



# Module 11: Emotion

## OVERVIEW

### Sections

- Theories of Emotion
- Fear: A Closer Look
- The Expression of Emotion

### Learning goals

Students will be able to:

- 1** List the three ingredients of emotion, and explain how they apply to emotional experiences.
- 2** Explain how the historical approaches to emotion differ from the modern theories of emotion.
- 3** Describe the physiological changes that occur during a fear reaction, and identify the parts of the nervous system involved in the changes.
- 4** Explain how gender and culture affect the ability to express and interpret nonverbal communications of emotion.

### Vocabulary

#### Previewing Key Terms and Key People:

emotions

James-Lange theory

Cannon-Bard theory

two-factor theory

autonomic nervous system

display rules

William James  
(1842–1910)

Carl Lange (1834–1900)

Walter Cannon  
(1871–1943)

Stanley Schachter  
(1922–1997)

Robert Zajonc (1923–)

Richard Lazarus (1922–)



**Did you make it?** The student on the left saw her name on the National Honor Society list. The two students on the right did not. All are experiencing emotion.

Every school year, I see lists of names posted by the theater, band room, athletic office, and other locations around the school. Have you ever searched a list looking for your name? The cast list for a play? Honor roll? An election? Chair placements in the band? Did your name appear where you'd hoped—or where you'd feared? Perhaps it was left off altogether.

Having posted a few lists myself for student council elections, I have witnessed students jumping and screaming with happiness, excitement, and surprise. I've seen others, clearly disappointed and with tears in their eyes, force a smile and walk bravely away. Still others did little to disguise their anger.

The **emotions** these students were having were full-body responses, involving physical arousal, expressive behaviors, and conscious experiences. Let's see how this might work. Imagine that you and a good friend check the National Honor Society list to see whether either of you has been chosen. A smile breaks across your friend's face as she sees her name. She pumps her fist above her head and gives a little whoop of joy. Then, checking the list again, she notices your name is missing. Reining in her emotions, she starts providing explanations, such as, "I was lucky to have made it," or "Maybe your name was left off by mistake." Her shift from personal happiness to shared sadness with you contains the three ingredients of emotion:

- *Physiological activation*—Increased heart rate as she reads the good news, decreased heart rate as she consoles you.
- *Expressive behaviors*—Smiling and pumping her fist after seeing her name, losing the smile and putting an arm around your shoulder when she notices your name is missing.
- *Conscious experience*—Interpreting what it means to be a member, understanding what it means to you to be left out.

#### **emotions**

Whole-organism responses, involving physiological arousal, expressive behaviors, and conscious experience.



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"I don't sing because I am happy. I am happy because I sing."

**Which Comes First?** Is it the physiological arousal or the emotional experience? This issue has been widely debated in psychology.

Compared with other species, from dolphins to deer to ducks, humans appear to be the most emotional (Hebb, 1980). This rich source of human behavior has intrigued psychologists for more than a century and has sparked some emotional debates. Those debates revolve around two controversies, both addressing the order in which each ingredient is stirred into the recipe for emotions:

1. Which comes first, physiological arousal or the subjective experience of an emotion? Do you feel happy because your heart is pounding, or is your heart pounding because you feel happy?
2. Can we react emotionally before appraising a situation, or does thinking always precede emotion? Did you feel joy at seeing your name on the list before you thought about what that meant, or did you interpret the situation and then feel joy?

To answer these questions, psychologists have been proposing theories and designing experiments to test them for more than 100 years.

## Theories of Emotion

**THINKING CRITICALLY** How do physiological arousal and thoughts combine to produce what we experience as emotion?

As is often the case when several perspectives exist on a given topic, the theories of emotion are complementary: Each theory of emotion provides some insight into why or how we experience emotions.

### Historical Approaches

Ask the person with the locker next to yours why she is smiling, and she might say, "Because I'm happy." Why did you slam your locker door? "Because I'm angry." Why are you trembling? "Because I'm afraid." Common sense explains any of these emotions as a result of a *stimulus*. For instance, a fire alarm might lead to a conscious feeling (fear) and a physiological response (shaking, increased heart rate). In other words, using fear as the example, the fire alarm sounds, you experience fear, and your heart starts to race. Early theories on emotion do not agree with this commonsense approach.



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The Royal Library, Denmark

**William James (left) and Carl Lange (right)** For these two, awareness of the physiological response was the key to emotion.

In the 1890s, psychologist **William James** and physiologist **Carl Lange** both proposed theories that challenged the commonsense sequence of emotions. The **James-Lange theory** says that we experience emotion because we are aware of our bodily response to an emotion-producing stimulus. So the fire alarm sounds, you start shaking, you become aware of the shaking, and then you label this reaction as fear.

**Walter Cannon** (James' son-in-law) disagreed with the James-Lange view of emotion. Cannon (1929) noted that the heart races whether we're frightened, angry, or exhilarated. How, then, can the same physiological reaction trigger such different emotional interpretations? And how do we explain circumstances where we have such reactions without any emotion-provoking stimuli? Peeling onions, for example, produces the bodily response usually associated with sadness, but peeling onions does not cause sadness. The **Cannon-Bard theory** of emotion proposed that an emotion-arousing stimulus *simultaneously triggers* physiological responses and the subjective experience of emotions (Bard, 1934).

Each of these older psychophysiological theories helps us understand emotion. We do feel emotions, to some degree, by observing changes in our bodies, as the James-Lange theory maintains. But the Cannon-Bard theory was also correct in asserting the important role that the brain and the nervous system play in our conscious feelings (see Figure 11.1 on page 206). Modern psychophysiological explanations tie the importance of hormone levels to emotions. Higher levels of testosterone, for example, are linked to aggression. But does aggression cause testosterone levels to increase, do higher levels of testosterone

**William James (1842–1910)**

American psychologist who believed our awareness of physiological responses leads to our experience of emotion (see *James-Lange theory*).

**Carl Lange (1834–1900)**

Danish physiologist who proposed a theory of emotion similar to, and about the same time, as James' theory that awareness of physiological responses leads to experiences of emotion (see *James-Lange theory*).

**James-Lange theory**

The theory that we experience emotion because we are aware of our bodily response to an emotion-arousing stimulus.

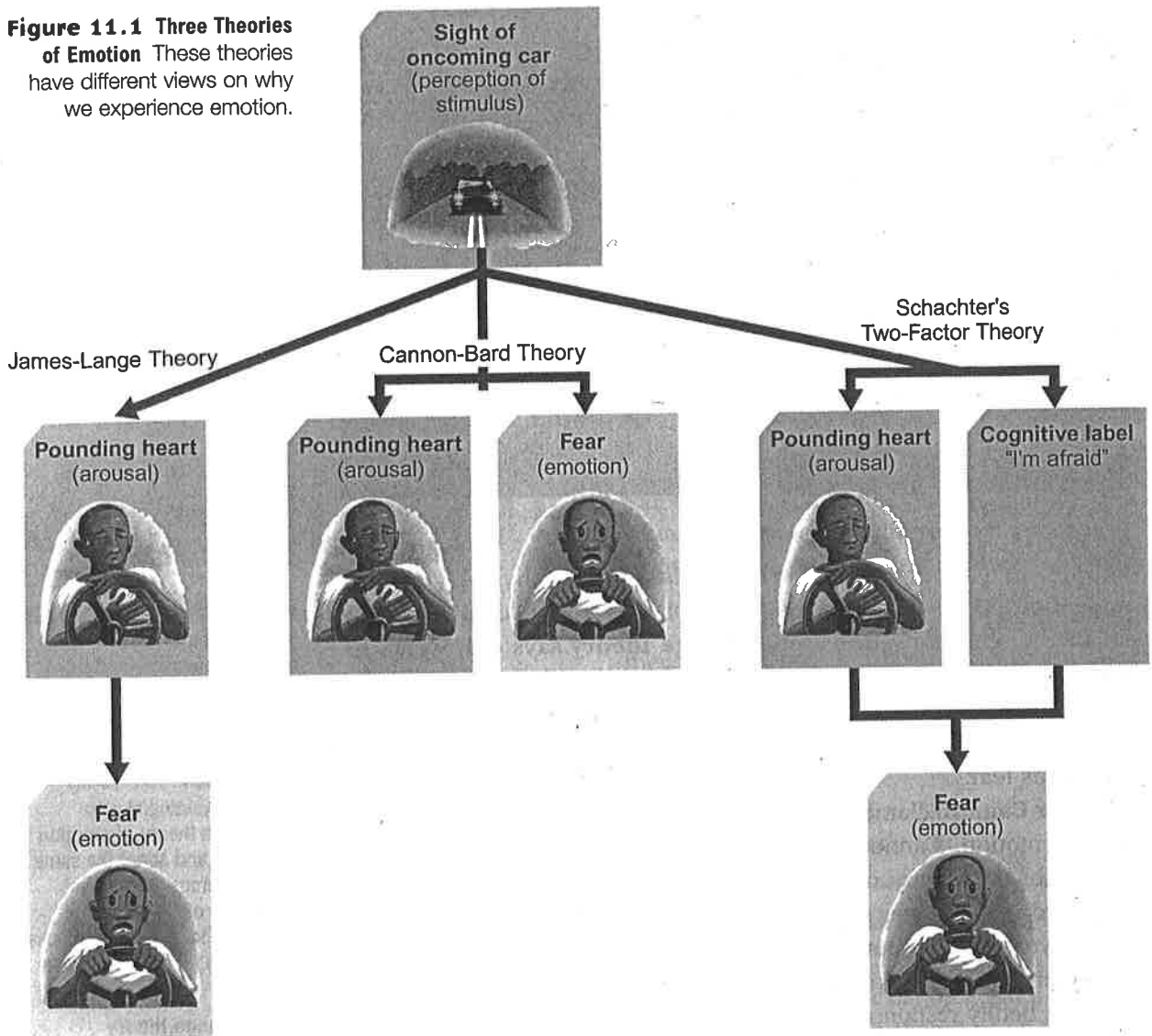
**Walter Cannon (1871–1943)**

American physiologist who, with Bard, concluded that physiological arousal and emotional experience occur simultaneously (see *Cannon-Bard theory*).

**Cannon-Bard theory**

The theory that an emotion-arousing stimulus simultaneously triggers physiological responses, and the subjective experience of emotion.

**Figure 11.1 Three Theories of Emotion** These theories have different views on why we experience emotion.



cause aggression, or does some third factor cause both of them? To answer such questions, psychologists have examined the way our thoughts influence our emotions.

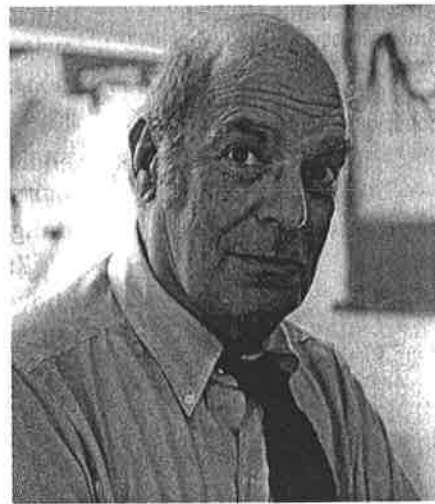
### Cognition and Emotion

Which comes first—our thoughts about a situation (our *cognitive appraisal*) or our experience of the emotion? This chicken-and-egg dilemma characterizes the second of the two controversies in the study of emotion. Let's look at some contemporary cognitive approaches to emotion: the two-factor theory and two different theories that attempt to explain the sequence of events in emotions.

**Stanley Schachter** (SHACK-ter) and Jerome Singer (1962) developed one of the leading cognitive theories of emotion. Their **two-factor theory** of emotions proposes that to experience emotion we must be physically aroused and cognitively identify the arousal. The first factor, *physiological arousal*, can be brought about by anything from a loud stimulus to a drug. The second factor is a *cognitive label* of the physiological arousal. The bottom line to this theory is that we distinguish emotions by how we label the arousal we feel. If you're aroused and you believe the appropriate emotion is fear, then you'll feel afraid. If you think anger is the appropriate emotion, then you'll instead explain your arousal as anger. According to two-factor theorists, our physical experiences of emotions are so similar that we must cognitively appraise and label our reactions to experience an emotion.

Do all cognitive psychologists agree with this viewpoint? Certainly not. **Robert Zajonc** (ZI-yence) (1984) argues that emotion and cognition are separate. Zajonc also suggests that our interpretations of situations are sometimes slower than our emotional reactions. In other words, before we know what we think about a situation, we know how we feel about it.

Complex research supports Zajonc's argument. We have pathways in our brain that carry or transmit messages from one part of our nervous system to another. Certain pathways skip the cortical (thinking) parts of the brain and take a more direct path to the amygdala, an emotion control center in the brain (see Figure 11.2). Some researchers, such as Joseph LeDoux and Jorge Armony (1999), believe these shortcuts explain why our feelings are more likely to control our thoughts than



Courtesy of Columbia University, Office of Public Affairs

**Stanley Schachter** Emotion requires a cognitive label.

**Stanley Schachter (1922–1997)**

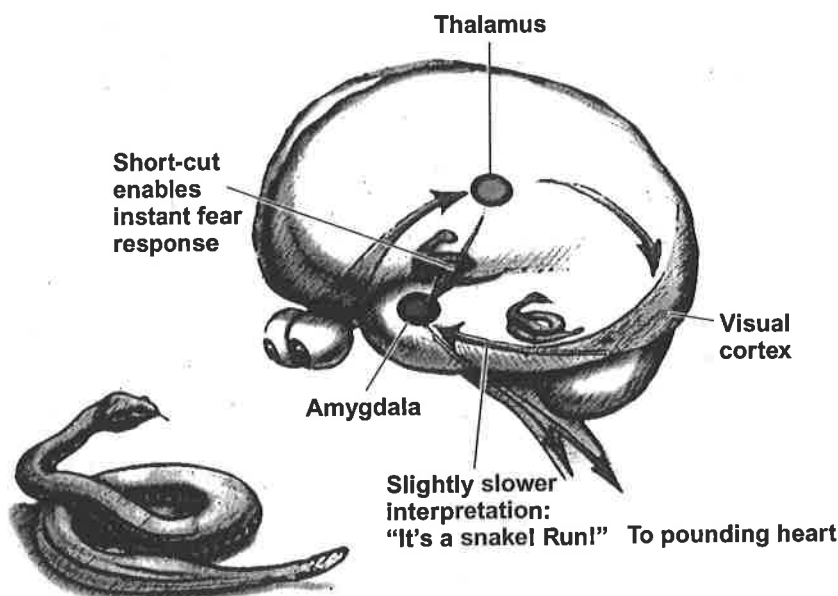
American psychologist who, with Jerome Singer, concluded that emotion requires a cognitive label of physiological arousal (see *two-factor theory*).

**two-factor theory**

The theory that to experience emotion we must be physically aroused and must cognitively label the arousal.

**Robert Zajonc (1923–)**

American psychologist who concluded that some emotional reactions involve no deliberate thinking and cognition is not always necessary for emotion.



**Figure 11.2 First Run, Then Think!**

Your brain has shortcuts that allow you to react almost instantly to a frightening situation instead of thinking about what you should do and why you should do it.

**Richard Lazarus (1922–)**  
American psychologist who concluded that some emotional responses do not require conscious thought.

our thoughts are to control our feelings, particularly when we're surprised. For example, imagine that you are raking leaves on a fall afternoon. You hear and see some leaves rustling, and you jump back, not knowing whether the rustling was caused by the wind blowing or by a snake in the grass. After your immediate fear response, the thinking part of your brain takes over, and you take steps to determine whether danger is present ("It's a snake! Run!").

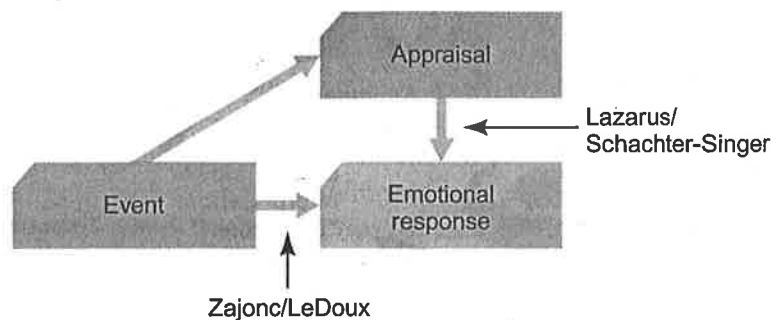
Zajonc believes that emotions are basic to human existence and that they developed before cognition in the history of our species. For these reasons, cognition need not always take place prior to emotion. Of course, not all emotion researchers agree with Zajonc.

**Richard Lazarus (1991, 1998)** does agree that our brains can process information outside of our *conscious* awareness, and that some emotional responses do not require conscious thought. However, Lazarus believes there must be at least a minimal amount of *unconscious* thinking, even for emotions we feel instantaneously. How else would we know what we're reacting to? The initial appraisal of the rustling leaves produces an emotion; in this case fear, and an accompanying jump away, based on a snap assessment that the situation may be harmful. A secondary, conscious appraisal involves deciding what to do after the immediate, initial response.

In brief, Schachter, Singer, and Lazarus would maintain that complex feelings like love or moods like depression are profoundly influenced by expectation, interpretations, and memory. Zajonc and LeDoux's research suggests simple dislikes and likes, as well as fears, need not involve conscious thought (Figure 11.3). Changes in our thinking will likely not affect these latter emotional responses, but thinking positively about our surroundings and ourselves can lead to better health (as we will see in Module 12).

Most of the emotions we face daily are much more complex than a primitive fear of snakes, and they require more complex cognitive appraisals. Being the first one in your family *not* to make the National Honor Society might produce immediate disappointment that, after further analysis, leads to the complex emotion of shame. A note of consolation from a friend who did make it can produce a slow, warming

**Figure 11.3 Two Paths to Emotional Responses** According to Robert Zajonc, some emotional responses are immediate and do not require conscious appraisal. However, our appraisal and labeling of events also determine our emotional responses. Richard Lazarus and Stanley Schachter agree with Zajonc on this last point.



feeling of happiness if you choose to see the effort as heartfelt and if you have a history of warm exchanges with that friend. Our more complex emotions, such as love, happiness, shame, and guilt, are rooted in our conscious interpretations, appraisals, and memories of earlier experiences. *How* we think about the situations also affects these emotions. Thinking positively about situations makes us feel better; thinking negatively makes us feel worse.

Although there are competing theories about our understanding of emotion, there is little debate about how your body reacts to certain emotions, such as fear. It's time to take an in-depth look at what we know about fear.

**THINKING CRITICALLY SUMMARY** *Theories of emotion attempt to explain how physiological arousal and thought combine to produce emotional experiences. Two historical theories of emotion disagreed on the order of these two factors (physiological arousal and thought): The James-Lange theory states that the physiological response precedes the thoughts about the event, and the Cannon-Bard theory says the opposite (thinking precedes the physiological response). The modern theories of emotion—developed by Lazarus, Schachter, Zajonc, and LeDoux—also differ in their explanation of the order of the two factors (physiological arousal and thought). Zajonc and LeDoux emphasize that some emotional responses are immediate and occur before conscious appraisal. Lazarus and Schachter emphasize that our appraisal and labeling of events determines our emotional responses.*

## Fear: A Closer Look

**THINKING CRITICALLY** *What physiological changes occur when we feel frightened?*

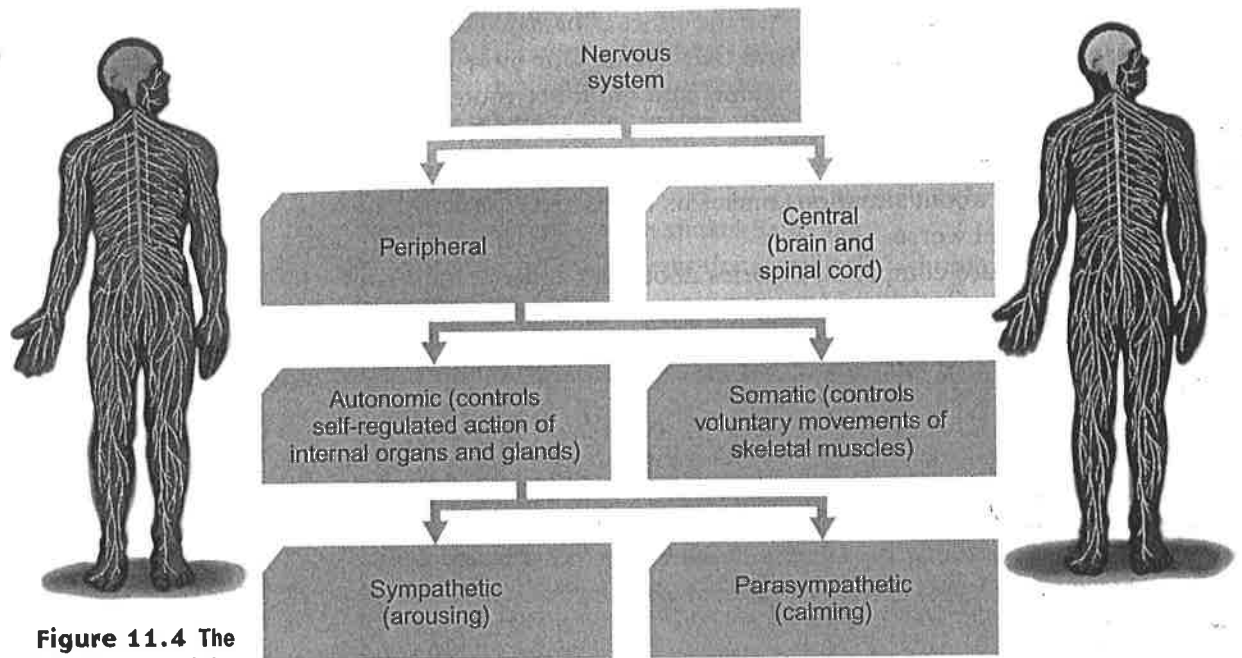
Your body undergoes changes as you experience emotions like fear. Some are obvious: A fire alarm goes off, and your stomach seems to turn inside out, your muscles tense, and your mouth may even go dry. But your body is also busy in other not-so-obvious ways, preparing you for this alarming situation. Your blood is flowing from organs with momentarily nonessential functions and coursing toward other body parts you may need in this emergency. For instance, your digestion slows, but blood flow increases to the muscles you'd need to run away. Your pupils dilate, or increase in size, allowing more light into your eyes and improving your vision. Your liver dumps sugar into your bloodstream for energy, and perspiration appears to cool your churned-up body. All of these involuntary activities underscore your body's incredible and wonderful response to a dangerous situation. Perhaps most wondrous of all, you did not have to think about or consciously activate this system of defenses.

### Sympathetic Nervous System Arousal?



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**Figure 11.4 The Main Divisions of the Human Nervous System**

Autonomic nervous system arousal in response to questions intended to induce emotion is seen by some as a measure of truth.

**Figure 11.5 Autonomic Nervous System and Physiological Arousal** The sympathetic (left) and the parasympathetic (right) branches of the autonomic nervous system work to keep your body in balance. If one branch arouses or activates a system, the other starts to calm or inhibit the same system.



	Sympathetic division (arousing)	Parasympathetic division (calming)
Pupils dilate	EYES	Pupils contract
Decreases	SALIVATION	Increases
Perspires	SKIN	Dries
Increases	RESPIRATION	Decreases
Accelerates	HEART	Slows
Inhibits	DIGESTION	Activates
Secrete stress hormones	ADRENAL GLANDS	Decrease secretion of stress hormones



Your response to dangerous situations is coordinated by a two-pronged arrangement called your **autonomic nervous system**, the part of the nervous system that controls the glands and the muscles of the internal organs. Your autonomic nervous system has two divisions, one that arouses and one that calms (see Figure 11.4). The arousing side, the *sympathetic division*, accelerates your heart rate, increases respiration (breathing level), and increases the secretion of hormones that help prepare your body for “fight or flight.” The calming side, the *parasympathetic division*, slows your breathing, heart rate, and secretion of stress hormones (see Figure 11.5).

Measuring autonomic nervous system responses to questions is sometimes used in a misguided effort to detect whether someone is telling the truth (see "Psychology in the Real World: Detecting Lies," page 212).

**THINKING CRITICALLY SUMMARY** *Our bodies react to fearful situations with the fight-or-flight response: The sympathetic division of our autonomic nervous system causes multiple changes in our physiological state to prepare us to fight enemies or flee them. Our breathing and heart rate increase, specific hormone levels increase, our digestion slows, and our pupils dilate.*

### **autonomic nervous system**

The part of the nervous system that controls the glands and the muscles of the internal organs (such as the heart); its sympathetic division arouses, and its parasympathetic division calms.

## **The Expression of Emotion**

**THINKING CRITICALLY** *How do we communicate our emotions nonverbally?*

Measuring hormone levels and using sophisticated electronic equipment to detect other physiological changes are not the only means of recognizing emotions. We communicate emotions all the time without saying a word.

### **Nonverbal Communication**

Has this ever happened to you? A teacher calls on you to answer a question, and you kind-of-sort-of know the answer. While you stumble your way through your reply, your teacher stops nodding in agreement, turns with arms crossed and brow furrowed, and looks at the floor. Meanwhile, the student next to you shoots his arm up in the air, apparently ready to answer after you're through trying. Both your classmate and the teacher clearly communicated their feelings, even though they said nothing. You knew exactly what they were thinking because they communicated with you *nonverbally*.

Nonverbal communication, or *body language*, is a frequent messenger of our emotions to others. Our facial expressions, tone of voice, and hand gestures often give us away. We tend to look at a person's mouth to detect happiness but at the eyes for anger and fear. When we talk about someone "wearing his heart on his sleeve," we mean that person readily communicates emotions nonverbally. With either a quickly averted glance or an extended gaze, we can communicate everything from submission to dominance, disinterest to intimacy (Kleinke, 1986).

How we communicate and interpret emotions seems to depend on whether we are male or female and on what our culture has taught us about appropriate public behavior.

### **Reading Between the Lines**

Research shows that women are better than men at reading nonverbal emotional cues.



Richard Lund/PhotoDisc, Inc.



## Detecting Lies

TV newscasts and newspaper front pages often carry reports of crime suspects agreeing or refusing to take a polygraph or lie-detecting test. Would you agree to take a lie-detector test if you were wrongly accused of committing a crime? Most of us answer this question with a resounding, "Of course!" After all, if we're not guilty, what do we have to hide, right? Well, it's not quite that simple. Careful review of the research on polygraphs may cause you to rethink your answer.

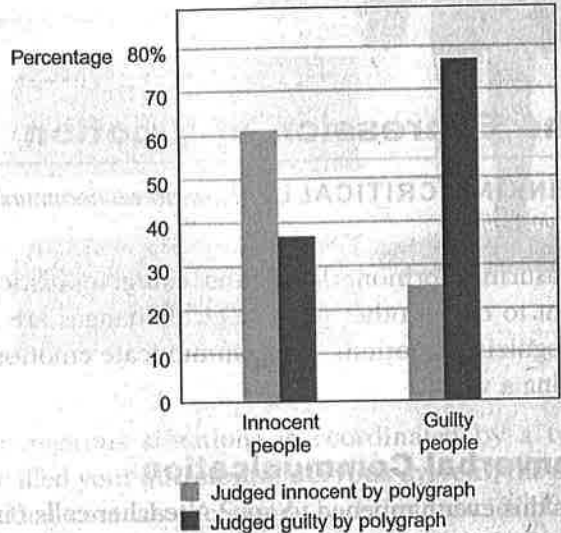
A polygraph machine monitors changes in heart rate, respiration, and perspiration to determine whether a person is feeling emotional stress about a particular question. The underlying assumption is that a person will show stronger autonomic nervous system responses when lying than when telling the truth.

Unfortunately, polygraphs measure *all* stress reactions, including those from honest people who are upset by a question and not lying in their answer. Controlled studies of polygraph interpretations have produced some disturbing results. In



John Brynen/Stock Connection/PictureQuest

**A Typical Polygraph Setup** Research casts doubt on this machine's ability to reliably predict those who tell the truth and those who don't.



**Figure 11.6 How Accurate?** One research study (Kleinmuntz & Szucko, 1984) showed that expert interpretations of polygraph tests judged more than one-third of the innocent people taking the tests to be guilty. In addition, almost one-fourth of the guilty were judged innocent by the test.

one study (Kleinmuntz & Szucko, 1984), professional polygraph interpreters judged 37 percent of the innocent people they tested guilty. In the same study, these experts correctly identified the guilty parties only 76 percent of the time, meaning nearly one-fourth of the real liars fooled the machine (see Figure 11.6). Hundreds of other studies on the validity of polygraph tests yield similar results (Ben-Shakhar & Furedy, 1990).

A more effective polygraph test asks questions about details that would be known only by those committing the crime (Bashore & Rapp, 1993). Even this test, however, relies on the same underlying assumption: Strong autonomic nervous system responses indicate lying. This means that we must exercise extreme caution in how we use polygraph test results.

## Gender and Cultural Effects on Emotion

Who is better at reading the nonverbal emotions we express, men or women? Studies regularly give the nod to women (Hall, 1987). Women show better skills at detecting emotion in people's facial expressions, body movements, and tone of voice (Blum, 1998). But both males and females find it more difficult to read the body language of the opposite sex than to read the body language of people of their own gender (Buck, 1984).

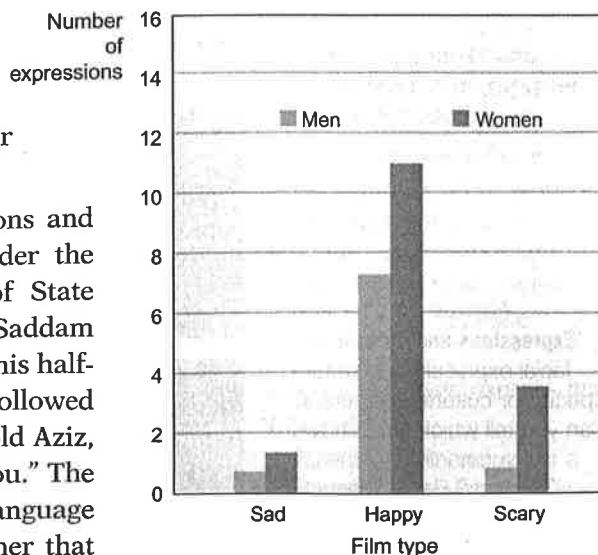
Men and women also differ in the way they express emotions (see Figure 11.7). North American women smile more, gesture with more expression, and have more expressive faces than their male counterparts (DePaulo & others, 1992; Kring & Gordon, 1998). Women also tend to talk more about their emotions (Grossman & Wood, 1993). North American men, on the other hand, seem to express only one emotion—anger—more openly than women (Coats & Feldman, 1996).

How can we explain these differences? As males and females, are we simply physiologically different or do we learn to behave differently? Research seems to indicate that at least two factors affect the way we learn to express and interpret emotions.

- **Power** is the first factor in interpreting nonverbal communications. In any relationship, from boss–employee to teacher–student, one person always has more power than the other. The person with *less* power will be more motivated to read the nonverbal emotional cues, and will probably read them better, than the person in charge (Fiske, 1993). In one study, Sara Snodgrass (1992) randomly assigned males and females to be either the leader or the follower in two-person teams. She found the followers were more sensitive than the leaders to nonverbal signals regardless of whether the leader was male or female.
- **Culture** is the second factor in interpreting nonverbal communication. People raised in expressive families, or in cultures that value being emotionally expressive, are likely to be more expressive regardless of whether they are male or female (Kring & Gordon, 1998).

Culture also influences how we express emotions and how we interpret the emotions of others. Consider the meeting in 1991 between American Secretary of State James Baker and Iraqi Foreign Minister Tariq Aziz. Saddam Hussein, Iraq's president at the time had sent Aziz, his half-brother, to represent him at this meeting, which followed Iraq's invasion of Kuwait (Triandis, 1994). Baker told Aziz, "If you do not move out of Kuwait, we will attack you." The message was clear and direct, and Baker's body language was calm and subdued. Aziz reported to his brother that

**Figure 11.7 Females and Males Express Emotions Differently** Although females and males report about the same amount experienced emotion, females show more emotion while watching emotional films. (From Kring & Gordon, 1998.)



### display rules

The cultural rules governing how and when a person may express emotion.

Baker was “not at all angry. The Americans are just talking and they will not attack.” He misread Baker’s nonverbal communication, and thousands died in the war that followed.

What went wrong at this meeting? Baker delivered his message with the restraint customary for an American diplomat. Hussein’s brother viewed the communication through the cultural window of his Iraqi heritage, which expects expression to be more emotional. In Iraq, a truly angry person would gesture, shout, and stomp his foot. Neither Baker nor Aziz was aware of the **display rules** for the other’s country, the cultural rules governing how and when a person may express emotion (Ekman & others, 1987).

Even the display rules for something as simple as when it’s appropriate to smile can vary from one culture to the next. Germans, who smile less often than Americans, often think Americans are hiding their true feelings behind false smiles. Japanese observers of American behavior might disagree, stating that Americans don’t smile often enough. In Japan, it is rude to display disappointment or distrust publicly, so the Japanese smile even more than Americans (Hall & Hall, 1990).

Cultures also disagree about the meaning behind gestures. Former Presidents Richard Nixon and George H. W. Bush both got themselves in hot water by giving the “OK” sign in countries where this gesture is considered rather vulgar. The hand sign given by University of Texas football fans (index and pinkie fingers up, two middle fingers down) would seriously insult a man in Italy, where that gesture means his wife has been unfaithful.

And what about facial expressions? Are they read differently across cultures? Several studies (Ekman, 1994; Ekman & Friesen, 1975; Izard, 1977, 1994) have attempted to find the answer by showing photographs of different facial expressions to people around the world and asking participants to guess the emotion. How would you do on such a test? Take a minute or two to see if you can label the emotions in the facial expressions in Figure 11.8.

**Figure 11.8 Facial Expressions and Culture** Are facial expressions culturally specific or culturally universal? Can you tell which face shows surprise? Happiness? Sadness? Fear? Disgust? Anger? Find the answers on page 218. (From Matsumoto & Ekman, 1989.)



All photos: Ekman & Matsumoto, Japanese and Caucasian Facial Expressions of Emotion

How did you do? Chances are, regardless of your cultural background, you did fairly well. Researchers have found that certain basic expressions rise above culture. Physiological measures of emotion also show consistency across cultures. As in many other areas of study in psychology, we see that although there are significant cultural and gender differences, there is a core of similarity among people across the globe.

**THINKING CRITICALLY SUMMARY:** *Much of our emotional expression happens nonverbally, and several factors affect how we communicate nonverbally. Gender seems to affect nonverbal communication: women are generally better at reading nonverbal cues and are more expressive nonverbally than men, but both genders have a harder time reading the nonverbal cues from the opposite sex. Who has the power (or thinks they do) in communication affects nonverbal expressions of emotions. Finally, the culture we were raised in affects how expressive we are and when we express emotions nonverbally, but a smile seems to be a smile worldwide: Facial expressions for basic emotions are consistent across cultures.*

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## Module 11: Thinking About Emotion

**LEARNING GOAL 1:** List the three ingredients of emotion, and explain how they apply to emotional experiences.

- The three ingredients of emotion are physiological activation (biological changes), expressive behaviors (the behaviors, such as smiling, associated with the emotional experiences), and conscious experience (thoughts about an emotional experience).

**LEARNING GOAL 2:** Explain how the historical approaches to emotion differ from the modern theories of emotion.

- The James-Lange theory says that we experience emotion because we are aware of our bodily response to an emotion-producing stimulus.
- The Cannon-Bard theory of emotion proposed that an emotion-arousing stimulus simultaneously triggers physiological responses and subjective experience of emotions.
- Schachter's two-factor theory proposes that the experience of emotion is produced by a combination of physical arousal and how we cognitively identify the arousal.
- Zajonc's brain research indicates that our interpretations (cognitive labels) sometimes come after our emotional experience.
- Lazarus agrees with Zajonc that some emotional responses do not require conscious thought but argues that emotional responses are influenced by unconscious thinking.

**LEARNING GOAL 3:** Describe the physiological changes that occur during a fear reaction, and identify the parts of the nervous system involved in the changes.

- The sympathetic division of the autonomic nervous system is activated during a fear response, accelerating heart rate, increasing respiration, and increasing hormone levels that help prepare the body for "fight or flight."
- The parasympathetic division of the autonomic nervous system slows the body after the fear response is finished.

**LEARNING GOAL 4:** Explain how gender and culture affect the ability to express and interpret nonverbal communications of emotion.

- Research indicates that women are better at understanding nonverbal expressions of emotions and that North American women are more expressive nonverbally than men. Both males and females have a more difficult time understanding nonverbal cues from the opposite sex.
- Power and culture affect how people express and interpret the emotions of others.
- Display rules, rules governing how and when a person displays emotion, differ between cultures.
- Facial expressions for basic emotions are consistent across cultures.