PSYCH 101 – Exam 2 Textbook Notes

# Chapter 4: Sensation and Perception

### 4.1 Sensation and Perception at a Glance

#### Sensing the World Around Us

* The process of detecting and translating the world around us into meaningful experiences occurs in two stages
  + **Sensation**: process of detecting external events by sense organs and turning those stimuli into neural signals
  + **Perception**: attending to, organizing, and interpreting stimuli that we sense
  + **Transduction**: specialized receptors transforming the physical energy of the world into neural impulses
    - Receptors involved in transduction are different for the different senses – e.g. transduction of sound takes place in the cornea, while transduction of light occurs at the back of eyes
  + All senses transmit information to the brain in the same way: action potential
    - Signals from different sensory organs are sent to different parts of the brain, to help it differentiate them from each other
    - **Doctrine of specific nerve energies**: idea that different senses are separated in the brain
* **Orienting response**: describes how we shift attention quickly to stimuli that signal a change in our sensory world
  + Change of environments provides new information to the brain
  + Our brains have evolved to be highly selective to signals of danger or opportunities for useful resources
* **Sensory adaptation**: reduction in activity of sensory receptors with repeated exposure to the same stimulus
  + We allocate progressively less attention to stimuli that remain the same over time
  + Allows us to adjust to our surroundings and shift focus to other events that may be more important
  + Directors change camera angles every few seconds to prevent sensory adaptation

##### Stimulus Thresholds

* Fechner coined the term psychophysics: field that studies how physical energy (e.g. light, sound) and their intensity relate to psychological experience
* **Absolute threshold**: minimum amount of energy or quantity of a stimulus required for it to be reliably detected at least 50% of the time – varies amongst individuals and across lifespans
* **Difference threshold**: smallest difference between different stimuli that can be reliably detected at least 50% of the time
  + The more intense the original stimulus, the large amount must be added to reach the difference threshold

##### Signal Detection

* **Signal detection theory**: whether a stimulus is perceived depends on both sensory experience and the subject’s judgement
  + Sensory process: experimenter presents either a faint stimulus or no stimulus at all
  + Decision process: subject is asked whether or not a stimulus was detected
    - Four categories of responses:
      * Hit – correct detection of signal
      * Correct rejection – correct detection of no signal
      * False alarm – detected signal when there wasn’t one
      * Miss – didn’t detect signal when there was one
  + Whether or not a person can accurately detect a weak signal depends on:
    - Sensitivity of their sensory organs
    - Expectations, psychological and autonomic-nervous-system arousal level, and motivation

#### Perceiving the World Around Us

##### Gestalt Principles of Perception

* **Gestalt psychology**: individual parts of an image may have little meaning on their own, but combined together it has a significant perceived from
  + Figure-ground principle: objects in our environment tend to stand out against a background
  + Proximity: we tend to treat items that are close in proximity to each other as groups
  + Similarity: we tend to group objects together based on their visual similarity
  + Continuity: we tend to perceive lines or other objects as continuous rather than abruptly changing direction
  + Closure: tendency to fill in gaps to see complete, whole objects
* Gestalt concepts demonstrate how we create our own organized perceptions out of different sensory inputs that we experience

##### Attention and Perception

* **Divided attention**: paying attention to more than one stimulus at the same time
* **Selective attention**: focusing on one particular event or task
  + **Inattentional blindness**: failure to notice clearly visible events or objects because attention is directed elsewhere

### 4.2 The Visual System

#### The Human Eye

##### How the Eye Gathers Light

* Light: radiation that occupies a relatively narrow band of the electromagnetic spectrum, which travels in waves that differ in length and amplitude
  + Wavelength: distance between peaks of a wave – different wavelengths indicate different colours of light
  + Amplitude: height of a wave – low-amplitude waves = dim colours, high-amplitude waves = bright colours

##### Structure of the Eye

* **Sclera**: white, outer surface of the eye
* **Cornea**: clear layer that covers the front portion of the eye
* **Pupil**: light passes through cornea into pupil; it regulates the amount of light through changing its size (dilation and constriction)
* **Iris**: round muscle that adjusts the size of the pupil
* **Lens**: clear structure that focuses light to the back of the eye
  + Accommodation: lens changes shape to ensure light entering the eye is focused
  + Transduction: light entering the back of the eye stimulates layer of specialized receptors in the retina, which converts light into neural message
* **Retina**: lines the inner surface of the eye; consists of specialized **photoreceptors** that absorb light and send neural signals about light properties to the brain
  + **Rods**: photoreceptors that are highly sensitive to low light levels
    - Rods are located in the peripheral regions of the retina
  + **Cones**: photoreceptors that are sensitive to different wavelengths (colours)
    - Cones tend to be clustered around the **fovea**, the central region of the retina
* **Optic nerve**: information from photoreceptors is sent to ganglion cells near front of the eye, which fire to the optic nerve, a dense bundle of fibres that connect to the brain
  + Optic disc: blind spot – area of retina with no photoreceptors
* We have more cones than rods, which explains why shadowy images tend be perceived as more hazy
* **Dark adaptation**: process where rods and cones become increasingly sensitive to low levels of light

##### The Retina and Perceptions of Colour

**Trichromatic Theory (Young-Helmholtz Theory)**

* Colour vision is determined by **three different types of cones** that are sensitive to short, medium, and long wavelengths of light
* Different wavelengths are associated with three main colours:
  + Long: red light
  + Medium: green light
  + Short: blue light
* Relative responses from activity in the three types of cones allow us to perceive a range of colours on the spectrum
  + For example, yellow light is the result of combined stimulation of red- and green-sensitive cones, while white light is the result of all three types of cones being stimulated equally

**Opponent-Process Theory**

* Colour is perceived in **opposing pairs:**
  + Red to green
  + Yellow to blue
  + White to black
* Explains activity of **retinal** **ganglion cells** when stimulated by colour
  + A cell that is stimulated by red will actively fire during perceiving of red colour, inhibiting cells that are stimulated by green
  + When red is no longer perceived, rebound effect occurs where previously inhibited cells that fire during perception of green are free to fire
  + Same relationship occurs for yellow/blue cells and white/black

##### Common Visual Disorders

* **Colour blindness**: one type of cone contains proteins that are sensitive to a different wavelength of light (e.g. red-green colour blindness)
* **Myopia (nearsightedness)**: eyeball is slightly elongated, causing image that the cornea/lens focuses to fall short of the retina
* **Hyperopia (farsightedness)**: length of eye is shorter than normal, causing image to get focused behind the retina

#### Visual Perception and the Brain

* **Optic chiasm**: point where optic nerves cross at the midline of the brain
  + Ipsilateral: half of nerve fibres travel to same side of brain
  + Contralateral: half of nerve fibres travel to opposite side of brain
  + Left half of visual field is initially processed by right hemisphere of brain, while right half of visual field is initially processed by left hemisphere
* Optic nerve fibres first connect with the **thalamus**, the brain’s “sensory relay station”
  + **Lateral geniculate nucleus (LGN)**: specialized nucleus in the thalamus for processing visual information – fibres from this nucleus send messages to the visual cortex in the occipital lobe, to begin visual perception
* **Feature detection cells** in the visual cortex respond selectively to different aspects of stimuli, such as angles and edges
  + Thought to be where visual input is organized for perception
  + From the primary visual cortex, information of different features is sent to the secondary visual cortex for additional processing (e.g. perception of colour or movement)

##### Ventral Stream

* Extends from visual cortex in occipital lobe to anterior (front) of temporal lobe
* Responsible for object recognition and giving recognized objects names
* **Perceptual constancy**: ability to perceive objects as having constant shape, size, and colour, despite changes in perspective

##### Dorsal Stream

* Extends from visual cortex in occipital lobe to the parietal lobe
* Locates objects in space and allows us to interact with them – **visually guided movement**

##### Depth Perception

* **Binocular depth cues**: distance cues based on differing perspectives from both eyes
  + **Convergence**: eye muscles contract so both eyes focus on a single object
  + **Retinal disparity**: the difference in relative position of an object as seen by both eyes – provides brain with information abut objects’ depth
* **Monocular cues**: depth cues that we can perceive with only one eye
  + **Accommodation**: lens of eye curves to focus on objects of different depths
  + **Motion parallax**: when surroundings are in motion, objects closer to you appear to move much faster than objects that are further away

### 4.3 The Auditory System

#### Sound and the Structures of the Ear

* **Sound waves** are changes in mechanical pressure, transmitted through solids, liquids, or gasses
  + Frequency: wavelength – number of cycles a sound wave travels per second
    - Pitch: perceptual experience of sound wave frequencies – high-pitched sounds have short wavelength and high pitch; low-frequency sounds have long wavelength and low pitch
  + Amplitude: determines loudness of a sound wave – high-amplitude sounds are louder than low-amplitude sounds

##### The Human Ear

* The ear is divided into outer, middle, and inner regions
* **Pinna**: outer region; helps channel sound waves into the ear and allows you to determine location (source) of a sound
* **Auditory canal**: extends from pinna to eardrum; sounds waves cause it to vibrate and move the ossicles
* **Ossicles**: located in middle ear, attached to eardrum; three tiny moveable bones called the hammer, anvil, and stirrup
* **Cochlea**: fluid-filled membrane that contains structures to convert sound waves into neural impulses
  + **Basilar membrane**: hair-like projections that line the cochlea; movement of ossicles cause the basilar membrane to flex, moving fluid in the cochlea and displacing hair cells that stimulate the auditory nerves
  + Auditory nerves contain bundles of neurons that then fire and send signals to the thalamus in the brain and then to the auditory cortex in the temporal lobes
  + Cochlear implants can electronically stimulate the membranes of the cochlea, helping repair some hearing impairments

##### Sound Localization

* **Sound localization**: the process of identifying where a sound came from; handled by parts of the brain stem and the inferior colliculus in the midbrain
  + First, we consider the slight time difference between a sound hitting both ears
  + Second, we consider the difference in intensity in which sound is heard by both ears – sound shadow

##### Theories of Pitch Perception

* Human hearing occurs between 20–20,000 Hz; not all hair cells in the basilar membrane are equally responsible to sounds in this range
* **Place theory of hearing**: pitch perception occurs due to where along the basilar membrane a sound stimulates – applies well to high-pitched tones
* **Frequency theory**: perception of pitch is related to frequency at which the basilar membrane vibrates – applies well to low-pitched tones
* **Volley principle**: groups of neurons fire in rapid succession, in alternating fashion
* All three theories are needed to explain how we perceive pitch

##### Auditory Perception and the Brain

* **Primary auditory cortex**: major perceptual centre in the brain for perceiving hearing
  + Cells in different areas of the cortex respond to different frequencies
* **Secondary auditory cortex** helps to interpret complex sounds, such as speech
* Generally, auditory cortices in the right hemisphere is more sensitive to sound than those in the left hemisphere
* Auditory cortices aren’t fully developed at birth; they develop over time by learning to analyze different patterns of sounds
  + Fine-tuning of the auditory cortex also influences how we perceive music
  + Areas of brain involved in some elements of music perception are also involved in coordinating movements

### 4.4 Touch and Chemical Senses

* Most people can identify the separate components that make up sound, vision, and touch
* Synesthesia: condition where people experience blended perceptions

#### The Sense of Touch

* Acuity: level of sensitivity
  + Regions with high acuity, e.g. fingertips, can detect two separate, closely spaced pressure points in a device
  + Regions with less acuity, e.g. lower back, detect similar stimuli as only one pressure point
* **Haptics**: active, exploratory feedback aspect of touch sensation/perception
  + Allows us to identify objects and helps prevent us from damaging/dropping them
* **Kinesthesis**: sense of bodily motion and position
  + Receptors for kinesthesis exist in muscles, joints, and tendons; they transmit information about movement of muscles, limbs, and joints to the brain

##### Feeling Pain

* **Nociception**: activity of nerve pathways that respond to uncomfortable stimulation
  + Nociceptors in the skin, teeth, cornea, and internal organs, initiate pain messages to the central nervous system
  + Fast fibres register sharp, immediate pain
  + Slow fibres register dull, chronic pain
* **Gate control theory**: explains experience of pain as an interaction between nerves that transmit and inhibit pain messages
  + Cells in the spinal cord serves as a neural gate that regulates how much pain signalling reaches the brain
  + Spinal cord contains small nerve fibres that conduct pain messages, as well as larger nerve fibres that conduct other sensory signals
    - Stimulation of small fibres results in experience of pain, while stimulation of larger fibres inhibits pain signals
* Input from spinal cord gets send to two regions in the brain:
  + Somatosensory cortex: registers pain sensations
  + Anterior cingulate gyrus: influences our attentional/emotional responses to pain
* **Phantom limb sensations**: sensations felt by amputees, who report pain/other sensations coming from missing limbs
  + Nerve cells in the somatosensory cortex become hypersensitive due to lack of input from the missing limb

#### The Chemical Senses: Taste and Smell

##### The Gustatory System: Taste

* **Gustatory system**: functions in the sensation and perception of taste
* Primary tastes: sweet, salty, bitter, sour, and umami
* Taste is registered on the tongue, with over 9000 taste buds, and the roof/sides of the mouth, with over 1000 taste buds
  + Taste receptors replenish every 10 days
  + Papillae: small bumps on the tongue that contain taste buds
* Nerves on the taste buds that register taste send signals to the thalamus, on to the **gustatory cortex** at the back of the frontal lobes
  + The secondary gustatory cortex processes the pleasurable experiences associated with food

##### The Olfactory System: Smell

* **Olfactory system**: detection of airborne particles with specialized receptors located in the nose
* Nasal air flow brings in molecules that bind with receptors at the top of the **nasal cavity**
* **Olfactory epithelium**: thin layer of cells in the nasal cavity lined with cilia, tiny hair-like sensory receptors that contain special proteins that bind with nasal air molecules
* Groups of cilia transmit messages to neurons that converge on the **olfactory bulb**, the brain’s central processing region for smell

##### Multimodal Integration

* **Multimodal integration**: The ability to combine sensation from different modalities such as vision and hearing, into a single integrated perception
* **McGurk effect**: movement of speakers’ lips biased perception of presented sounds

# Chapter 11: Motivation and Emotion

### 11.1 Hunger and Eating

* **Motivation**: physiological and psychological processes that underlie the initiation of behaviours that direct organisms toward specific goals
  + Motives include thoughts, feelings, sensations, and bodily processes that lead to goal-directed behaviour
* **Drive**: biological trigger that tells us we might be deprived of something and causes us to seek out what is needed (e.g. food or water)
* Motivation contributes to **homeostasis**, the body’s physiological processes that allow it to maintain consistent internal states in response to the external environment
* **Allostasis**: motivation is not only influenced by current needs, but also anticipated future needs

#### Physiological Aspects of Hunger

* The need to consume nutrients so that your body has enough energy to function involves physiological as well as cognitive and emotional factors
* “On/off” switches for hunger are found in regions of the **hypothalamus**
  + Lateral region induces hunger, ventromedial region reduces hunger
  + Hypothalamus activity is influenced by hormones released in response to the energy needs of your body
  + Hypothalamus monitors blood chemistry for indicators of sugar and hormone involved in energy
    - Glucostats detect changes in **glucose** levels, a sugar that is a primary energy source for the brain and the rest of the body
      * Low glucose levels cause glucostats to signal hypothalamus, leading to increased hunger
      * Increased insulin levels after eating decreases hunger
* **Satiation**: point in a meal where we are no longer motivated to eat
  + Neurons release CCK when the intestines expand, decreasing appetite
  + Feeling of satiation can influence how rewarding we find a food – e.g. eating so much of a food that we start to “get sick of it”

#### Psychological Aspects of Hunger

* Over the course of evolution, our bodies developed to like some foods more than others – particularly making higher-energy, fatty foods more pleasurable
  + E.g. we have specialized receptors on our tongues that are sensitive to fatty foods
* In some situations, high-energy food can be a more powerful reinforce than addictive drugs
  + Sugar can stimulate release of dopamine, which is associated with the reinforcing effects of amphetamines and cocaine
* Stress modulates the hormone ghrelin, which is secreted in the stomach to stimulate stomach contractions and appetite
  + Furthermore, feeling stressed means viewing a particular situation as threatening, which causes the body to feel the need to stock up on energy reserves

##### Attention and Eating

* Seeing how much we are eating (and food disappearing) can largely influence how much we eat
  + E.g. bottomless soup study
* **Unit bias**: tendency to assume that the unit of sale or proportioning is an appropriate amount to consume
  + Increasing size of dishes can increase consumption by 18-25% for meals and 30-45% for snacks
* Upward trend in portion sizes has led to increases in obesity and diabetes

##### Eating and Social Context

* In addition to physical and attentional influences, food intake is also affected by social motives
* Social facilitation: leads to eating more, when the host encourages guests to take more servings
* Impression management: leads to eating less, when minimal eating norm exists, where eating small amounts avoids being rude
* Modelling: leads to eating whatever others eat, to fit in more to a crowd

#### Disorders of Eating

##### Obesity

* **Obesity**: disorder of positive energy balance, where energy intake exceeds energy expenditure
* Number of factors that could be affecting the rise in obesity levels around the world:
  + Large variety of foods available
  + Evolutionary urge to crave fatty foods, when there are very few times we might go hungry
  + Economics – unhealthy foods are cheaper than healthy ones

##### Anorexia and Bulimia

* **Anorexia nervosa**: eating disorder that involves self-starvation, intense fear of weight gain, and denial of serious consequences of a severely low weight
  + Often appear indifferent to negative effects of food deprivation
* **Bulimia nervosa**: eating disorder characterized by periods of food deprivation, binge-eating, and purging
  + More likely to enter treatment programs, because they find the behaviour disturbing
* Factors that can lead to eating disorders:
  + Stress – tends to make people feel as if they don’t have control over their lives
    - Reproduction suppression hypothesis: women who believe that they have low levels of social support from romantic partners/family members are more likely to engage in dieting
  + Social factors such as peer influence/pressure
  + Family issues
* Men can starve themselves during periods of high exercise to lose weight or gain muscle mass
  + “Reverse anorexia”: when men have positive views of their bodies but are just as obsessive/perfectionistic about their bodies as people with anorexia

### 11.2 Sex

* **Libido**: motivation for sexual activity and pleasure

#### Human Sexual Behaviour: Psychological Influences

* In humans, sex often occurs without the goal of reproduction, unlike most non-human species
* Sexual themes are very prevalent in television, movies, humour, advertising, and other media
* Psychologists use methods such as questionnaires, interviews, physiological measures, and direct observations to better understand human sexual behaviour

##### Psychological Measures of Sexual Motivation

* Alfred Kinsey was one of the first psychologists to study human sexuality, through interviewing his students about their sexual history
  + He tended to make generalizations based on very small samples, so his works were flawed and controversial
  + Contrary to convention at the time, Kinsey believed that heterosexuality and homosexuality fell on a continuous scale
* Meston and Buss asked over 1500 US college students about their reasons for having sex
  + They found that physical, personal, and social factors all contribute to sexual motivation
  + However, this study was done on people of around the same age, so is not really conclusive for the entire population

#### Human Sexual Behaviour: Physiological Influences

##### Physiological Measures of Sex

* **Sexual response cycle**: phases of physiological changes during sexual activity – four main stages: excitement, plateau, orgasm, and resolution
  + Applies to both male and female sexual response, but differs by gender
    - E.g. 21%-32% of women reported that they did not experience orgasm, while only 2% of men reported the same
* **Refractory period**: a time period when erection and orgasm are not physically possible
  + Men usually experience a single orgasm followed by a refractory period, while women can experience multiple orgasms before a refractory period
* In women, during sexual stimulation, sensory nerves send signals to the hypothalamus, which stimulates the pituitary gland to release the hormone oxytocin, which plays a role in orgasm and post-orgasm physiology
* Dopamine-rich “reward centres” of the brain become highly active during orgasm

##### Sexual Orientation: Biology and Environment

* **Sexual orientation**: the consistent preference for sexual activity with members of the opposite sex (heterosexuality), same sex (homosexuality), or both sexes (bisexuality)
* Current definitions of sexual orientation focus on physiological aspects (desire, emotion, identification) instead of behaviour
* Brain size differences between heterosexual and homosexual adults can be attributed to both genetic and environmental factors
* Genetic correlations suggest that approximately half of individual differences in sexual orientation can be attributed to genetic factors

#### Human Sexual Behaviour: Cultural Influences

* **Gender roles**: the accepted attitudes and behaviours of males and females in a given society
  + Evolves over generations
* **Sexual scripts**: set of rules and assumptions about the sexual behaviours of males and females
  + Traditionally, male sexual behaviour focused on competition and sexual conquests, while female sexual behaviour focused on developing stable relationships before having sex
  + Men have higher levels of **testosterone**, a hormone that is involved in the development of sex characteristics and the motivation for sexual behaviour
  + Factors contributing to changing sexual scripts over the years:
    - Women’s Rights Movement emerged, resulting in women being seen as people rather than possessions
    - Increased presence of women in the workforce, resulting in more women being economically independent
    - Introduction of the birth control pill, which meant women didn’t have to worry about getting pregnant
* **Sex guilt**: negative emotional feelings for having violated culturally accepted standards of appropriate sexual behaviour
* Research suggests that sexual scripts are more flexible in homosexual relationships than heterosexual ones, likely because homosexuals tend to not follow gender roles to the same degree as heterosexuals

##### Sex and Technology

* Over the past few decades, electronic media (internet, text messaging, social networking sites) have become common outlets for sexual expression
  + Viewing pornography
  + Having online sexual encounters
  + Meeting others for sex offline
* People tend to communicate with less inhibition via digital media compared to face-to-face, which can lead to more impulsive behaviours such as sexting

### 11.3 Social and Achievement Motivation

#### Belongingness and Love Needs

##### Hierarchy of Needs

* Abraham Maslow came up with a **hierarchy of needs** where physiological needs are more important than social and achievement needs
  + Once survival needs are met, we can move on to higher-level needs such as belonging or self-esteem
  + Self-actualization is the highest level, where a person reaches their full potential as a creative, deep-thinking, and accepting human being
  + Levels – bottom to top:
    - Physiological
    - Safety
    - Belongingness
    - Esteem
    - Cognitive
    - Aesthetic
    - Self-actualization
  + The hierarchy was criticized for gearing more towards individualistic societies instead of collectivist, but it highlighted the fact that human motivation extends beyond basic physiological needs

##### Belonging is a Need, not a Want

* **Need to belong**: motivation to maintain relationships that involve pleasant feelings such as warmth, affection, appreciation, and mutual concern for each other’s wellbeing, as well as a sense of permanence
  + Strong sense of belonging appears to be fundamental in the same way as food and water – humans cannot survive without it
* Social connectedness has effects on not only psychological health but also physical health
  + Loneliness is a risk factor for illnesses including heart disease and cancer
  + It also elevates risk of hypertension, weaker immune system, and high levels of stress hormones
* Hence, makes sense why so much of our life is focused on friends, family, and romantic partners

##### Love and Commitment

* Berscheid and Walter proposed the first scientific model of romantic love in 1974:
  + **Passionate love**: physical and emotional longing for the other person
  + **Companionate love**: tenderness and affection we feel when our lives are intertwined with another person
* Motivational view of love: love is a goal-oriented state similar to hunger and sex drives
* A number of factors influence commitment:
  + Initial strength of attraction
    - Happiness associated with companionship
    - Enjoyment of sex
    - Economic benefits of a stable relationship
  + Number of barriers to leaving the relationship
    - Children
    - Religious convictions
    - Social/economic pressures
  + Availability of alternatives

#### Achievement Motivation

* **Achievement motivation**: drive to perform at higher levels and accomplish significant goals
* **Approach goal**: enjoyable and pleasant incentive that a person is drawn toward (e.g. praise, financial reward, or feeling of satisfaction)
* **Avoidance goal**: attempt to avoid an undesirable outcome (e.g. shame, embarrassment, losing money, or emotional pain)

##### Self-Determination Theory

* Recent psychological research has attempted to examine deeper motivations for performing behaviours, through examining universal needs – needs that almost all humans experience
  + Relatedness – feeling connected to others
  + Autonomy – need to feel control over our own life
  + Competence – ability to perform a task that is satisfactory to the individual doing it
* **Self-efficacy**: an individual’s confidence that they can plan and execute a course of action in order to solve a problem
  + If you believe that you can competently do something, you will be more motivated in your attempt to do so
* **Self-determination theory**: an individual’s ability to achieve their goals and attain psychological wellbeing is related to the extent to which they can control their behaviours necessary to achieving those goals
  + The more you feel in control/achieve control, the more motivated you become to perform the actions necessary to achieve that goal

##### Extrinsic and Intrinsic Motivations

* **Extrinsic motivation (performance motive)**: motivation geared toward gaining rewards, public recognition, or avoiding embarrassment
  + Since it relies on other people’s perception of you, this type of motivation isn’t the most effective as it involves giving up some autonomy
  + People can become **amotivational** – a feeling of having little to no motivation to perform a behaviour
* **Intrinsic motivation (mastery motive)**: genuine internal desire/motivation to perform behaviours or overcome challenges (rather than being motivated by reward)
  + Intrinsic motivations are generally consistent with your values, are enjoyable, and are part of your image of your future self – they have more personal meaning

##### A Continuum of Motivation

* Amotivation, extrinsic motivation, and intrinsic motivation can be put on a continuum that depicts how much self-determination an individual might feel for those behaviours
  + Where a given behaviour lies on the continuum can change depending on the situation, such as being rewarded for an intrinsically motivated behaviour – **over-justification effect**
    - Intrinsic 🡪 extrinsic motivation can actually decrease motivation of a behaviour
    - Extrinsic 🡪 intrinsic motivation can increase motivation as well as performance

### 11.4 Emotion

* **Emotion**: a behaviour with the three following components: a subjective thought or experience with accompanying patterns of neural activity and physical arousal, and an observable behavioural expression (e.g. an emotional facial expression or changes in muscle tension)

#### Psychology of Emotion

* Emotional behaviours are usually quite complex and involve a number of components/stages
* Emotional system allows later stages to influence earlier ones as well as subsequent ones

##### The Initial Response

* **Amygdala**: group of nuclei near the middle of the temporal lobes in the brain, which fire when we perceive emotionally arousing stimuli
* It may stimulate activity in sensory areas such as the visual and auditory cortices, so that they fire more than for non-emotional stimuli – causes us to pay more attention to potentially emotional stimuli

##### The Automatic Response: Fight or Flight?

* Autonomic nervous system is responsible for physically preparing our bodies for responding quickly to emotional stimuli
  + Sympathetic nervous system helps gather energy to prepare for the response
  + Parasympathetic nervous system helps preserve energy and calm you down back to normal if no response is necessary

##### The Emotional Response: Movement

* Emotional stimuli, in particular potentially threatening emotional stimuli, trigger an increase in brain activity relating to planning movement
* This suggests that the brain is preparing to make a movement if one is necessary, increase the speed and efficiency of our emotional responses

##### Emotional Regulation

* From a survival standpoint, it makes sense to have rapid emotional responses and then decide if the response was correct or not
* Evaluation stage of emotional responses involves many areas in our frontal lobes, which receive highly detailed information about a situation or stimulus directly from the amygdala and the sensory areas that the amygdala influence
* The frontal lobes determine if the instinctive response produced by earlier processing stages is the best one for the given situation
  + If it is, it will generate the appropriate behaviour for the situation
  + If it decides that the stimulus is not emotional, it sends feedback to reduce the intensity of the initial emotional response

#### Experiencing Emotions

* **James-Lange theory of emotion**: suggested that our physiological reactions to stimuli precede the emotional response – i.e. subjective feelings follow physiological responses
  + The theory also believed that emotion is experienced as:
    - Based on initial perception of a stimulus, physiological response occurs
    - Brain receives feedback about the response
    - Brain decides, based on feedback, the emotional response
* **Cannon-Bard theory of emotion**: suggested that the brain interprets a situation and generates subjective emotional feelings, then these representations in the brain trigger responses in the body
  + Suggests that emotional processing occurs very quickly, so physiological and emotional responses occur almost simultaneously
* **Facial feedback hypothesis**: suggests that our emotional expressions can influence our subjective emotional states
  + Research has shown that Botox injections, which reduce a person’s ability to move their face, can dampen emotional experiences
* Studies in favour of the James-Lange theory of emotion have shown that physical touch can influence emotional experiences – e.g. holding a warm cup of coffee tends to lead to using warmer terms to describe a person compared to holding an iced coffee – which suggests that how our body feels influences how our brain responds
* **Two-factor theory of emotion**: patterns of physical arousal and the cognitive labels that we attach to them form the basis of emotional experiences
  + Combination of physical arousal, followed by application of cognitive label (e.g. “I am sad”) forms emotional response (e.g. of sadness)

#### Expressing Emotions

##### Emotional Faces and Bodies

* Our primary method of communicating emotions is through facial expressions, each of which have their own unique combination of muscle movements
* When we feel disgusted, we scrunch up our nose – this reduces airflow in the nostrils, limiting the amount of disgusting substances that can enter the body
* When we feel fear, we widen our eyes and inhale deeper – this allows us to take in as much information as possible in order to develop the best plan of action for safety
* These results show that our facial expressions have a purpose in enhancing our ability to survive
  + These results also appear all over the world, suggesting that they are an innate part of being human
* Body language provides almost as much emotional information as facial expressions
  + Like the recognition of facial expressions, detecting characteristics of body language appeared to be universal

##### Culture, Emotion, and Display Rules

* **Emotional dialects**: variations across cultures in how common emotions are expressed
* **Display rules**: unwritten expectations that we have regarding when it is appropriate to show a certain emotion
* How we interpret why a person is expressing a certain emotion also differs across cultures
  + Some cultures (e.g. Western) tend to focus on the person expressing the emotion, while other cultures (e.g. Asian) tend to also consider those around the person expressing the emotion

# Chapter 12: Personality

### 12.1 Contemporary Approaches to Personality

* **Personality**: characteristic pattern of thinking, feeling, and behaving that is unique to each individual, and remains fairly consistent over time and situations
* Two approaches to personality measurement:
  + **Idiographic approach**: focuses on creating detailed descriptions of a specific person’s unique personality characteristics
  + **Nomothetic approach**: examines personality in large groups of people, to aim at making generalizations about personality structure

#### The Trait Perspective

* **Personality trait**: a person’s habitual patterns of thinking, feeling, and behaving
  + Summarize a lot of information about a person
  + Help predict how a person will behave across a variety of situations
* **Barnum effect**: tendency to accept personality descriptions as true, even when information is very vague or general
* **Factor analysis** groups items that people respond to similarly, and has been used to group the large amount of potential personality traits into small numbers of factors

##### The Five Factor Model

* **Five Factor Model (FFM)**: trait-based theory of personality based on the finding that personality can be described in five major dimensions
  + Openness – creative and curious (high Os) vs. conventional and down-to-earth (low Os)
  + Conscientiousness – ambitious, organized, and reliable (high Cs) vs. lazy, spontaneous, and unreliable (low Cs)
  + Extraversion – social (high Es) vs. reserved (low Es)
  + Agreeableness – good-natured and trusting (high As) vs. rude and irritable (low As)
  + Neuroticism – worried and insecure (high Ns) vs. calm and secure (low Ns)

##### Beyond the Big Five: The Personality of Evil?

* The more horror we allow ourselves to contemplate, the more we wonder, why do people do terrible things?
* After WWII, Theodore Adorno suggested a key personality type, the authoritarian personality, who believe strongly in “us vs. them”, and are thus more likely to engage in prejudice and violence towards people in the “them” category
* Over the past decades, researchers have discovered personality traits extending from the FFM, which shed light on human “evil”
  + **HEXACO model of personality**: six-factor theory that adds **honesty-humility** to the FFM
    - Sincere, honest, and modest (high HHs) vs. selfish, deceitful, and greedy (low HHs)
    - High HHs tend to perform more altruistic behaviours while low HHs tend to be more selfish, anti-social, and violent
    - Low HHs are also more likely to be materialistic, manipulative, and feel a strong sense of entitlement
  + **The Dark Triad**: three traits that describes a person who is socially destructive, aggressive, dishonest, and likely to commit harm
    - Machiavellianism – tendency to be manipulative and deceitful
    - Psychopathy – tendency to have shallow emotional responses, feel little empathy for others, and feel little remorse for one’s actions
    - Narcissism – egotistical preoccupation with self-image, excessive focus on self-importance
  + **Right-Wing Authoritarianism (RWA)**: highly problematic set of personality characteristics that involve three main tendencies:
    - Obeying orders and deferring to established authorities in a society
    - Supporting aggression against those who differ from the established social order
    - Believing strongly in maintaining social order

##### Personality Traits over the Lifespan

* Extensive research has found that our genes predispose us to forming a certain lifelong personality, and that our personalities tend to remain stable
* Infants possess certain **temperaments** right from birth, suggesting that seeds of our personality are present right from the start
  + Temperaments appear to be an innate, biological foundation for personality
  + Three main temperaments:
    - Well-adjusted – confident and capable of self-control
    - Under-controlled – impulsive and emotionally volatile
    - Inhibited – socially uncomfortable, easily upset by strangers
* Research shows that although people’s personality traits may fluctuate over time, their general rank ordering in the population remains the same
* Changes in personality over time are generally caused by changes in our environment, the role we play in them, as well as the sophistication of our thinking processes

##### Personality Traits and States

* People’s behaviours are also defined by situational factors and context
* **State**: a temporary physical or psychological engagement that influences behaviour
* Four general aspects of situations tend to influence behaviour:
  + Locations (where you are)
  + Associations (people you’re with)
  + Activities (what you’re doing)
  + Subjective states (how you’re feeling)

#### Behaviourist and Social-Cognitive Perspectives

* The trait approach to personality suggests that we carry our personality characteristics around inside us
* Behaviourists seek to understand the relationship between specific environmental stimuli and observed patterns of behaviour
  + E.g. B.F. Skinner believed that personality was simply a description of one’s response tendencies in different situations
  + Behaviourist perspective emphasizes the importance of stimulus-response associations that are learned through exposure to different situations, rather than internalized and relatively stable personality traits
* Social cognitive theory of personality emphasizes the role of beliefs and the reciprocal relationship between people and their environments
  + Environmental stimuli don’t automatically trigger specific behaviours – they inform individuals’ beliefs about what consequences are likely to follow from certain behaviours
  + **Reciprocal determinism**: behaviour, internal (personal) factors, and external (situational) factors interact to determine one another, and personalities are based on interactions amongst these three aspects
    - This perspective sees personality as existing between the person and the environment

### 12.2 Cultural and Biological Approaches to Personality

#### Culture and Personality

* WEIRD – “Western, Educated, Industrialized, Rich, and Democratic”
* An estimated 96% of psychology studies have been conducted on people from WEIRD countries, which only make up 12% of the population

##### Universals and Differences Across Cultures: The Big Five

* The Five Factor Model, which centres around five personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism, was discovered by people working in WEIRD places
* To find out whether the Big Five traits were universal, psychologists measured people from different countries and cultures; they found that the Big Five were reliably present in every culture
  + Suggests that despite cultural differences, people share the same basic personality structure

##### Personality Structures in Different Cultures

* The Big Five study was limited towards defining personality adjectives in English
* After researches began analyzing personality descriptors in other languages, they discovered unique personality factors not captured in the Big Five
* Example: using personality descriptors in Chinese revealed 26 new personality traits, whose factor-analyzed structure revealed four main traits: dependability, social potency, individualism, and interpersonal relatedness
  + Interpersonal relatedness (a combination of social harmony, tradition, and emphasis on social relationships) was unique – emphasizing the more socially interdependent nature of the self in this culture
* Most psychologists agree that the Big Five capture important and possibly universal personality traits, but may be missing important cultural-specific qualities

##### Challenges in Cross-Cultural Research

* Using the same personality scales translated into different languages has allowed psychologists to test for personality differences across cultures
* However, there is difficulty in determining whether or not these differences are real
* Two challenges:
  + How to translate personality measures so they mean the exact same thing in different languages
  + Ensuring that people use the same reasoning process when answering the questions
    - Response styles: characteristic ways of responding to questions, which can be heavily influenced by cultural norms
      * E.g. South Asian cultures discourage people from emphasizing their strengths/successes and encourage them to be modest/self-critical
* Essentializing cultural differences, or attributing the differences to some fundamental difference between the “essence” of cultures
  + This causes the view of “Us vs. Them” and can lead to prejudice, inequality, and social injustice

#### How Genes Affect Personality

##### Twin Studies

* How do we know if observed behaviour patterns that run in a family are due to shared genes or shared environments?
* Comparing identical twins to fraternal twins helped researches estimate the influence of genetic factors on personality
  + Research showed that identical twins show stronger correlation for each Big Five personality trait than fraternal twins, implying that the increased similarity is due to shared genes
  + Even identical twins raised in different households tended to be more similar than fraternal twins raised in the same household
* Studies of adopted children have shown that adoptive parents do not influence the personality characteristics of their adopted children

#### The Role of Evolution in Personality

##### Animal Behaviours: The Evolutionary Roots of Personality

* Evolutionary psychologists believe that our personality structures are built into our species because humans possessing certain traits had selective advantages
* One argument for the evolutionary perspective on personality is its appearance in non-human species
  + E.g. basic personality dimension of aggression vs. passivity in birds has been clearly tied to their adaptive advantage in different environments
* Several Big Five traits have been found in many diverse species, including rhinos, primates, hedgehogs, and ants

##### Why there are So Many Different Personalities: The Evolutionary Explanation

* Evolutionary perspectives help us understand why we have evolved the particular personality traits that we have
* According to evolutionary psychologists, human personality is so diverse because different traits are most adaptive in different situations
* Averages of some traits, such as extraversion and neuroticism, tend to differ between men and women, but these differences are very small

#### The Brain and Personality

* **Humourism**: explained both physical illnesses and personality disorders as imbalances of key fluids in the body – four “humours”
* **Phrenology**: theory that personality characteristics could be assessed by measuring the outer skull
  + While different psychological functions are located in different areas of the brain, the size and measurements of the skull have nothing to do with personality

##### Extraversion and Arousal

* **Arousal theory of extraversion**: theory that extraversion is determined by people’s threshold for arousal
  + Extraverts have a higher threshold for arousal than introverts, so they generally seek out greater amounts of stimulation, while introverts tend to limit the amount of stimulation to avoid excessive arousal
* **Ascending reticular activating system (ARAS)**: brain system that plays central role in arousal response
  + For a given “kick”, introverts have a stronger response, so extroverts can handle greater “kicks” before being aroused
* **Behavioural activation system (BAS)**: “GO” system that arouses people to action in pursuit of desired goals
  + Responsive towards rewards and fairly unresponsive to negative consequences
* **Behavioural inhibition system (BIS)**: “danger” system that motivates people to action in order to avoid punishments or other negative outcomes
  + Associated with greater negative emotional responses and avoidance motivation
* Studies show that several of the Big Five traits correlate with activation of BIS/BAS systems
  + Extraversion – BAS activation
  + Neuroticism – BIS activation

##### Contemporary Research: Images of Personality in the Brain

* Modern-day brain-imaging technology has concluded that there are many relationships between personality traits and the size of specific brain areas
* Neuroscientists are beginning to find brain regions that differ greatly between people with different personality traits, suggesting that brain regions are involved in serving neurological functions relating to personality processes
  + There is no specific brain area involved in a single personality trait; stable patterns that we identify as traits involve activation patterns across many different brain systems

### 12.3 Psychodynamic and Humanistic Approaches to Personality

#### The Psychodynamic Perspective

* Psychodynamic theories believe that personality and behaviour are shaped by forces in consciousness
  + Everything that we think, do, and feel results from personality psychological dynamics that are buried deep within consciousness, which we have little control over
* **Conscious mind**: current awareness – everything that you are aware of currently
* **Unconscious mind**: vast and powerful but inaccessible part of your consciousness, which operates without your will to influence/guide your behaviours
  + Primary driver of our behaviours
  + Includes lifetime of childhood memories/experiences, as well as preferences and desires
* Freud and other psychoanalysts argue that much of what manifests as personality reflects individuals’ attempts to resolve internal conflicts

##### The Structure of Personality

* Freud hypothesized that the human psyche consists of three basic structures, which often conflict with each other:
  + **Id**: collection of basic biological drives, including those directed towards sex and aggression
    - Freud believed that id is fuelled by libido, an energy that controls many biological urges
    - Id operates according to pleasure principle, which motivates people to seek out experiences that bring them pleasure, with little regard to the appropriateness or consequences of their actions
    - Present from birth and predominantly controls our actions during our earliest years
  + **Superego**: values and moral standards
    - Tells us what we should do, while id tells us what our bodies want to do
    - Represents what we are taught is “right/proper” based on societal values and norms – “doing the right thing”
  + **Ego**: the decision maker between id and superego
    - Often tries to reconcile opposing urges of id and superego
    - Operates according to reality principle: interested in gratifying desires but striving to postpone it until appropriate
* The tension between the three systems gives rise to personality in two ways:
  + People have different personalities depending on the relative strengths of their three systems
  + How we react to anxiety – result of tension between the three systems – also generates much of our personality
    - According to Freud, the ego is constantly trying to keep the id and superego happy, while protecting itself from anxiety

##### Defence Mechanisms

* **Defence mechanisms**: unconscious strategies that the ego uses to reduce or avoid anxiety
  + Denial – refusing to acknowledge unpleasant information
  + Rationalization – attempting to provide reasonable explanation for unacceptable feelings or behaviours
  + Repression – keeping distressing information away from conscious awareness by burying it in the unconscious
  + Displacement – transforming an unacceptable impulse into a less acceptable or more neutral one
  + Identification – unconsciously assuming the characteristics of a more powerful person
  + Projection – keeping yourself unaware of undesirable qualities that you possess by attributing them to others
  + Reaction formation – altering an impulse that one finds unacceptable into its opposite
  + Sublimation – transforming unacceptable impulses into socially acceptable ones

##### Personality Development: The Psychosexual Stages

* Freud believed that childhood is divided into a series of important stages that occur during the first five years of life, where during each stage, the libido manifests itself in different parts of the body
  + **Fixation**: becoming preoccupied with obtaining the pleasure associated with a particular stage; results in failure to transition to the next stage
* **Oral stage**: 0-18 months, sensation of the mouth
* **Anal stage**: 2-3 years, toilet training and control of bowel movements
* **Phallic stage**: 3-6 years, children begin to be aware of differences between genders and begin to self-identify with one gender; parental relationships also form during this time, leading to internalization of parental values and formation of superego
* **Latency stage**: 5-13 years, ego and superego achieve level of calmness, so personal development of intellectual, social, artistic, and physical skills occurs
* **Genital stage**: onset of puberty – adulthood, mature adult personality emerges

##### Exploring the Unconscious with Projective Tests

* **Projective tests**: personality tests in which ambiguous images are presented to individuals to elicit responses that reflect unconscious desires or conflicts
  + **Rorschach inkblot test**: people were asked to describe what they see on inkblots, and psychologists had a standardized scoring and interpretation method for descriptions
  + **Thematic Apperception Test (TAT)**: people were asked to tell stories about ambiguous pictures involving interpersonal situations
* Projective tests have been criticized for their lack of reliability and validity
  + Low reliability – test doesn’t give the same measurement during subsequent assessments of the same person
  + Low validity – test doesn’t actually measure what it is supposed to

#### Alternatives to the Psychodynamic Approach

* **Analytical psychology**: Carl Jung; focuses on the role of unconscious archetypes in personality development
  + Jung believed in two types of unconscious:
    - **Personal unconscious**: vast repository of experiences and patterns that were absorbed during the experiential unfolding of a person’s life
    - **Collective unconscious**: separate, non-personal realm of the unconscious, which holds collective memories of humankind, stretching deep into our ancestral past
* **Archetypes**: images and symbols that represent common “truths” held across cultures, such as universal life experiences or types of people
  + Thought to represent major narrative patterns in the unconsciousness, thus providing insight into a person’s personality dynamics
* Alfred Adler argued for the importance of social dynamics and conscious thoughts in determining behaviour
* **Inferiority complex**: struggle that many people have with feelings of inferiority, stemming from experiences of helplessness/powerlessness during childhood
  + According to Adler, people try to compensate for their inferiority through trying to appear competent or even superior to others
* Karen Horney focused on the importance of social and cultural factors, as well as the functioning of a person’s current self, on personality

#### Humanistic Perspectives

* **Person-championed perspective**: Carl Rogers believed that people are basically good, and given the right environment, their personality will develop fully and normally
* **Self-actualization**: the drive to grow and fulfill one’s potential
  + Rogers believed that people possess immense inner resources for growth and an inner drive toward self-actualization
  + Fully self-actualized people are highly self-aware and their inherently good nature dominates their personality
* **Positive psychology movement**: Seligman and Csikzentmihalyi; psychology isn’t just the study of pathology, it is also the study of strength and virtue
  + Research on fulfillment, compassion, kindness, joy, and gratitude
  + Cultivation of positive personality traits and psychological resilience