

Week 4: Lecture Activity

Designing for Enhanced Perception

Introduction

Perception is the process of organizing and interpreting sensory information in order to recognize objects and events. For cartographers, visual perception is key understanding how maps are seen. The trick is understanding how map design can be improved through a perceptual lens. This lecture activity explores contrast and color deficiency in relationship to a map that you've already made. How can your design be improved by taking these variables into account?

Directions

Download the map that you submitted as your Object on Learn@UW. Open this file in Adobe Illustrator and Photoshop. Save a copy of your original map as a .png.

Contrast

In lecture, we discussed David Marr's theory of vision as a series of representations that pre-attentively convert retinal stimuli to visual scenes. The series of representation includes a primal sketch, 2.5D sketch, and 3D sketch that directly inform contrast, grouping, and figure/ground, respectively. Today, we're going to focus on contrast (the perception of difference that allows for feature discrimination).

Using Photoshop, manipulate your map to better understand *contrast* in your map.

1. Create a primal sketch of your map to detect *edges*. Export a .png copy.

Sequence of Tools: Glowing Edge Filter > Invert > Convert to Black and White

2. Create a primal sketch of your map to detect *blobs*. Export a .png copy.

Sequence of Tools: Dark Stroke Filter > Smart Sharpen > Convert to Black and White

3. Create a *grayscale* version of your map to assess contrast. Export .png copy.

4. Record a few notes on things you might improve upon in your map. For example, does your map need extra negative or “white” space? Does the contrast in your map reflect your intellectual hierarchy? Do you need a little extra contrast in color or in your type?
5. Compare and share with your neighbor.

Color Deficiency

In lecture, we discussed the physiology of eye and the eye-brain systems. We didn't, however, discuss the possibilities for color deficiency. Color deficiency or color blindness is prevalent, especially among men (8 percent or 1 in 12 men). Designing for color blindness is not only *ethical*, but is often required by law. For example, the *Americans with Disabilities Act* calls for universally accessible information, including mapped information. Although there are several types of vision impairment, deuteranopia or protanopia is the most common. Deuteranopia or protanopia are typically referred to as “red-green blindness” and effect the two types of cones in the eye.

Quick recap: the retina is made of up rods and cones that receive light stimulation from a visual scene. Cones sense changes in hue and rods sense changes in value or the amount of black reflected.

Explore your map through the lens of deuteranopia and redesign your map for effective color design as well as contrast. Use the following resources to help in your redesign:

<http://colororacle.org/index.html>

<https://medium.theuxblog.com/how-to-design-for-color-blindness-a6f083b08e12>

<http://colorbrewer2.org/>

1. In Adobe Illustrator (or even Photoshop) view your map through the deuteranopia filter and export a .png copy.

View > Proof Setup > Color Blindness Deuteranopia-type

2. Using the resources above, redesign your map for effective and universal design and contrast!
3. Take notes on your process (i.e. what techniques or strategies did you use).
4. Export your redesigned as a .png.

Outcome

To receive full credit for this lecture activity, submit the following as *.png files*:

1. an original copy of your map before you change anything
2. primal sketch displaying edges
3. primal sketch displaying blobs
4. grayscale version of your map
5. deuteranopia version of your map
6. final redesign

In addition, please submit your contrast and process notes as a Word document!