MARKETING ON A SHOESTRING BUDGET

This is the seventh in a series of articles intended to help chapter marketing teams maximize their "bang for the buck", particularly when faced with a limited budget. Last time we took a close look at Color Theory. This time I want to turn attention to understanding the color models that are used to create our artwork, both for display and print.

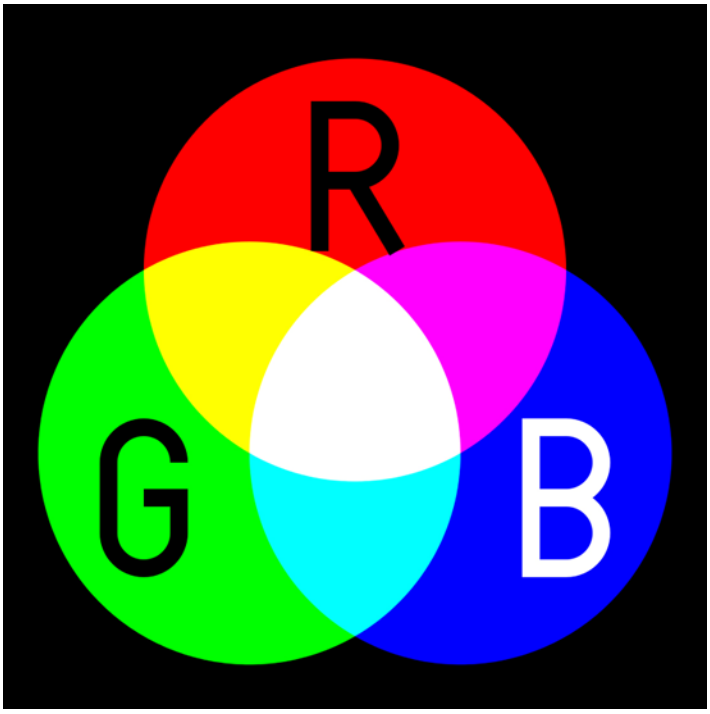
Color Models for Display & Print

In our earlier discussion on color theory, we identified the three primary colors as red, yellow and blue. That is with respect to the RYB (or Artistic) color model, which is subtractive. Remember, the "subtractive" process starts with a white background and subtracts wavelengths to form colors.

But what about a computer screen, or even your television? Those have a black background! In this case we use an "additive" process to add mix light colors against a dark background to form the colors.

SUBTRACTIVE subtracts from white. ADDITIVE adds to black.

Why is it important to know this? Because often times we develop marketing materials to be printed as well as displayed on the computer screen, and understanding these color models and how to work with them will give you a great looking product no matter where your customer sees it.



RGB Color Model for Display

The RGB color model is a color model used largely in display technologies that use light. In this model, the colors red (R), green (G) and blue (B) are added together at different intensities to produce millions of different colors on modern video display screens.

RGB is additive, meaning it mixes light colors against a dark

(black) background. If combine 100% of all three light colors we get white.

Additive color is a result of the way the eye detects color, and is not a property of light. For example, there is vast difference between pure spectral yellow light and a mixture of red and green light, but it stimulates our eyes in a similar manner, and both are perceived as yellow.

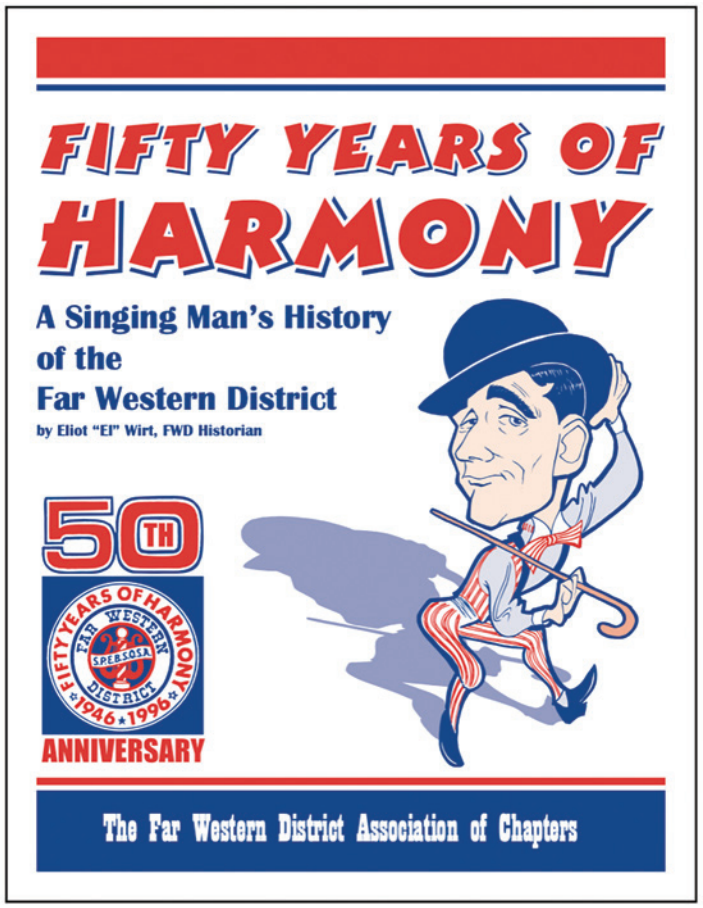
There are 16,777,216 possible color values in the RGB color model!

So now we have a basic understanding of how the RGB color module uses the additive process to create millions of colors on our computer screen (display) and our television.

Options for Printing

But what about printing? How do we "add" color to a white background? We don't … for printing we need to use a subtractive process.

So, we go back to the old color wheel and the RYG color model? Well, not exactly… in the printing process there are basically two ways that color can be added to paper: spot color, and process color.



Spot Color Printing

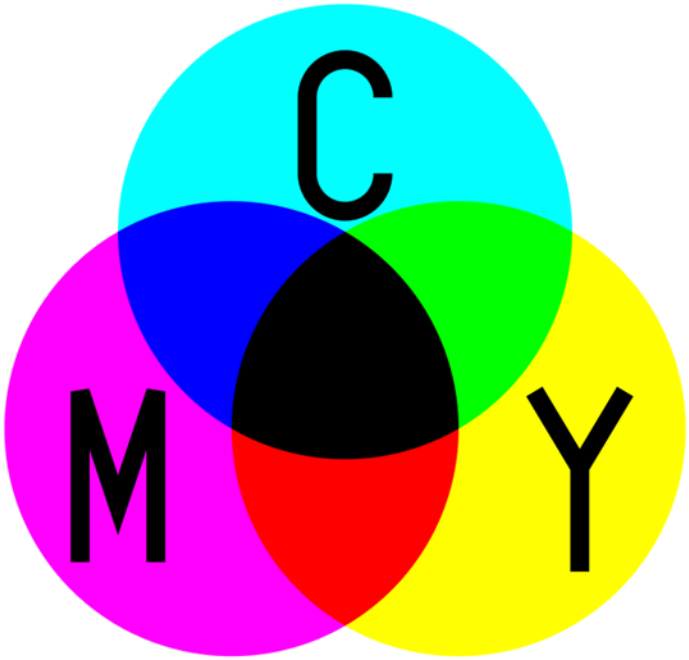
Spot color printing "sort of" goes back to the RYB color model in that we mix colors in much the same way as an artist mixes paint on the palate, and then apply them subtractively to a white background.

In reality, those colors are already mixed, with thousands of ink colors available.

Each spot color is applied separately, using separate plates and separate runs through an offset press. You can think of it like doing "paint by numbers".

You can simulate tint by decreasing the density of the spots. This is referred to as "halftoning" or "screening".

While there are some applications where spot color makes sense, each color adds cost. For more than three colors, it makes better sense to go with four-color process printing.



CMYK Process Color Printing

The CMYK color model (process color, four color) is a subtractive color model, used in color printing, and is also used to describe the printing process itself. CMYK refers to the four inks used in some color printing: cyan, magenta, yellow, and key (black).

The CMYK model works by partially or entirely masking colors on a lighter, usually white, background. The ink reduces the light that would otherwise be reflected. Such a model is called subtractive because inks "subtract" the colors red, green and blue from white light. White light minus red leaves cyan, white light minus green leaves magenta, and white light minus blue leaves yellow.

So that covers Cyan, Magenta, and Yellow. But what about Key (Black)? If you remember in the additive RGB color model, combining 100% of Red, Green, and Blue gives us White. But the same is not true in the subtractive CMYK process; if you combine 100% of Cyan, Magenta, and Yellow you get

a muddy brown, and that is where the Key (Black) comes in to save the day and give us a true black. Key (Black) is also used to form different shades of the colors formed by the combination of the other three.

Adjusting the color percentages of Cyan, Magenta, Yellow, and Key (Black) yields over 10 million combinations.

Combining Options

Printing also gives you some options that are simply not possible on the display screen. You can combine spot and process color, underprint, add gloss, emboss with foil and many other printer tricks to give some amazing results.

Tips and Tricks

#1: Always create in CMYK first!

When designing your artwork using programs like Photoshop and Illustrator, it is important to know how you will be using the image. If it will be used for print it is very important to create your artwork using the CMYK color model (for print) and later make a copy that has been converted to RGB to use one your website and in your emails. That way your printed copy will look exactly like what appears on the screen; doing it in RGB first and later converting to CMYK will give you unexpected, and often disappointing results.

#2: What you see on your screen os NOT what you get on the paper!

Keep in mind that when you are working on CMYK artwork, your computer is displaying it in RGB, so the colors you see on the screen may not be quite what you expect. To avoid disappointment, it's a good idea to invest in a PANTONE Process Color Formula Guide, which gives you printed samples of all the color combinations so you can see the actual colors that will come off the press.

Wrapping it up

I hope you now have a basic understanding of the ways we can use color effectively to attract attention to our product, the ways colors interact with each other and the emotions they produce, and the ways we produce colors. In the next issue we'll conclude this series by talking about how to prepare your artwork for your printer.