**Emotion**: A psychological state with four components:

1. A positive or negative subjective experience
2. Bodily arousal
3. The activation of specific mental processes and stored information
4. Characteristic overt behavior

All emotions arise from a combination of six universal emotions we all possess: fear, anger, disgust, happiness, sadness, and surprise. These six emotions are known as the **basic emotions,** and they are innate and shared by all humans.

Some researchers claim that it’s too simplistic to say we have six basic emotions. For instance, there are 3 different ways of expressing disgust, depending on whether the disgust is based on smell (rotting garbage), taste (sour milk), or just an idea (death and filth). Positive emotions can be divided into at least 5 types: amusement, desire, happiness, love, and interest.

**Perceiving emotions: Innate or learned?** It’s also been shown that the ability to perceive basic emotions in others is not entirely innate. Learning also plays a role. Evidence: People recognize emotions more easily in their own racial groups (whom they are more familiar with) than in other groups. However, this effect depends on whether the group is in the minority or the majority. Minority groups are actually better at perceiving emotions in majority groups than in their own minority group, which indicates greater exposure to the majority culture.

**Are positive and negative emotions opposite?** No, they’re independent. You can experience both a positive and negative emotion at the same time. Example: Delight in eating a piece of cake but disgust with yourself for eating it.

**Brain systems involved in emotion**: Davidson et al. found that separate brain systems underlie approach emotions and withdrawal emotions. Approach emotions—generally positive; withdrawal emotions—generally negative. Approach emotions are associated with greater left frontal lobe activity, whereas withdrawal emotions are associated with greater right frontal lobe activity. People who are happier in general tend to have more left frontal lobe activity, whereas clinically depressed or dispositionally negative people have more right frontal lobe activity. The difference appears to be genetic.

# Theories of Emotion

**James-Lange**: We feel emotion only AFTER our bodies react. E.g., Someone points a gun at you; you run as your sympathetic nervous system goes into overdrive, and then you feel the responses as fear. Facial feedback hypothesis supports this theory. In general, though, it hasn’t fared well in research. There is no evidence that a specific & unique bodily state underlies each of our emotions. Bodily responses contribute to some of our emotions but these responses are not enough to explain the wide range of emotions. \*\*People with spinal cord injuries still experience emotion, even though they can’t feel their bodies responding.

**Cannon-Bard Theory:** We experience emotions and bodily reactions at the same time. Arousal and emotion are simultaneous; neither causes the other. Support comes with the finding that that the bodily reactions are triggered at the same time as the experience of emotion. The amygdale plays a crucial role in producing the reactions you experience when feeling fear (sends message to hypothalamus to produce a sympathetic nervous system response). Criticisms of the theory: Neuroimaging studies show that each emotion does not arise from a unique pattern of activation in the brain; different emotions are associated with overlapping patterns of brain activation. Some emotions, but not all, are accompanied by particular bodily reactions.

**Cognitive Theory**: An emotion arises when you interpret the situation, and the situation can include your bodily state in the context of everything that surrounds it. You don’t react to a stimulus and then feel an emotion after the reaction (as James-Lange theory predicts) and you don’t have separate bodily and emotional reactions (as Cannon-Bard theory predicts). You interpret your reactions and the general situation together, and this provides the basis of emotion. Schachter & Singer’s two-factor theory of emotion supports this theory. Study in 1962: Ss were given shots of adrenaline. Some thought it was a vitamin shot, but others were told it was adrenaline. Then they encountered a confederate either acting silly or angry. The subjects all had the same physiological arousal due to the adrenaline, but those who didn’t know it was adrenaline attributed their arousal from either the silly or angry confederate. (Felt happy around the silly one and angry around the irritable one). Those who knew it was adrenaline did not label their emotions. Control group who didn’t get a shot experienced no effects of context. *Misattribution of arousal*—feeling nervous system arousal and incorrectly labeling it to a cause that had nothing to do with the real cause.

Problem with this theory: Not all emotions rely on cognitive interpretations. Fear seems to rely on reflexes, requiring no thought.

**New viewpoints:**  LeDoux (1996) modified cognitive theory in this way: Some emotions operate as reflexes, independent of thought (as Cannon-Bard asserts), and others depend on thought and interpretation (James-Lange and cognitive theory). The emotions we feel at any moment might depend on a mixture of 1) brain and body reactions and 2) interpretations and memories pertaining to the situation.

**Fear and the Amygdala**: Fear is one of the best-understood emotions. Fear arises from changes in the brain, the autonomic nervous system, and hormones. Fear produces a “freeze” responses and an increased tendency to be startled, called “fear-potentiated startle.”

Five facts about fear:

1. After you’ve learned to fear an object, fear can well up later as a kind of “emotional reflex” with no cognitive interpretation.
2. Once you learn to associate fear with an object or situation, you apparently will always do so. Even when the conditioned response is extinguished, neurons that were linked by the conditioned association still fire together. The emotion of fear is still associated with the stimulus, even though extinction has eliminated the behaviors associated with that fear.
3. In spite of the fact that cognitive interpretation is not necessary to trigger a previously learned fear response, mental process can alter how easily the fear response occurs. Even visualizing yourself in a fearful situation can set you up to be easily startled.
4. The amygdala does not play a direct role in producing the emotional “feel” of fear. People with damaged amygdale still experience positive and negative emotions (including fear), sometimes just as strongly as people without the brain injury.
5. In spite of the role of the amygdale in fear, neither it nor any other single brain area always gives rise to a particular emotion. No one brain area produces any single emotion.

\*\*The three older theories of emotion all hold a grain of truth.

## Happiness

Happiness is harder to study than fear is, mainly because it’s more chronic and has a broader scope of responses.

What makes us happy?

1. Money: People who were poor and then have enough money to live report greater happiness. However, additional material resources make little or no difference in the level of happiness.
2. Life circumstances: Stress at work, time constraints, and how others treat us all impact happiness.
3. Realistic expectations: Happy people have come to terms with their available resources (such as income) and abilities and do not crave what is not realistically possible
4. Social support: the degree to which others are willing to listen and help us contributes to our level of happiness. Strongest predictor of happiness is China is social support.

\*\*People whose left frontal lobe is generally more active are dispositionally happier than those whose right frontal lobes are more active. This “dispositional happiness” appears to be at least 50% genetic.

Positive psychology: A new focus of psychology. Positive states of mind can promote resilience, which is the ability to bounce back from adversity, and keep an even keel. Positive emotions can help boost the immune system to help us cope with disease, and it leads to better coping strategies. Better coping strategies, in turn, lead to greater happiness.

## Perceiving Emotion

**Display rules:** Although all cultures share the 6 universal emotions, how we show them to others differs according to cultural norms. These norms are called display rules. Example: In North America, the closer we are to someone who has died, the more grief we’re allowed to display. Japan has stricter display rules in general. They experience the emotion just like Americans do, but they’re quick to suppress any show of it.

Polygraphs try to detect lying by physiological responses to questions. The greatest problem with it is that some people can control these reactions (they don’t feel guilty or anxious about a crime and can therefore suppress any sympathetic nervous system reactions).