

**The Skimm on How we See, and How we Taste
Chapters 15-18 & associated lectures/readings**

QUOTE OF THE WEEK

“There is no truth. There is only perception.” –Gustave Flaubert

1. WHAT DOES TASTE, TOUCH, SMELL, PAIN, SIGHT, OR HEARING HAVE TO DO WITH PSYCHOLOGY?

Consider what you are experiencing right now – much of it is tied to your **sensations** and **perceptions**. Many of humans’ highest achievements – such as art or music – require sensation and perception. So... it has a lot to do with psychology!

1a. THE STORY.

From sensation....to perception. This always starts with a physical stimulus – something in the environment. This physical stimulus needs to be transformed into a neural stimulus (i.e., **transduction**). Transduction occurs in all sensory **modalities**, but the physical stimuli differ, as do the **receptors** that perform the transduction. So how does the brain know if a neural impulse should be interpreted as taste instead of a visual image? Mueller proposed the **Doctrine of Specific Nerve Energies**, which states that different sensory qualities are caused by different neural structures.

1b. REMIND ME.

Let’s use an example (vision). After **photons** are focused on the **retina**, transduction occurs by the **rods & cones**. Several systems work in **parallel**. For example, rods and cones work in parallel. Another example is the “**what pathway**” and the “**where pathway**” working in parallel. The basic building blocks of vision are **feature detectors**, which the most basic elements. But we don’t have a feature detector for every object that we can recognize, so features can only be part of the story. The way the features fit together is critical. **Face recognition** provides an ideal example: we recognize faces not by recognizing the individual parts, but by recognizing the combo of the parts. When you turn a face upside it’s hard to recognize because the **configuration** is wrong.

1c. So...

In other words, the whole is more than the sum of its parts. This is also shown in the **superadditive effect of multisensory integration**, aka **multisensory enhancement**.

1d. theSKIMM.

Sensation is the detection of physical energy by sense organs, which send info to the brain. Perception is the brain’s interpretation of sensory input. When it comes to sensation/perception, not everyone is the same.... There are individual differences, some due to biology and some due to culture.

2. REPEAT AFTER ME...**2a. What to say when your mom puts cilantro in the guac.**

Mom! I'm an anosmic. It's a genetic smelling issue – I can't smell the good stuff about cilantro and therefore it doesn't taste good to me. In fact, it kinda tastes like soap. Don't you know taste is **multimodal** and that there are individual differences in sensation and perception?

2b. What to say when your frenemy tries to argue with you about the color of that %*\$@ white/gold, blue/black dress.

Wasn't that last year? Light enters the eyes and hits the retina where cones transduce the signal and eventually it is interpreted by the **visual cortex**. Some scientists believe the differences in our perception stem from **chromatic adaptation**. Usually the system works fine, but this image hits a **perceptual boundary** and when cues about the ambient light are missing, people may perceive the same color in different ways. #dressgate #whiteandgold

3. THINGS TO KNOW (i.e., vocab)

3a. Terms: A-fibers, analgesia, binocular advantage, bottom up/top down processing, c-fibers, cones, contrast, cross modal phenomena, cutaneous senses, dark adaptation, descending pain modulatory system, endorphin, exteroception, feature detectors, gustation, illusions, interoception, lateral inhibition, McGurk Effect, multimodal perception, multisensory convergence zones/enhancement, nociception, noxious stimulus, olfaction, opponent process theory, orthonasal olfaction, pain, parallel processing, perception, phantom pain, photoactivation, placebo effect, primary visual cortex, receptive field, retronasal olfaction, rods, sensation, social touch hypothesis, somatosensory cortex, somatotopic organization, superadditive effect of multisensory integration, synesthesia, transduction, trichromacy theory, unimodal, What pathway, Where/How pathway

3b. Some Names:

3c. (But these aren't the only things that are important!)