

MODULE 41 THEORIES AND PHYSIOLOGY OF EMOTION

COGNITION AND EMOTION

- **EMOTIONS** are a mix of *bodily arousal* (heart pounding); *expressive behaviors* (quicken pace); and *conscious experience*, including thoughts and feelings.
- **JAMES-LANGE THEORY** is the theory that our experience of emotion is our awareness of our physiological responses to emotion-arousing stimuli. Your heart begins to race and then, shaking with fright, felt the whoosh of emotion.
- Walter Cannon disagreed with James and Lange. Cannon and Philip Bard concluded that our bodily responses and experienced emotions occur separately but simultaneously. **CANNON-BARD THEORY** is that an emotion-arousing stimulus simultaneously triggers 1. Physiological responses and 2. Are subjective experience of emotion. Our bodily responses seemingly feed our experienced emotions.
- Our interpretation can hinder or enhance our emotions. The **TWO-FACTOR THEORY** is the Schachter-Singer theory that to experience emotion one must 1. Be physically aroused and 2. Cognitively label the arousal. Arousal fuels emotion; cognition channels it.
- Some emotions travel a “high road” which is a stimulus following a path to the brain’s cortex (thalamus). There it would be analyzed and labeled before the command is sent out, via the amygdala (emotion-control center), to respond.
- Sometimes our emotions take the “low road,” which a neural shortcut that bypasses the cortex and directly goes to the amygdala. This accounts for our greased-lightning emotional response before our intellect intervenes.
- The amygdala sends more neural projections up to the cortex than it receives back, which makes it easier for our feelings to hijack our thinking than for our thinking to rule our feelings.
- Some emotional responses do not require conscious thinking.
- Automatic emotion and conscious thinking weave the fabric of our emotional lives.

Summary: Theories of Emotion

Theory	Explanation of Emotions	Example
James-Lange	Our awareness of our specific bodily response to emotion-arousing stimuli	We observe our heart racing after a threat and then feel afraid.
Cannon-Bard	Bodily response + simultaneous subjective experience	Our heart races as we experience fear.
Schachter-Singer	Two factors: General arousal + a conscious cognitive label	Arousal could be labeled as fear or excitement, depending on context.
Zajonc; LeDoux	Instant, before cognitive appraisal	We automatically react to a sound in the forest before appraising it.
Lazarus	Appraisal (“Is it dangerous or not?”)—sometimes without our awareness—defines emotion	The sound is “just the wind.”

EMBODIED EMOTION

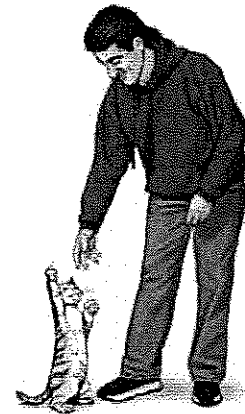
- The **SYMPATHETIC NERVOUS SYSTEM** (arousing) of your autonomic nervous system (ANS) mobilizes your body for action, directing your adrenal glands to release the stress hormones epinephrine (adrenaline) and norepinephrine (noradrenaline). Working out.
- When the crisis passes, the **PARASYMPATHETIC NERVOUS SYSTEM** (calming) of your ANS gradually calms your body, as stress hormones slowly leave your bloodstream. After your workout.
- You are preparing to flight or fight.

Emotions and the Autonomic Nervous System

Autonomic Nervous System Controls Physiological Arousal



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



- There are physiological distinctions and brain-pattern distinctions among the emotions. Positive moods tend to trigger more left frontal lobe activity.
- POLYGRAPH is a machine, commonly used in attempts to detect lies, that measures several of the physiological responses (such as perspiration and cardiovascular and breathing changes) accompanying emotion.

BE ABLE TO ANSWER: Christine is holding her 8-month-old baby when a fierce dog appears out of nowhere and, with teeth bared, leaps for the baby's face. Christine immediately ducks for cover to protect the baby, screams at the dog, then notices that her heart is banging in her chest and she's broken out in a cold sweat. How would the James-Lange, Cannon-Bard, and two-factor theories explain Christine's emotional reaction?

How do the two divisions of the autonomic nervous system affect our emotional responses?

PRACTICE FRQ: Explain the role of conscious thinking in emotion according to the theory that some emotions take the high road while others take the low road.