

CP202 : Text

Text

- Second only to having good content, good text formatting is key to good website design
- Major difference - paper is not dynamic; web pages can be resized
- Unlike paper the Web is a fluid medium - text must flow and change with browser
- This is a very bad idea for large chunks of text

Text Design

- Leave the font up to the user unless choosing a font for emphasis
 - o Then use a concise, easily readable font with fallback options
- DON'T SHOUT - use all uppercase sparingly
- User horizontal rules to separate sections of a page
- Use strongly contrasting colors for background / foreground
 - o Use an RGB color wheel for color contrasts
 - o White on black may not print properly
 - o Red vs. green may be a problem for those with red-green blindness
 - o Remember that color printing can be expensive
- Be consistent in use of headers and headings
 - o Clearly distinguish between different levels of headings
- Follow paper conventions for things such as references and bibliographies
- Create a separate stylesheet for printing purposes
 - o Hide navigation sections
 - o Do not print white on black
 - o Hide background images and colors
- Use the same class names but different properties better suited for printing or excluding
- For a static, restful design, balance elements on the page
 - o Put similar margins on both sides
 - o Make the page symmetrical
- For a dynamic design use asymmetry
 - o Balance text against white space instead of other text
- Contrast draws the eye to important elements
 - o Contrast fonts with different sizes, shapes, position, weights and colors
 - o Contrast headings and images with different sizes
- Harmony is the opposite of contrast and is used for elements of equal weight
 - o Use similar shapes, sizes, color and style for items of equal importance
- Examine a layout for both:
 - o What stands out - is it a useful contrast or just jarring?
 - o What doesn't stand out - is it in harmony or just boring?
- Have someone else examine your design
 - o Do they share your opinion of your text layout?
 - o Do they have any accessibility problems you have not dealt with?
 - o Do they see the same contrasts and harmonies?
- Don't use graphics if you can do it with text
 - o Text is smaller and loads faster
 - o Text can be indexed by search engines

CP202 : Color

Color

- Color is defined differently in different media (i.e. screen vs printing)
- Computer video cards use RGB (Red Green Blue) combinations to represent colors
- Different combinations of red, green, and blue create different colors
 - o 'all' colors becomes white
 - o 'no' colors becomes black

RGB Values

- Web colors are represented by RGB color triplets
- The amount of Red, Green, and Blue is determined by three numbers with values from 0 - 255
- These are usually represented by six hexadecimal digits
- A hex digit may be 0-9 or a-f (values 0-15)
- XHTML and CSS represent colors in a range from #000000 (black) to #ffffff (white)
 - o the '#' indicates a hexadecimal triplet
- Triplets can define up to 16,777,216 colors







Primary Colors

Secondary colors result from using only one the primary RGB colors while keeping the other two colors at 0. These colors are:

	FF0000	Red
	800000	Dark Red (50% red)
	00FF00	Green
	008000	Dark Green (50% green)
	0000FF	Blue
	000080	Dark Blue (50% blue)

Secondary Colors

Secondary colors result from combining any two of the primary RGB colors while keeping the third color at 0. These colors are:

	FFFF00	Yellow
	808000	Dark Yellow (50% red, green)
	FF00FF	Magenta
	800080	Dark Magenta (50% red, blue)
	00FFFF	Cyan
	008080	Dark Cyan (50% green, blue)

Tertiary Colors

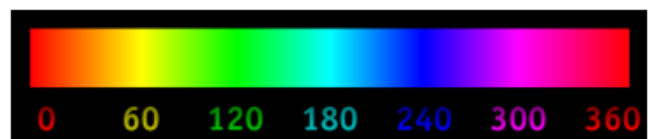
A tertiary color is a color that has non-zero values of all three of R, G, and B.

Color Terminology

- Hue
- Value
- Saturation
- Chromatic Hues
- Neutral (Achromatic) Colors
- Monochromatic

Hue

- The attribute of a color described with a name (i.e. red, blue, yellow, etc.)
- The example shows the hue spectrum



Value

- The **measure of the lightness or darkness** of a color
- A color with a **low value is nearly black**, while one with a **high value is the pure color**
 - o Adding **white** to a hue **increases its value**, producing a **tint**
 - o Adding **black** to a hue **decreases its value**, producing a **shade**

This table show the value of red increasing from 00 to FF; blue and green are kept at 0.

00	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

This table show the value of green increasing from 00 to FF; blue and red are kept at 0.

00	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

This table show the value of blue increasing from 00 to FF; red and green are kept at 0.

00	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

The value of other, 'mixed', colors depends on the relationship between their R, G, and B values. The value of green is twice the value of blue for all the colors shown. As the color values increase they keep the same mathematical relationship between them - thus the hue is the same throughout.

000F07	001F0F	002F17	003F1F	004F27	005F2F	006F37	007F3F	008F47	009F4F	00AF57	00BF5F	00CF67	00DF6F	00EF77	00FF7F

Saturation

- **Intensity/purity of a color**. The **purity** of a color **depends** on how much it is **mixed** with **gray**.
- **Gray is RGB 808080**.

The following table show the saturation of red from a grey to a pure red. Each step from the pure red down represents an averaging of the previous color with grey.

807F7F	817E7E	837C7C	877878	8F7070	9F6060	BF4040	FF0000

Chromatic Hues

- **All colors other than black, white, and gray**

Neutral (Achromatic) Colors

- **Non-chromatic hues, i.e. white, black, or gray**
- **True grays result when R = G = B**. The values of R, G, and B differ only slightly.

This table show the grays that result when all values of the RGB triplets are the same.

00	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

Monochromatic

- A color range based on a single hue with variations in value and saturation
- Monochrome images in neutral colors are known as grayscale or black-and-white



bits	Colors
1	2
2	4
4	16
8	256
16	65,536
24	16,777,216
32	16,777,216 + control bits

Color Depth

- Number of bits used to describe a color
- The greater the number of bits the greater the number of colors
- The greater the number of bits the larger the file size of an image

VGA Named Colors

- These 16 named colors can be used in XHTML and CSS
- Other color names may not appear properly as they are not standard

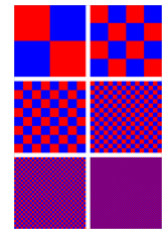
color	hexadecimal	color	hexadecimal	color	hexadecimal	color	hexadecimal
aqua	#00ffff	green	#008000	navy	#000080	silver	#c0c0c0
black	#000000	grey	#808080	olive	#808000	teal	#008080
blue	#0000ff	lime	#00ff00	purple	#800080	white	ffffff
fuchsia	ff00ff	maroon	#800000	red	ff0000	yellow	ffff00

Platforms

- Supported colors differ from platform to platform
- On a 256 color system, 40 colors differ between PCs and Macs
 - o This leaves 216 common colors
- Colors outside of this space may be dithered

Dithering

- Dithered colors are colors made up of a combination of other colors that can be displayed directly
- In the example, red and blue produce violet – smaller pixel = better color display



Web Safe Colors

- For video cards with 8 bit or better color depth, browser safe colors are within the 216 color range shared by PCs and Macs
- Each hex value must be one of 00, 33, 66, 99, cc, or ff
 - o #003399 is safe, #00453C is not
- Each hex value represents a 20% change in saturation

Web Smart Colors

- Any of the 4096 colors composed of any three pairs of identical hex digits (0-9 and a-f), such as #bb3388
- Unsafe colors are any colors with non-identical digits in a pair

Color Realities

- The average person cannot distinguish between 16 bit and 24 bit color
 - o However, people can easily distinguish between 16 bit and 8 bit color
- Different video card monitor combinations may shift colors
- Browsers may handle images and color definitions slightly differently
 - o Thus a background color may not exactly match an image (such as a GIF) color

Using Colors

Strive for harmony

- Use a limited number of colors on a page
- Use warm and cool colors together

Color Wheel

- Shows relations between colors
- Different types emphasize shades, tints, or tones
- Is a guideline for color choices

Opacity

- Determination of how opaque or transparent a color is
- 0% is invisible, 100% is completely opaque
- Usually applicable to images, particularly vector images, but may be part of the CSS 3 standard

Color Schemes

When using a color scheme pick one color to be dominant and let the other colors be complementary to it - use the subordinate colors for headers and, titles, sidebars, lines and rules, boxes, etc.

- Analogous → colors near each other on a color wheel
- Complementary → colors opposite each other on a color wheel
- Triadic → three colors that form an equilateral triangle on a color wheel
- Split-Complementary → uses two analogous colors and a complementary color
- Tetradic → uses four colors in two complementary pairs
- Square → uses four colors evenly spaced around a color wheel

Usability

- Preserve readability
- Keep vision deficiencies in mind
- When using colors to show information, provide alternative methods for those who can't see
- Remember that colors may not be precisely defined on another monitor
- Violate web standards at your peril
 - o links are blue, visited links are purple - deal with it
- Different colors have different meanings in different cultures
 - o black = death in the West, but white = death in Japan

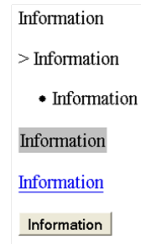
Tools

- There are a number of tools to help you pick colors, schemes, and RGB values
- See the course Resources web page for examples

CP202 : Usability

Usability

- A usable website is:
 - o Easy to learn
 - o Easy to recover from errors
 - o Efficient to use
 - o Pleasant to use
 - o Memorable
 - o Useful
- Web pages should be self-explanatory
- If the user has to think about how to use the page, it's a poorly designed page



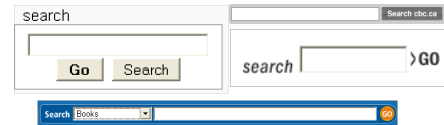
Self-Evident Pages

- Clickable objects should be obvious
- Which of the objects in the example are obviously clickable and why?



Self-Evident Interactivity

- A tool should be self-evident, or at least self-explanatory
- These are examples of different search mechanisms
- Which are self-evident and which require extra thought?



The User View

- Web pages are scanned, not read
- Use text elements that are easily scannable rather than dense text

Homepage Usability

- Homepages are a user's introduction to your site - make it count

Page Layout

- English-speakers read left to right, top to bottom.
- People see center of image first, then glance left and right to take in the sides.



Defined Areas

- Break your pages up into clearly defined areas
- Let users decide quickly what to focus on and what to ignore
- Use visual clues to show the relationships between the elements on a page

Visual Cues

- If something is important, make it stand out

Areas and Cues

On the WLU home page:

- Topic links displayed horizontally, uses same font and background
- Audience links displayed vertically, uses same font/background as topic links
- Background matches background of audience topics list
- The photo in the upper right corner is same width as the element below



Hierarchy

- A good visual hierarchy makes content hierarchy self-evident
- Things at the same level are of equal visual importance

Visual Noise

- Too many visual elements/too much distraction in background are a source of visual 'noise'
- Backgrounds should not distract from the foreground content
- Content should be necessary, clearly laid out, and well spaced

Busy Background

- A very busy background
- Hard to read, distracting



Eyetracking

- Shows how users look at a web page
- Heatmaps are visual representations of eyetracking