

DISCOVERING PSYCHOLOGY: SENSATION & PERCEPTION

- You are responsible for knowing everything covered in your text describing the visual system and make sure you know the visual pathway (see your text).
 - Distal Stimulus = the thing out there in the environment
 - Constancy & simplicity are used by the brain to determine the pattern or distal image (rigidity)
 - Proximal Stimulus = use information derived from the object's stimulation of sensory receptor in the body (e.g., image formed on the retina).
- I. **Hubel & Weisel**: won a Nobel Prize for mapping the action of receptor cells along visual path of primate from retina to cortex.
- A. Receptor cells (e.g., rods and cones) take in energy and turn it into electrical signals.
- B. Feature detection theory of pattern perception their research suggests that specialized cells in the occipital lobe are responsible for the perception of patterns.
1. Hubel & Weisel's cats (1959, 1965, 1979) they attached a series of micro-electrodes to single neurons in the visual cortex of anesthetized animals. They then presented simple visual stimulus (e.g., vertical or horizontal bars) directly in front of the animal's eyes.
 2. Results = different neurons responded differently to the various orientations. That is, they discovered feature detectors for specific orientations (e.g., vertical bars, horizontal bars, diagonal bars) wired into the animal's visual system.
- II. **Two Very Different Processes Involved In Sensation & Perception & Understanding of Information**:
- Much of perception is a mix of both **Bottom-up** (or data driven) & **Top-down** (conceptually driven) processing.
- A. Bottom-Up Processing: 1st our sensory receptors sense external information and send this raw data to the brain for processing. Stresses the importance of the stimulus in pattern/object recognition.
- B. Top-Down Processing: 2nd stage of processing involves what we already know about the stimulation, what we remember about the context in which it appears and how we label and classify it. This is how we give meaning to our perceptions. Our knowledge about how the world is organized helps us in identifying objects but it can also lead to illusions → we can be fooled because of our expectancies/biases.
1. We see what we expect to see and we see with our minds as well as our eyes. That is, previous experience, expectations, and biases affect perception.
 2. We select only a small part of the available information to attend to an process.
 3. Context Effects: the same object looks different in different context