Module 11: "Color Visibility"

Lecture 28: "What is Color Visibility"

The Lecture Contains:

- What is Color Visibility
- Color Intensity & Visibility
- Visibility of Lettering
- Most Visibility
- Visibility Chart

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What is Color Visibility?

"The visible spectrum is the portion of the electromagnetic spectrum that is visible to (can be detected by) the human eye. Electromagnetic radiation in this range of wavelengths is called visible light or simply light. A typical human eye will respond to wavelengths from about 390 to 750 nm. In terms of frequency, this corresponds to a band in the vicinity of 400–790 THz. A light-adapted eye generally has its maximum sensitivity at around 555 nm (540 THz), in the green region of the optical spectrum (see: luminosity function). The spectrum does not, however, contain all the colors that the human eyes and brain can distinguish. Unsaturated colors such as pink, or purple variations such as magenta, are absent, for example, because they can be made only by a mix of multiple wavelengths." (Ref. http://en.wikipedia.org/wiki/Visible_spectrum ; June 9, 2012)

We see color, our section on perception explained - light bouncing of pigments in paint. Each pigment reflects light differently because of its molecular structure, and this makes colors of paint somewhat different from pure colors as seen in the spectrum- rainbow, or through prism. Sine paint must be made of mineral or vegetable matter; the actual colors of paint may vary greatly from the theoretical model of color wheel.

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Intensity of color combination increases or decreases the degree of visibility. The following chart shows the scale of visibility-

Plate1.A Intensity and Visibility

Letter Visibility Chart

VIEWING DISTANCE	MINIMUM REQUIRED LETTER HEIGHT IN INCHES
100 ft.	4"
250 ft.	10"
360 ft.(City Block)	16"
500 ft.	22"
750 ft.	33"
1000 ft.	43"
1320 ft.(1/4mile)	57"

This letter visibility chart has been made for you based upon information provided by Pennsylvania Transportation Institute ,Penn state university & United States Sign Council. Calculations based on externally or naturally lit signs with all upper case Helvetica letters utilizing negative space. Factors that may affect required letter size are : color scheme, font , traffic & weather conditions .

Plate1.B Visibility of Letterings

(Ref. http://www.banners-signs.net/window-auto--boat-graphics.html ; June 9, 2012)

The visibility is subject to the combination of colors. It is very much relative. Each color has the potential to become attractive and visible based on other colors. The above (plate 1 A&B) shows the degree of visibility due to the contrasting colors. 'Black on Yellow' has the highest visibility because of the intensity of the yellow color. Similarly the visibilities of alphabets are based on the size and distance of the matter. The font sizes are to be increased based the distance of viewing point.

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Most Visible: Visibility of colors used in combinations or singly is most important. Colors increase in visibility when their chrome (hues) increases, but all colors increase or decrease in visibility depending on their surroundings. Color intensity plays important role in color visibility. The degree of visibility increases or decreases based on the combination of colors. It is generally agreed that the following combinations are-

It is being studied that human being's clarity in perception largely depends on the combination of color. Scientifically it is proved that 'black on yellow' has the highest visibility where as 'red on green' has the least visibility. Following is the Visibility Chart given in order:

1. Black on Yellow 

2. Green on White 

3. Red on White 

4. Blue on White 

5. White on Blue 

6. Black on White 

7. Yellow on Black 

8. White on Red 

9. White on Black 

10. Red on Yellow 

11. Green on Red 

12. Red on Green 

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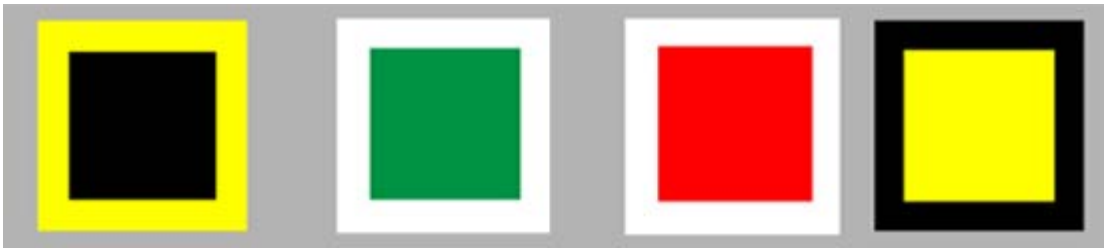
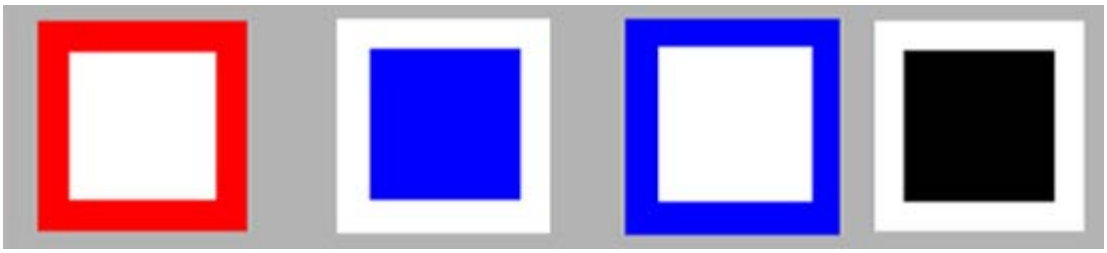
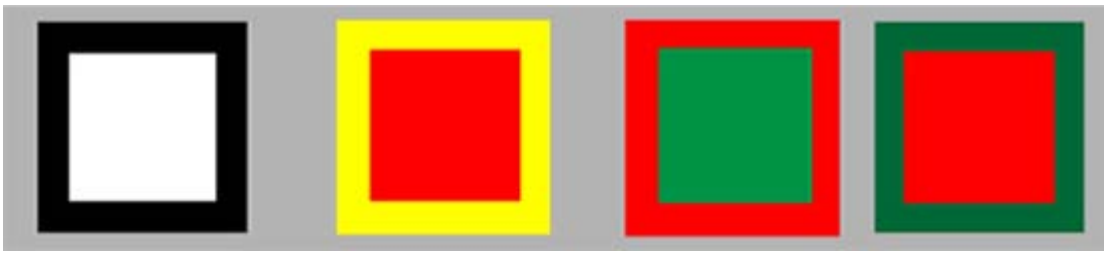
Visible in the order given bellow



1. Black on Yellow | 2. Green on White | 3. red on White | 4. Yellow on Black



5. White on Red | 6. Blue on White | 7. White on Blue | 8. Black on White



9. White on Black | 10. Red on Yellow | 11. Green on Red | 12. Red on Green

Plate2 Visibility Chart

The Visibility Chart (plate2) shows the clarity and best to the lowest visibility of colors as we perceive. However, one has to remember the area of each color would create the correct visibility.

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