligences
  - c. test verbal skills rather than performance skills
  - d. fail to test short-term memory
10. Creative people usually have \_\_\_\_\_.
  - a. sensitivity
  - b. self-reliance and childlike behavior
  - c. rebellion against their culture
  - d. all of the above

### Essay Question

What do you think that you can do to help develop your own intelligence?