Week 6 - Day 1 (Ch 6-2 Sensation and Perception)

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# Week 6 - Day 1 (Ch 6-2 Sensation and Perception)

Feb 15, 2016

Quizlet: <https://quizlet.com/_20o6n7>

Test review

Functionalism

Cameron touches a hot iron     and immediately pulls his hands away because

1. Spinal reflexes      are automatic, requiring no conscious effort

Be able to label axon,     terminal buttons, etc

When children enter the concrete     operational     stage of development, they begin to think about and understand logical     operations, but are limited to reasoning about objects that they can act     on in the world

Broca's area

1. During a softball      game, hit on left side of head. Broken speech as a result. What area was      affected

(Missed sensation and perception 1)

Ch 6-2 Sensation and Perception

How do we see color?

Different theories

Trichromatic theory

* Eyes have 3 cones that      detect 3 different colors
* Red, blue, green
* Malfunctioning of cones      explains different forms of colorblindness

Opponent-process theory

Visual system treats pairs      of colors as opposing or antagonistic

* Red-green pair
* Blue-yellow pair
* Black-white pair

Opponent-process cells are      inhibited by a color

* Have a burst of activity       when opponent colors are removed
* Explains negative       afterimages

Gestalt

Object Perception Requires     Construction

The German word Gestalt means     "shape" or "form"

* As used in psychology,      Gestalt means "organized whole"

Figure and Ground

* Among the most basic     organizing principles is distinguishing between figure and ground
* In identifying what is     "figure," the brain assigns the rest of the scene to the     background

Proximity

Closure

Similarity

Continuity

Bottom-Up vs. Top-down processing

How we assemble the     information about parts into a whole object?

* Bottom-up      processing -      data are relayed in the brain from lower to higher levels of processing
* Top-down      processing -      Information at higher levels of mental processing can influence lower,      "earlier" levels in the processing hierarchy

Depth perception

How are we able to construct     a three-dimensional mental representation of the visual world from     two-dimensional retinal input?

Binocular     depth cues

* Both eyes work together

Monocular     depth cues

* Individual eye perceives      what's going on

Binocular Depth Perception

Binocular     disparity

This cue is caused by the      distance between humans’ two eyes

Brain uses disparity between      these two retinal images to compute distances

Stereoscopic vision

* Ability to determine an       object's depth based on object's projections to each eye

Convergence

* When eye muscles turn the      eyes inward, the brain knows how much the eyes are converging and uses      the information to compute distance

Monocular depth perception

We can perceive depth with     one eye because of monocular depth cues



Size perception

Influenced by depth cues

The size of an object's     retinal image depends on that object's distance from the observer

To determine an object's     size, the visual system needs to know how far away it is

* Depth cues can fool us into      seeing depth when it is not there
* A lack of depth cues can      fool us into not seeing depth when it is there

Perceptual Constancies

How does the brain know that     a person is 6 feet tall when the retinal image of that person changes     size?

Perceptual     constancy

Size

Shape

Location

Brightness

Color

* If you hold a Frisbee       sideways, you still know it's circular

Brain computes ratio based on     relative magnitude rather than absolute magnitude

* Perceptual systems are tuned      to detect changes from baseline conditions, not just to respond to      sensory inputs

Vocab

|  |  |
| --- | --- |
| Trichromatic  theory | Theory that eyes  have 3 different cones that detect 3 different colors (red, blue, green;  malfunctioning of cones explains color blindness) |
| Opponent-process  theory | Theory that the  visual system in the brain treats pairs of colors as opposing or antagonistic  (explains negative afterimages) |
| Gestalt | Term in psychology  referring to the idea that our perception is a sum of experiences; not it's  parts |
| Figure and ground | The concept that  your brain pics out a figure in an image and considers the rest to be the  background |
| Proximity | Gestalt principle  that we group things that are close together |
| Closure | Gestalt principle  that the brain will fill in gaps for incomplete patterns (such as an  incomplete triangle) |
| Similarity | Gestalt principle  that the brain will perceive an object which is similar to the actual object  (an x composed of circles for example) |
| Continuity | Gestalt principle  that things are separate (a line which breaks into an oval is perceived as a  line with an oval over it) |
| Bottom-up  processing | Data are relayed  in the brain from lower to higher levels of processing |
| Top-down  processing | Information at  higher levels of mental processing can influence lower, "earlier"  levels in the processing hierarchy (not taking in the details. Based on our  expectations) |
| Binocular depth  cues | Available from  both eyes together and contribute to bottom up processing |
| Monocular depth  cues | Available from  each eye alone and provide organizational information for top-down processing |
| Binocular  disparity | This cue is caused  by the distance between humans’ two eyes |
| Convergence | When eye muscles  turn the eyes inward, the brain knows how much the eyes are converging and  uses the information to compute distance |
| Perceptual  constancy | Brain correctly  perceives objects as constant despite sensory data that could lead it to  think otherwise (size, shape, location, brightness, and color) |
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Website for notes and other study materials from University of Alabama's Pyschology 101 section 012 Spring 2016