COLOR THEORY: Week 3

"Color! What a deep and mysterious language, the language of dreams."

— Paul Gaugin

Notes, clarifications, and information to the first week of class

- With the development of fluorescent colors, the Munsell Color Tree has been expanded.
- At the Museum of the American Indian this weekend, women from Chiapas, Mexico demonstrated their weaving skills as well as their palette, selected from Pantone.

Johannes Itten, *The Elements of Color*

Although previous color theorists noted the "significance of the various color contrasts," Itten believed that careful exploration of the effects of color contrast were an essential element of color study. Itten was a painter who taught at the Bauhaus, a German art school from 1919 to 1933, when it was closed by the Nazi government. Other Bauhaus teachers included Josef Albers, Wassily Kandinsky, Paul Klee, Lyonel Feininger, Laszlo Moholy-Nagy, and Piet Mondrian.

Itten identified seven types of color contrast:

1. Contrast of hue
2. Light-dark contrast
3. Cold-warm contrast
4. Complementary contrast
5. Simultaneous contrast
6. Contrast of saturation
7. Contrast of extension

This week, we will study five of them.

Contrast of hue

Contrast of hue simply uses undiluted (saturated) colors. Art or design consisting of red, yellow, and blue are the most extreme example of contrast of hue.

Light-dark contrast

A single hue, for example, blue, when mixed with varying degrees of white (creating tints), will exhibit contrast from light to dark among the saturated blue and its tints.

Cold-warm contrast

The hues in the color wheel are split between those considered warm (red, orange, yellow) and those considered cold (blue, green, violet).

Complementary contrast

In The Elements of Color, Itten outlines Complementary Contrast as follows:

"We call two colors complementary if their pigments, mixed together, yield a neutral gray-black." "Two such colors make a strange pair. They are opposite, they require each other. They incite each other to maximum vividness when adjacent; and they annihilate each other, to gray-black, when mixed – like fire and water."

The use of specific combinations of colors is called a "color scheme." There are multiple versions of complementary contrasts or color schemes:

- Complementary
- Split complementary
- Analogous
- Triadic
- Tetradic (Rectangular and Square)

There are three other color schemes that are not complementary:

- Achromatic (gray)
- Monochromatic
- Diad (Two colors that are separated by one color on the color wheel, for example, yellow-orange and red-orange.)

Contrast of extension

Contrast of extension concerns the correct proportion or spatial relations between two colors. Colors of lighter value or brightness can overwhelm darker or duller colors if used in the same amount. Goethe theorized that in order to make appropriate and pleasing proportions between colors, it was necessary to account for this factor.

Goethe's theory of color

Goethe proposed that each of the primary colors has a degree of luminosity or light value. This is similar to our attempts to align each hue with one of the ten values from white to black.

Yellow	:	Orange	:	Red	:	Violet	:	Blue	:	Green
9	:	8	:	6	:	3	:	4	:	6

The proportions for complementary pairs are therefore:

Yellow	:	Violet	=	9	:	3	=	3	:	1	=	¾ : ¼
Orange	:	Blue	=	8	:	4	=	2	:	1	=	$^2/_3$: $^1/_3$
Red	:	Green	=	6	:	6	=	1	:	1	=	½ : ½

In order to make harmonious images, it is necessary to use the reciprocals of these values. For example, since yellow is three times the strength of violet, in a composition with yellow and violet, the yellow area should be one-third the size of the violet area.

Yellow	:	Violet	=	¼	:	¾
Orange	:	Blue	=	$^1/_3$	:	$^2/_3$
Red	:	Green	=	½	:	½

The harmonious areas for primary and secondary colors are:

Yellow	:	Orange	:	Red	:	Violet	:	Blue	:	Green
3	:	4	:	6	:	9	:	8	:	6

The harmonious areas for one hue in relation to the others, for example, yellow, is:

Yellow	:	Orange	=	3	:	4				
Yellow	:	Red	=	3	:	6				
Yellow	:	Violet	=	3	:	9				
Yellow	:	Blue	=	3	:	8				
Yellow	:	Green	=	3	:	6				
Yellow	:	Red	:	Blue	=	3	:	6	:	8
Yellow	:	Violet	:	Green	=	3	:	9	:	6