

Sensation and Perception

Sensation

→ Stimulation of sensory receptors by some form of energy

- For energy to be detected has to exceed sensory threshold

Sensory Thresholds

- **Absolute threshold**: Smallest possible strength of stimulus that can be detected half the time
- **Difference threshold**: smallest possible difference between 2 stimuli that can be detected half the time
 - Defined by Webers law
- **Sensory adaptation**: the decline in sensitivity to a constant stimuli
- **Transduction**: Energy is converted into neural signals and transmitted to the brain
- **Subliminal perception**: deduction of stimuli that are below threshold on conscious awareness; nonconscious perception
- **Mere exposure effect**: finding that repeated exposure to stimulus increases persons preference for that stimulus

Vision

- stimulus - light waves

Rods

- Dim light
- peripheral vision
- Black / white vision

Cones

- Bright light
- Concentrated in fovea
 - small area in pupil.
- Fine details (visual acuity)
- **Color vision**: Psychological experience of different wavelengths
 - Hue: light wavelength
 - Saturation: purity of wavelength
 - Brightness: amplitude of light wave

Parts of Eye

- Cornea**: gathers incoming light
- Pupil**: contracts or dilates to control amount of light entering eye
- Lens**: process of accommodation focuses light on retina
- Retina**: contains sensory receptors

Trichromatic Theory

→ Theory that sensation of color results bc cones in retina are especially sensitive to red light (long waves), green light (med.) and blue waves (short) * explains red-green colorblindness

Opponent-process Theory

→ Theory that color is product of opposing pairs of color receptors and when one member of a color pair is stimulated, the other member is inhibited

- Red - green
- Blue - yellow
- Black - white

* explains after images
* occurs in ganglion cells

Perception

→ The process of integrating, organizing, & interpreting sensory info.

Top-down processing

→ knowledge flows from the brain down to the sensory data
- expectations

Bottom-up processing

→ Data flow from sensory receptors up to the brain

Gestalt Psychology

→ emphasized perception of whole forms, or gestalts

- **Figure-ground relationship**: perception is automatically separated into figure, which clearly stands out from less distinct background, the ground

Natural rules for Organizing Data

- **Proximity** - near = belong (law of proximity)
- **Similarity** - similar = belong (law of similarity)
- **Continuity** - flow = continuous (law of good continuation)
- **Closure** - completing an image (law of closure)

Depth Perception

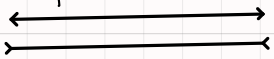
- **Monocular Cues**: Distance or depth cues that can be processed by either eye alone
 - Relative size
 - Overlap
 - Aerial perspective
 - texture gradient
 - Linear perspective
 - Motion parallax

Retinal Disparity - Difference in visual data detected by the left and right eye

Perceptual Principles

- **Perceptual Constancy**: objects are perceived as stable despite changes in sensory output
 - Size constancy: perception of object as same size
 - Shape constancy
 - color constancy

Perceptual Illusions

- **Muller-Lyer illusion**: visual illusion involving misperception of length of 2 identical lines; one w/ arrows pointed inward and one w/ arrows pointed outward 
- **Moon illusion**: visual illusion involving misperception that the moon is larger when on horizon than when overhead
- Motion perception
 - induced motion
 - stroboscopic motion
- Perception is influenced by experience
- **Perceptual set**: tendency to perceive objects or situations from a particular frame of reference