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# Web Design for Developers

A Programmer's Guide to Design Tools and Techniques

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The  
Pragmatic  
Programmers

# Web Design for Developers

A Programmer's Guide to  
Design Tools and Techniques

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Edited by Daniel H. Steinberg



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Printed in Canada.

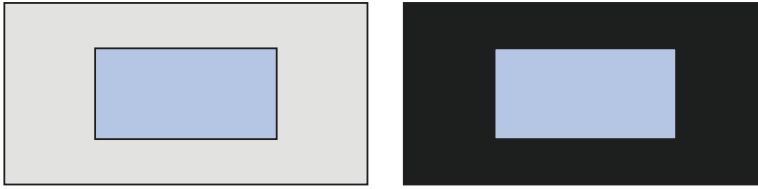
ISBN-10: 1-934356-13-1

ISBN-13: 978-1-9343561-3-5

Printed on acid-free paper.

P1.0 printing, December 2009

Version: 2009-12-21




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Figure 3.2: Which blue box is darker?

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work with color on the computer, you have a choice between RGB, the additive color method; and CMYK, which stands for Cyan, Magenta, Yellow, and Key (usually black), the subtractive method. You usually want RGB if you're working on the Web. However, if you plan to print something, you want to use CMYK, the color mode used by many four-color printing systems.

## 3.2 Color Context

Look closely at the images in Figure 3.2. The blue rectangle on the left probably appears to be darker, even though both rectangles are exactly the same color. This trick your eyes played on you is called *color context*, and it can be extremely frustrating.

I was working for a client on an update for his company's home page. The client wanted to put some red lettering over a light blue background in the banner, and he wanted to make sure I used the same red that we used throughout the rest of the site.

As a developer, you can see the problem. The customer was suggesting the implementation. The client wanted the red to *look* like the red used throughout the site. It was up to me to know that to achieve that goal we needed to use a brighter red.

When I used the same red—just as the client had specified—he didn't like the result. The red didn't look right. When I changed the red color to something a little brighter, it *appeared* to be the same color as the rest of the reds in the site, and the client was happy.

The context of a color can greatly influence how it appears in your application. Even if you technically pick the correct colors, you might have to make additional adjustments to make them *look* right.



Adjacent colors with fewer steps make the transition more obvious.



If we increase the number of steps, our brain starts to blend the colors.



Thousands of steps make the transition appear seamless.

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Figure 3.3: Examples of color fluting

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This effect is caused by *fluting*, which is the technical term for the way your eyes blend adjacent colors together. You can use color fluting to your advantage (see Figure 3.3). As the example illustrates, fluting is what makes gradients possible. If you don't do the transitions gradually enough, you get the banding effect. However, if you do the transitions with lots of slight variations, your eyes ignore them and blend everything together.

### 3.3 Evoking Emotion with Color

We are taught from birth to associate colors with emotions, moods, or feelings. When choosing colors for your application, it's important to think about the various responses your choices might trigger. Using red or blue improperly could trigger an undesired response or could even create confusion.

Your choice of color influences your users' perspectives, and simply applying a different color scheme to a website completely changes the user experience.

## Warm Colors

As the name suggests, warm colors make you think of warmth, sunlight, and heat. Some people believe that you feel warmer if you look at these colors.

### Red

Red is a strong color that can stand for love, joy, happiness, and romance. It can also represent lust, anger, war, an emergency, or danger. Its use in applications is almost always to show a warning or an error message. Red attracts a user's eyes immediately.

### Yellow

It's hard for a user to focus on yellow, but the color can evoke feelings of intelligence and happiness when used correctly. Many applications use some sort of *yellow fade effect* to let you know that the action you just took was successful.

### Orange

Orange can be cheerful like yellow, but it can also be arrogant and superior, depending on the amount of red. Some experts claim that the red contained within orange can stimulate the brain.

## Cool Colors

Cool colors have a cooling or calming effect on people. They're comforting, and you can use them to tone down a site. Cool colors include blue, green, and purple.

### Blue

Blue can be calming, soothing, and cool. It has a tendency to make users relax when it's desaturated. However, as the shades of blue get darker, they can cause feelings of sadness and depression.

### Green

People tend to associate green with nature, hope, health, and responsiveness. However, if used incorrectly, green can also trigger feelings of envy (most likely because of the expression "green with envy"). In addition to envy, green can evoke feelings of greed, guilt, and disorder. Certain shades of green allow the eyes to rest, which can have a soothing effect on your users. The wrong mixture of colors can make your users feel sick or disgusted.

### **Black and White: The “Noncolors”**

Black and white are not technically colors. When you're talking about images on a computer screen, black is the absence of color, while white is a mixture of all color in the spectrum. Remember from the discussion of additive vs. subtractive color mixing that the inverse is true when you're working with paints, so be careful!

Though not technically colors, black and white still evoke emotion and should be considered as colors when building a color scheme.

### **Purple**

Purple is one of those odd colors that doesn't appear in nature very often. You might see it on the petals of flowers, but you see it mostly in things that people create. Purple is often associated with royalty and mysticism, mainly because it was extremely difficult to produce in ancient times. Purple is a mixture of red and blue, which means you get some of the attributes of each color. Light purple is often associated with nature, peace, tranquility, and spirituality. Dark purple can evoke feelings of depression. Large amounts of purple can be difficult on the eyes.

### **Neutral Colors**

Black, white, silver, gray, beige, and brown are unifying colors. They help bridge the gap between cool and warm colors. When used as background colors, they help other colors stand out.

### **Black**

Black can represent prestige and elegance, and it can be really powerful if used in the right context. However, black is also associated with mourning, death, despair, and brooding. When you use black in a design, you must make sure you target your audience carefully.

### **White**

White evokes feelings of purity and perfection. It's a perfect color for a clean website. Too much white can be boring and sterile, but it makes every other color stand out that much more.

## Brown

Brown can stimulate hunger, health, and simplicity. On the flip side, some people perceive brown to be a dirty color, and it can evoke feelings of uncleanness, which is definitely not something you want for your site.

## Beige

Beige makes people relax. It is a conservative color that borrows from brown and white. It's a great choice for a background because it can be calming, and it will allow other colors to stand out well.

## Gray

This color seldom evokes an emotion, but when it does, it's usually associated with feelings of gloom, mourning, and moodiness, much like a cloudy day. It leans toward the cool side of the color spectrum.

Gray is a funny color; if you make it dark, you get to borrow some of the elegance of black. If you make it light, you get to borrow some of white's traits.

## Colors and Your Users

Remember that a person's personal biases will have some effect on how your color choices affect his or her emotions. This bias might be because of an association created by an experience or memory, but more often, it's cultural.

For example, although we might find that red is a lustful, angry, or passionate color, it's a color of good luck and celebration in China. In parts of India, red can mean triumph or success. Red can also symbolize socialism and communism; in South Africa, it's the color of mourning. Black is a color of mourning in the Western world, but the Chinese use black to symbolize high quality.

Brandcurve has an excellent article<sup>2</sup> outlining color meanings in different cultures. If your site is going to be used by an international audience, then don't forget to localize your colors, just as you localize your text.

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2. <http://www.brandcurve.com/color-meanings-around-the-world/>





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Figure 3.4: In the mixing color wheel, the primary colors are red, yellow, and blue. This is often referred to as the *RYB color wheel*.

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## 3.4 Color Schemes

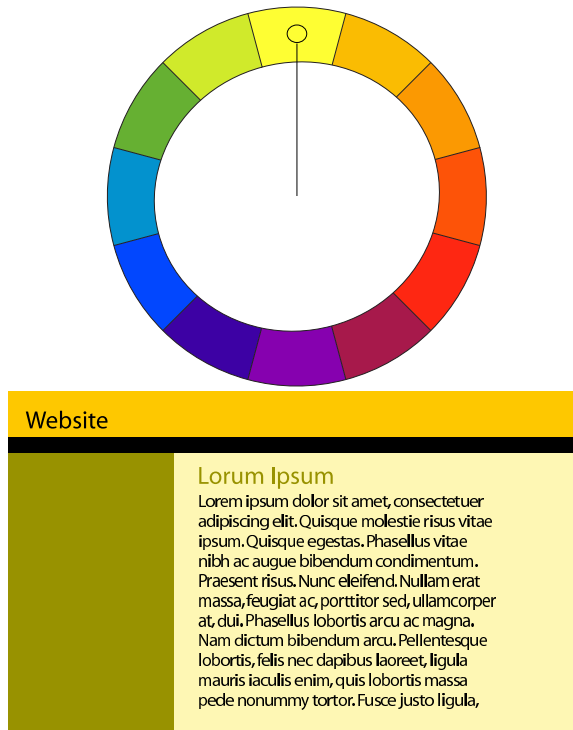
Some colors just don't look good next to each other, and some do. Color schemes are groups of colors that work together to create a visually appealing result. Let's take a brief tour of the different types of color schemes and how we can apply them.

You need to understand a little bit about color theory before you pick a color scheme, and the best way to do that is by taking a look at the *color wheel*. A color wheel helps show relationships between various colors. I've drawn a simple RYB wheel, or *mixing color wheel*, that uses red, yellow, and blue as the primary colors (see Figure 3.4). I'll use the mixing wheel throughout this chapter to show examples of various color schemes.

### Monochromatic Scheme

The monochromatic scheme is made up of just one hue (see Figure 3.5, on the next page). You create the scheme by altering the brightness and saturation of the hue and adding that variation to the scheme.

This scheme adds form and depth to a design. When you use it in your site, your other elements, such as photographs or icons, really stand out. This scheme is ridiculously easy to create, but it works best for sites where the content is the most important element.




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Figure 3.5: Monochromatic color scheme

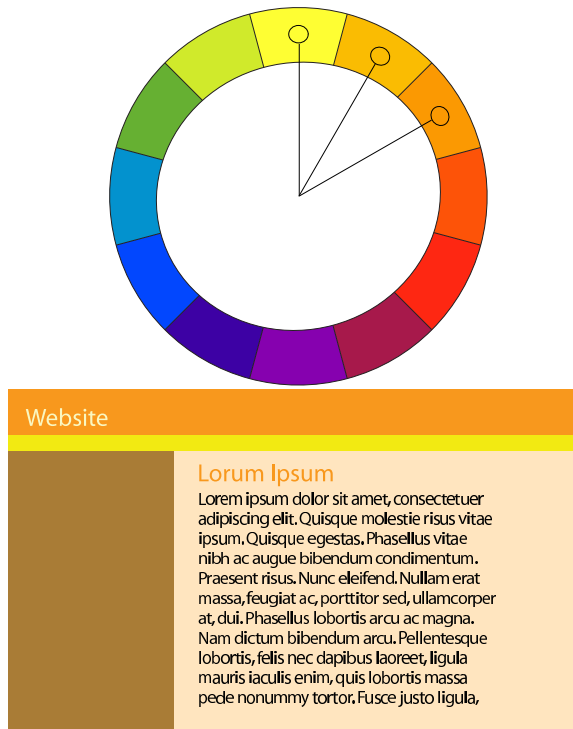
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## Analogous Scheme

The two colors on either side of a color on the color wheel are referred to as *analogous* colors. Take all three colors—the base color and its two neighbors—and use them to build a scheme (see Figure 3.6, on the following page). The scheme is subdued, but the adjacent colors accent the scheme a bit.

This color scheme involves picking colors that appear directly adjacent to each other on the color wheel. One color dominates this scheme, and other, similar colors are used for impact.

This scheme is as easy to create as the monochromatic scheme, but you get richer results because you use different colors instead of just different shades of the same color. These additional colors can help accent the main color, drawing your users' eyes toward important content.




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Figure 3.6: Analogous color scheme

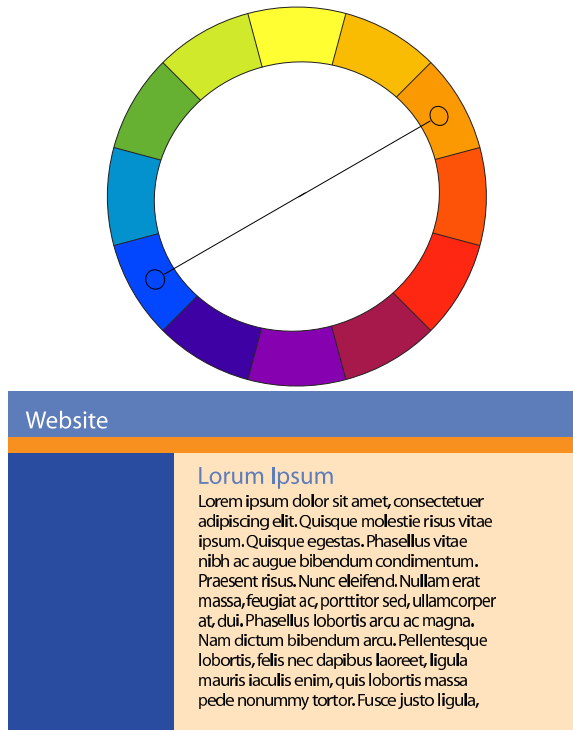
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One major problem you might run into is that this scheme lacks any real color contrast, so you don't get as much contrast as you would with a complementary scheme. It does tend to be the best-looking scheme for beginners, though, because it's not hard to create, and it gives you a nice, safe range of colors to choose from that won't clash.

### Complementary Scheme

A complementary color scheme uses two colors that appear on opposite sides of the color wheel as the base colors. These colors are said to *complement* each other directly. Purple and yellow are great colors for this scheme, as are red and green. You can see an example of a complementary scheme in Figure 3.7, on the next page.

Complementary color schemes are often difficult to balance because the colors can be extremely bright, and you need to do a lot of tweaking to tone things down. Some combinations, such as orange and indigo, can




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Figure 3.7: Complementary color scheme

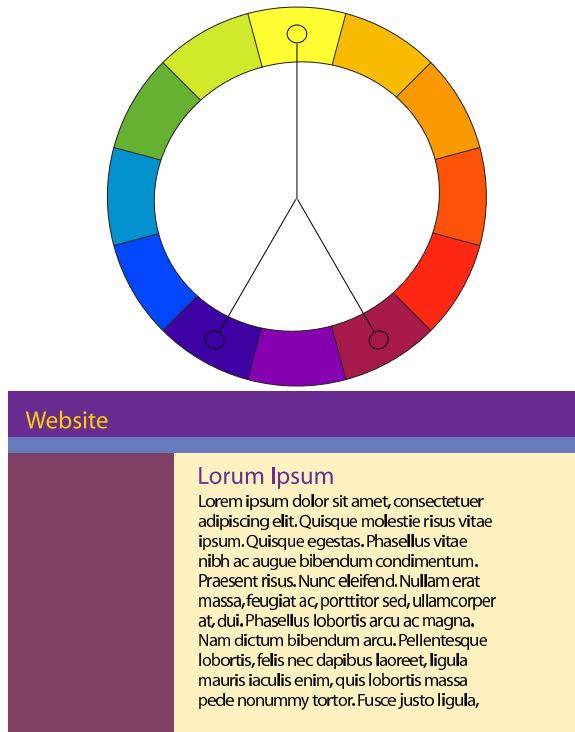
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be extremely difficult to balance. When used improperly, those colors can be very shocking and intense; however, you can get a nice effect if you desaturate the cool colors and saturate the warm ones. One of the best ways to make the most of this scheme is to use your base color as the main color and use its complement as an accent color.

Be careful when placing your text. Using a color for your text and its complement for your background can make things difficult to read if you don't make the proper saturation adjustments.

### Split-Complementary Scheme

The split-complementary color scheme is interesting because it's a little more difficult to use, but like the complementary scheme, it can be quite attractive if you make the proper adjustments to saturation and brightness. I encourage you to experiment with this scheme the most




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Figure 3.8: Split-complementary color scheme

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because it's not used very often, which means it can give you a chance to make certain features of a design stand out.

This scheme involves picking a color on the color wheel and then picking the two colors adjacent to the first color's complementary color, rather than its direct complement.

This approach allows for strong contrast while adding some different color variations. You'll end up with a scheme that is less extreme or shocking than a complementary scheme.

Be especially careful not to use a lot of dull colors because that will subtract from the overall effect.

You should try working with all these color schemes to get a feel for how they work. I tend to use monochromatic in a lot of my design work because I like how much photographs pop out. You might discover you

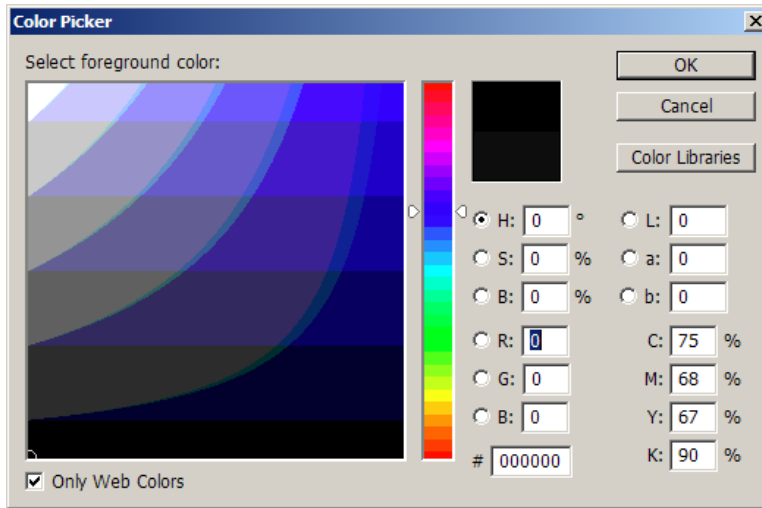


Figure 3.9: Photoshop's Color Picker provides an option to show only web-safe colors.

favor a different one. The important thing is to understand the advantages and disadvantages of each scheme.

### 3.5 The Web-Safe Color Palette

The web-safe color palette consists of only 216 colors that are supposed to look exactly the same across all operating systems. It was designed at a time when video cards were limited. Designers working on a Mac wanted to be sure that PC users could see the images as the designers intended. Unfortunately, this color palette was quite bland and extremely limiting. It consisted of six shades of blue, six shades of green, and six shades of red mixed together in various amounts.

Designers are abandoning the web-safe palette now that the majority of users have computer displays that can render millions of colors. You still might see slight variations from machine to machine, but these variations are minor in most cases.

A few experienced web designers, as well as some organizations, still insist on working in this palette, and many graphics packages provide options that will help you stay within the web-safe palette. You can see

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