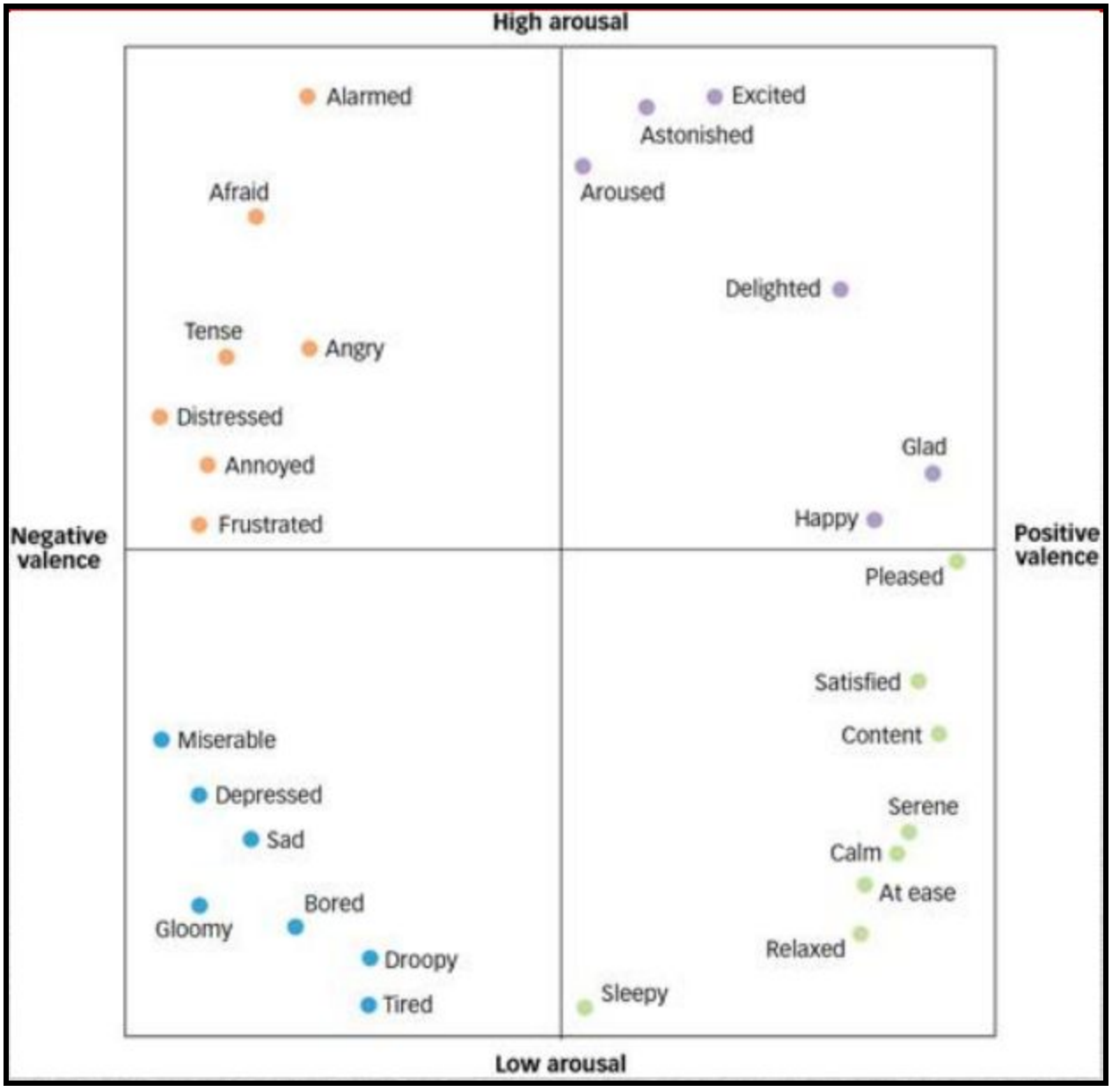
Lecture Notes:

- IQ tests only attempt to measure some types of intelligence.
- Emotional intelligence is not tested by traditional IQ tests. Emotional intelligence is the ability to reason about emotions and to use emotions to enhance reasoning. Some examples of emotional intelligence are identification of one's own emotions, description of one's own emotions, management of one's own emotions and detection of others' emotions.
- Individuals have different levels of emotional intelligence.
- Individuals with high emotional intelligence show less brain activation when solving emotional problems.
- Emotion is a positive or negative experience in response to a stimulus and associated with a particular pattern of physiological activity. Emotions are measured on 2 dimensions, valence (positive or negative) and psychological arousal (severity).



- There are four major theories of emotion: common sense, James-Lange, Cannon-Bard and Two-factor. These theories disagree on what causes emotion.
- The **James-Lange theory** holds that the stimulus in the environment triggers a physiological response, and that physiological response activates an emotional response.
- The **Cannon-Bard theory** holds that the stimulus activates the physiological and the emotional state simultaneously.
- The **two-factor (Schachter) theory** of emotional processing argues that the stimulus produces a physiological state, and the brain interprets that physiological state emotionally.
- The **common-sense view** of emotion holds that we perceive a stimulus in our environment first, which then prompts an emotional response second, followed by physiological responses third.
- Two major neural structures related to emotion are the amygdala and the prefrontal cortex.
- The amygdala is a relatively primitive part of the limbic system that quickly processes biologically relevant information.
- The prefrontal cortex is a relatively advanced part of the brain that slowly processes information rationally.
- Emotional regulation involves learned strategies. For the first 6 months, infants do not appear to self-regulate their emotions. Most regulation comes from the parents. After 6 months, some rudimentary self regulation appears, such as self-soothing and gaze aversion. Not all emotional regulation is learned, much of it is related to our temperament.
- Emotional expressions are observable signs of an emotional state, not symbols. They include facial expressions, tone of voice, body language and rhythm of gait. Gait means how the person is walking.
- Charles Darwin proposed that facial expressions are evolved and therefore are universal in the human population. This is called the **universality hypothesis**. Darwin believed that facial gestures were evolved in order to aid in survival.
- Support for the universality hypothesis includes:
    - Individuals with visual impairments that have never seen a human face smile similarly to seeing humans.
    - 2-day-old infants produce disgusted facial expressions similar to those of adults.
    - Isolated cultures evaluate Westerners' facial expressions the same way that other Westerners do.
- Arguments against the universality hypothesis includes:
    - Relationships between different emotions are different across cultures.
- While most of us would answer that the emotional state comes first and the facial expression follows, the facial feedback hypothesis holds that emotional facial expressions can cause/change an individual's emotional experience.
- We have various strategies for hiding our emotions: intensification, deintensification, masking, and neutralizing.
  E.g. Suppose you got a pair of socks as a gift for christmas. While deep down, you may feel disappointed or neutral, you should intensify your emotions.
- There are a number of ways to determine whether facial expressions are real or not:
    1. **Morphology:** Certain facial muscles are resistant to conscious change (the reliable muscles).

2. **Symmetry:** Asymmetric facial gestures are often insincere.
3. **Duration:** Sincere facial gestures last between 0.5s and 5s.
4. **Temporal patterning:** Microexpressions appear first and are sincere. Furthermore, sincere facial gestures appear and disappear gradually rather than suddenly.

- **Motivation** is the psychological reason for producing an action. It is primarily driven by emotion. One of the primary ways in which emotion changes our actions is by giving us information about an object, event, or individual. Brain damage to emotional regions of the brain (e.g. the amygdala) can cause severe indecision in patients.
- Emotion also provides us with instructions on what to do with new information.
- Ancient philosophers believed that human motivation is centred on the **hedonic principle**, which states that all motivation extends from attraction to pleasure and avoidance of pain. According to this principle, our primary motivator for everything we do is ultimately pleasure. We can trace even unpleasant activities to this pleasure goal.
- The hedonic principle explains human motivation at a basic level. Psychologists have attempted to break down human motivation into more specific categories. One framework is Maslow's needs hierarchy.
- Humans share with other animals the basic needs for nutrition and sex. These are at the bottom of the needs hierarchy and generally must be satisfied before other needs are even noticed. These **needs** are technically called **drives**. We satisfy these drives with **incentives**.
  E.g. For food: Drive = hunger, incentive = food
- Another way of understanding motivation is via three psychological dimensions:
  - Intrinsic vs. extrinsic
  - Conscious vs. unconscious
  - Approach vs. avoidance
- **Intrinsic motivation** is the motivation to take actions that are themselves rewarding. E.g. Eating junk food, if you like it.
- **Extrinsic motivation** is the motivation to take actions that eventually lead to a separate reward. This reward is often social or monetary. Extrinsic motivation tends to be relatively weak in early childhood and among nonhuman animals.
- **Approach motivation** is the motivation to experience a positive outcome.
- **Avoidance motivation** is the motivation to not experience a negative outcome.
- Avoidance motivation is usually stronger, but the relative strength of avoidance and approach motivations differs across individuals.

Textbook Notes:

- **Module 11.1 Hunger and Eating:**
- **Motivation** concerns the physiological and psychological processes underlying the initiation of behaviours that direct organisms toward specific goals.
- At its most basic level, motivation is essential to an individual's survival because it contributes to **homeostasis**, the body's physiological processes that allow it to maintain consistent internal states in response to the outer environment.
- A **drive** is a biological trigger that tells us we may be deprived of something and causes us to seek out what is needed, such as food or water.
- The stimuli we seek out in order to reduce drives are known as **incentives**.
- **Allostasis** is the motivation that is not only influenced by current needs, but also by the anticipation of future needs caused by stress.
- **Physiological Aspects of Hunger:**

- Hunger is not simply a homeostatic mechanism. The need to consume enough nutrients so that you have enough energy to function involves physiological responses as well as more complex cognitive and emotional factors.
- The “on” and “off” switches involved in hunger can be found in a few regions of the **hypothalamus**, a set of nuclei found on the bottom surface of the brain.
- Researchers have found that electrically stimulating the lateral hypothalamus causes rats to begin to eat. Thus, this structure may serve as an “on” switch. In contrast, stimulating the ventromedial region of the hypothalamus causes rats to stop eating.
- The hypothalamus detects changes in the level of **glucose**, a sugar that serves as a primary energy source for the brain and the rest of the body. Highly specialized neurons called glucostats can detect glucose levels in the fluid outside of the cell. If these levels are too low, glucostats signal the hypothalamus that energy supplies are low, leading to increased hunger.
- **Food and Reward:**
- A full stomach is one cue for **satiation**, the point in a meal when we are no longer motivated to eat. That feeling is caused, in part, by cholecystokinin (CCK). Neurons release CCK when the intestines expand. The ventromedial hypothalamus receives this information and decreases appetite.
- **Attention and Eating:**
- **Unit bias** is the tendency to assume that the unit of sale or portioning is an appropriate amount to consume.
- A single banana comes individually wrapped and makes for a healthy portion; it is an ideal unit. In contrast, packaged foods often come in sizes that are too large to be healthy. A bottle of pop today is likely to be 600 mL, but a few decades ago the same brand of soda came in a 177 mL bottle. Despite the huge difference in volume, each is seen as constituting one unit of pop.
- **Eating and Semantic Networks:**
- Our food selections can be influenced by the presence of certain other foods. These items, known as **trigger foods**, affect the selection of healthy and unhealthy foods simply by being present among possible food alternatives.
- **Eating and the Social Context:**
- In addition to physical and cognitive influences, food intake is affected by social motives as well.
- Here are a few examples of food intake being affected by social motives:
    1. **Social facilitation:** Eating more. Dinner hosts may encourage guests to take second and even third helpings, and individuals with a reputation for big appetites will be prodded to eat the most.
    2. **Impression management:** Eating less. Sometimes people self-consciously control their behaviour so that others will see them in a certain way.
    3. **Modelling:** Eating whatever they eat. At first exposure to a situation, such as a business dinner, a new employee may notice that no one eats much and everyone takes their time. The newcomer will see the others as models, and so he too will restrain his eating.
- **Disorders of Eating:**
- The past few decades have seen a dramatic rise in the rates of **obesity**, a disorder of positive energy balance, in which energy intake exceeds energy expenditure.
- **Anorexia and Bulimia:**
- **Anorexia nervosa** is an eating disorder that involves self-starvation, intense fear of

weight gain and dissatisfaction with one's body, and denial of the serious consequences of severely low weight.

- **Bulimia nervosa** is an eating disorder that is characterized by periods of food deprivation, binge-eating, and purging. The periods of binging involve short bursts of intense calorie consumption. These are followed by purging, fasting, laxative or diuretic use, and/or intense exercise.
- Statistical Characteristics of Eating Disorders:

Lifetime prevalence of anorexia	Women: 0.9%, Men: 0.3%
Lifetime prevalence of bulimia	Women: 1.5%, Men: 0.5%
Women and Men Combined	
Percentage of people with anorexia who are receiving treatment	34%
Percentage of people with bulimia who are receiving treatment	43%
Average duration of anorexia	1.7 years
Average duration of bulimia	8 years

- Studies have found that bulimia is marked by a tendency to be impulsive, whereas anorexia is not. Bulimics are also much more likely to enter treatment programs because they find the binge–purge cycle disturbing. Anorexics, on the other hand, often appear indifferent to the negative effects of food deprivation on their health.
- Some factors/reasons why some people develop eating disorders but not others include stress, depression, guilt, anxiety, perfectionism,low self-esteem, suppressed anger, peer influence and family issues.
- **Module 11.2 Sex:**
- **Libido** is the motivation for sexual activity and pleasure.
- **Human Sexual Behaviour Physiological Influences:**
- One of the first scientists to tackle the topic of human sexual behaviour was zoology professor Alfred Kinsey.
- The **sexual response cycle** describes the phases of physiological change during sexual activity, which comprises four primary stages: excitement, plateau, orgasm, and resolution.
- Dividing the sexual response cycle into phases allowed the researchers to describe the cascade of physiological changes that occur during sexual behaviour. The cycle applies to both male and female sexual responses, although there are differences between sexes in how these stages are experienced and their duration.
- Men usually experience a single orgasm followed by a **refractory period**, a time period during which erection and orgasm are not physically possible. In contrast, some women

experience multiple orgasms without a refractory period.

- **Sexual Orientation Biology and Environment:**
- **Sexual orientation** is the consistent preference for sexual relations with members of the opposite sex (heterosexuality), same sex (homosexuality), or either sex (bisexuality).
- **Transgender and Transsexual Individuals:**
- The term **transgender** refers to individuals who experience a mismatch between the gender that they identify with and their biological sex. It does not refer to an individual's sexual orientation.
- The term **transsexual** refers to the subset of transgender individuals who wish to permanently transition from their birth sex to the gender with which they identify.
- **Human Sexual Behaviour Cultural Influences:**
- **Gender roles** are the accepted attitudes and behaviours of males and females in a given society.
- These gender roles are flexible and change across generations.
- **Sexual scripts** are the set of rules and assumptions about the sexual behaviours of males and females. For most of human history, male sexual behaviour was based on competition. Females, on the other hand, would be taught to be less promiscuous and to focus on developing a stable relationship before engaging in sexual intercourse
- Males have higher levels of **testosterone**, a hormone that is involved in the development of sex characteristics and the motivation of sexual behaviour.
- It is important to note that not all females or males follow the same sexual scripts. Researchers have found that **sex guilt**, negative emotional feelings for having violated culturally accepted standards of appropriate sexual behaviour, is a major factor in these differences.
- Sexual scripts also exist in homosexual relationships.
- **Working the Scientific Literacy Model Does Sex Sell:**
- The results of numerous studies show that sex can sell, in certain situations.
- **Module 11.3 Social and Achievement Motivation:**
- **Belonging and Love Needs:**
- Abraham Maslow described a "hierarchy of needs," with needs associated with our basic physiological survival being more important than social or achievement needs.
- According to Maslow, once survival needs are met, then we can move to higher-level needs such as belonging or the need for self-esteem.
- At the highest point of this model lies self-actualization, the point at which a person reaches his or her full potential as a creative, deep-thinking, and accepting human being.
- **Belonging is a Need Not a Want:**
- The **need to belong**, sometimes known as affiliation motivation, is the motivation to maintain relationships that involve pleasant feelings such as warmth, affection, appreciation, and mutual concern for each person's well-being.
- In addition, an individual must have the sense that these feelings are part of a permanent relationship, such as a friendship, kinship, or shared group membership. A strong sense of belonging brings more than warmth and happiness.
- Research has demonstrated that loneliness is a risk factor for illnesses such as heart disease and cancer. It also elevates a person's risk for having hypertension, a weaker immune system, and high levels of stress hormones.
- **Love:**
- Psychologists suggested that love is composed of two main components: passionate

love and companionate love.

- **Passionate love** is associated with a physical and emotional longing for the other person. We feel passionate love at the beginning of a relationship, when we are just getting to know the other person and everything is new. Recent brain-imaging research has shown that feelings of passionate love are associated with activity in areas of the brain related to physical rewards as well as the insula, a region that is sensitive to internal bodily feelings such as having "butterflies in the stomach".
- **Companionate love** is related to tenderness and to the affection we feel when our lives are intertwined with another person. Although passionate love is certainly more exciting, companionate love appears to have a greater influence on the long-term stability of a relationship.
- Love may be a goal-oriented state in a way that is similar to hunger and sex drives.
- **Working the Scientific Literacy Model Terror Management Theory and the Need to Belong:**
- **Terror management theory (TMT)** is a psychological perspective asserting that the human fear of mortality motivates behaviour, particularly those that preserve self-esteem and our sense of belonging.
- The knowledge of death has the potential to be terrifying; however, very few of us experience this anxiety on a daily basis. Instead, we tend to use anxiety buffers, concepts and beliefs that prevent death-related anxiety from entering our conscious mind. One anxiety buffer is known as the cultural worldview, a belief system about how our world should work. This system provides us with a sense of order and stability in life, feelings that makes it seem as though death were not an immediate possibility.
- Psychologists typically study TMT by manipulating how aware participants are of death, something they refer to as mortality salience.
- **Achievement Motivation:**
- **Achievement motivation** refers to the drive to perform at high levels and to accomplish significant goals. It is a very strong force in human behaviour.
- An **approach goal** is an enjoyable and pleasant incentive that a person is drawn toward, such as praise, financial reward, or a feeling of satisfaction.
- An **avoidance goal** is an attempt to avoid an unpleasant outcome such as shame, embarrassment, losing money, or feeling emotional pain.
- **Self-Determination Theory:**
- Researchers have identified three universal needs:
    - Relatedness: Feeling connected with others, a need satisfied by forming meaningful bonds with other people such as family members, teammates, or colleagues at school and work.
    - Autonomy: The need to feel in control of your own life.
    - Competence: The ability to perform a task at a skill level that is satisfying to the individual.
- **Self-efficacy** is an individual's confidence that he or she can plan and execute a course of action in order to solve a problem. When people experience high levels of self-efficacy, their performance improves and they are motivated to choose more challenging tasks to perform.
- The **self-determination theory** is a theory that states that an individual's ability to achieve their goals and attain psychological well-being is influenced by the degree to which he or she is in control of the behaviours necessary to achieve those goals. If we are able to achieve this control, or at least feel like we have control, then we will be more

motivated to perform the actions necessary to achieve that goal. We will also be happier.

- **Extrinsic and Intrinsic Motivation:**
- **Extrinsic motivation/performance motive** is the motivation geared toward gaining rewards or public recognition, or avoiding embarrassment.
- This form of motivation is not always the most effective, as it requires a person to give up some autonomy.
- Taken to its most extreme, people can become **amotivational**, a feeling of having little or no motivation to perform a behaviour.
- **Intrinsic motivation/mastery motive** is the process of being internally motivated to perform behaviours and overcome challenges.
- It is important to note that intrinsic and extrinsic motivation are not completely separate. Rather, intrinsic motivation, extrinsic motivation, and amotivation can be placed on a continuum that depicts how much self-determination an individual might feel for those behaviours.
- Critically, where a given behaviour lies on this continuum can change over time or across situations.
- Western culture tends to promote autonomy and the individual, whereas Eastern cultures put more emphasis on meeting the needs of the community.
- **Module 11.4 Emotion:**
- Common convention in psychology is to define an **emotion** as being a behaviour with the following three components: (a) a subjective thought and/or experience with (b) accompanying patterns of neural activity and physical arousal and (c) an observable behavioural expression.
- **The Initial Response:**
- The human brain shows emotion-dependent responses within approximately 150 ms of seeing or hearing a potential threat.
- A critical brain area involved in this process is the **amygdala**, a group of nuclei in the medial portion of the temporal lobes in each hemisphere of the brain. The amygdala receives sensory input from the cortex, the outer part of your brain, approximately 200 ms after an emotional stimulus appears. The amygdala fires when we perceive stimuli that are emotionally arousing, and is especially sensitive to fear-relevant images and sounds.
- **The Autonomic Response, Fight or Flight:**
- An emotional response obviously involves more than simply perceiving a threat. We need to prepare our body to physically respond to the emotional stimulus, if necessary. Importantly, this preparation needs to occur instinctively and as rapidly as possible. The autonomic nervous system (ANS) specializes in such responses. The ANS consists of two systems:
    1. The sympathetic nervous system, which helps recruit energy to prepare you for a response.
    2. The parasympathetic nervous system, which helps preserve energy and calms you down if no response is necessary.
- **The Emotional Response Movement:**
- Research in the last couple of years has found that emotional stimuli, particularly threatening emotional stimuli, trigger an increase in activity in brain areas related to planning movements and in several regions of the spinal cord. This activity suggests that our nervous system is becoming prepared to make a movement if one is necessary. This

preparation likely increases the speed and efficiency of our emotional responses.

- **Emotional Regulation:**
- It makes sense from a survival standpoint to have rapid emotional responses and then to decide if the responses are correct or not. However, this evaluative stage of emotional responses is the most complex and involves a number of areas within our frontal lobes. The frontal lobes receive information directly from the amygdala and from sensory areas whose activity is influenced by the amygdala. As a result, the frontal lobes have access to highly detailed information about a stimulus or situation as well as information about the initial responses of other brain networks. The frontal lobes must determine whether the instinctive emotional responses produced by earlier stages of processing are the best ones for that given situation. In some cases, the frontal lobes will analyze the situation and agree that an emotional response is necessary. It will then generate a behaviour that is appropriate for that situation. In other cases, the frontal lobes will analyze the situation and decide that a stimulus is not emotional.
- **Experiencing Emotions:**
- The **James-Lange theory of emotion** suggests that our physiological reactions to stimuli precede the emotional experience. Furthermore, your emotional experience is determined by your physiological reactions.
- The **Cannon-Bard theory of emotion** suggested that the brain interprets a situation and generates subjective emotional feelings, and that these representations in the brain trigger responses in the body. This theory suggests that these emotional processes occur very quickly, so that the steps occur almost simultaneously.
- The **facial feedback hypothesis** suggests that our emotional expressions can influence our subjective emotional states.
- **Working the Scientific Literacy Model The Two-Factor Theory of Emotion:**
- The **two-factor theory** holds that patterns of physical arousal and the cognitive labels we attach to them form the basis of our emotional experiences. Physical arousal is the first factor to come into play and along with this comes a cognitive label for the experience.
- **Expressing Emotions:**
- A polygraph measures whether heart rate and sweating increase when a person responds to different events or questions. Sudden changes in these levels suggest that the person is experiencing stress and may be hiding something. However, after extensive testing, the polygraph was shown to be an inaccurate measure of lie detection.
- Psychologists have developed a new technique for lie detection. They found that our faces give us away when we try to lie. Although we can fake an emotional expression within a fraction of a second, our real emotional response can be seen on our faces before this mask is in place. These brief expressions of our true feelings are called microexpressions.
- Our primary method of communicating our emotional feelings is through our facial expressions. However, body language provides almost as much emotional information as facial expressions. It also activates a number of similar brain areas.
- **Culture, Emotion, and Display Rules:**
- Cultural groups have unique **emotional dialects** which are variations across cultures in how common emotions are expressed.
- The situation or context is a major factor in determining when members of different cultures express specific emotions. **Display rules** refer to the unwritten expectations we

have regarding when it is appropriate to show a certain emotion.

Definitions:

- **Achievement motivation:** The drive to perform at high levels and to accomplish significant goals.
- **Allostasis:** Motivation is not only influenced by current needs, but also by the anticipation of future needs.
- **Amotivational:** A feeling of having little or no motivation to perform a behaviour.
- **Amygdala:** A group of nuclei in the medial portion of the temporal lobes in each hemisphere of the brain that facilitates memory formation for emotional events, mediates fear responses, and appears to play a role in recognizing and interpreting emotional stimuli, including facial expressions.
- **Anorexia nervosa:** An eating disorder that involves self-starvation, intense fear of weight gain and dissatisfaction with one's body, and denial of the serious consequences of severely low weight.
- **Approach goal:** An enjoyable and pleasant incentive that a person is drawn toward, such as praise, financial reward, or a feeling of satisfaction.
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- **Cannon-Bard theory of emotion:** The brain interprets a situation and generates subjective emotional feelings, and these representations in the brain trigger responses in the body.
- **Companionate love:** Related to tenderness, and to the affection we feel when our lives are intertwined with another person.
- **Display rules:** The unwritten expectations we have regarding when it is appropriate to show a certain emotion.
- **Drive:** A biological trigger that tells us we may be deprived of something and causes us to seek out what is needed, such as food or water.
- **Emotion:** A behaviour with the following three components: (a) a subjective thought and/or experience with (b) accompanying patterns of neural activity and physical arousal and (c) an observable behavioural expression (e.g., an emotional facial expression or changes in muscle tension).
- **Emotional dialects:** Variations across cultures in how common emotions are expressed.
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- **Facial feedback hypothesis:** Our emotional expressions can influence our subjective emotional states.
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- **Glucose:** A sugar that serves as a primary energy source for the brain and the rest of the body.
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- **Hypothalamus:** A brain structure that regulates basic biological needs and motivational systems.

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