

3. Sensory and Perception

Now we will discuss the topics of sensation and perception. This section will cover the different perceptual processes as well as its development.

It will also cover the components of sensory mechanisms and other senses we experience.

The sections in this unit are:

- **3.1. Attention**
- **3.2. Other senses: somesthesis, olfaction, gustation, vestibular system**
- **3.3. Perceptual development**
- **3.4. Perceptual processes**
- **3.5. Receptor processes: vision, audition**

3.1 Attention

- **Sensation- transforming energy from outside stimuli into neural energy**
- **Perception- taking neural energy and creating an image of outside world**

- **Psychophysics**
 - **levels of intensity we can detect stimuli**
 - **how sensitive we are to changes in stimulation**
 - **how psychological factors influence our ability to sense stimuli**

- **Psychological factors such as motivation, past experience and expectation impact our ability to notice stimuli**
 - **signal detection theory**
- **Important to detect differences between stimuli as well as their absence or presence**

- **The amount of information we can hold in our awareness is less than what exists in the given environment**
- **Selective attention- our ideas about reality are chosen, organized and interpreted**
- **Perception is constructing meaning out of sensation**

3.2 Other Senses

- **Somesthesis is the body's sense of touch and is broken down into three systems:**
 - **the skin sense- keep bodily fluids in and germs out**
 - **the kinesthetic sense- knowing how your body is moving without visually observing it**
 - **vestibular sense- keeps the body balanced- sense of balance**

- **Olfaction is the body's sense of smell**
- **Chemical compounds of a specific "smell" travel through the nose to the brain**
 - **first processed by the olfactory bulb**
 - **olfactory bulb has direct connections to amygdala and hippocampus which are strongly implicated in emotion and memory**

- **Gustation is the body's sense of taste**
- **Promotes nutritional needs and protects from poisonous food**
- **Bitter, sweet, salty, sour and unami (savory) are the five main types of taste**

- **Vestibular system-sensory information pertaining to motion, equilibrium and spatial orientation**
- **Located in each ear- utricle, saccule and three semicircular canals**
 - **utricle and saccule detect gravity and linear movement**
- **Keeps eyes on target when head moves**

3.3 Perceptual Development

- **Nature VS Nurture:**
 - **Ecological (nature)**
 - **some abilities are present at birth and fine-tuning of perceptual processes occurs throughout the lifespan**

- **Nature VS Nurture:**
 - **Constructivism (nurture)**
 - **construction of perception through learning and reliant on specific experiences**

3.4 Perceptual Processes

- **Depth Perception allows us to estimate distances between ourselves and objects we see**
 - **binocular cues- both eyes**
 - **Retinal Disparity**
 - **monocular cues- one eye**
 - **Linear Perspective**

- **Motion parallax refers to the apparent movement of stable objects when we are moving**
- **Interposition is when one object partially blocks out another**

- **Perceptual cues are hardwired but our experiences also shape our perception**
 - **sensory restriction- only has an effect in childhood when systems are forming**
 - **suggest a critical period for certain perceptions to be developed**

- **Processing of information occurs in:**
 - **bottom-up- simple sensory receptors to complex neural networks**
 - **top- down- expectations, motives and contextual cues to raw sensory data**

3.5 Receptor Processes

- **Vision allows for the processing of visual detail through use of the eyes**
 - **detects and interprets information from visual light to build representation of the surrounding environment**

- **Audition is the process of taking in sound through the ear and having it travel to the brain**
 - **taken to language center of brain to be interpreted**