Web Development & Design Foundations with HTML5

Ninth Edition

Chapter 5

Web Design

Learning Objectives

5.1 Describe the most common types of website organization

5.2 Describe principles of visual design

5.3 Design for your target audience

5.4 Create clear, easy-to-use navigation

5.5 Improve the readability of the text on your web pages

5.6 Use graphics appropriately on web pages

5.7 Apply the concept of universal design to web pages

5.8 Describe web page layout design techniques

5.9 Apply best practices of web design

Overall Design Is Related to the Site Purpose

Consider the target audience of these sites.
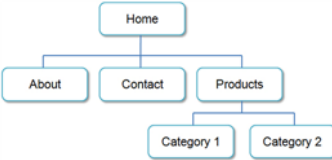
Website Organization

- Hierarchical
- Linear
- Random **(sometimes called Web Organization)**
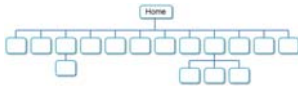
Hierarchical Organization

- A clearly defined home page
- Navigation links to major site sections
- Often used for commercial and corporate websites

Hierarchical & Shallow

Be careful that the organization is not too shallow.

- Too many choices → a confusing and less usable web site
- Information Chunking
  - Research by Nelson Cowan: adults typically can keep about four items or chunks of items in short-term memory (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2864034/)
- Be aware of the number of major navigation links
- Try group navigation links visually into groups with no more than about four links.

Hierarchical & Deep

- Be careful that the organization is not too deep.
  - This results in many "clicks" needed to drill down to the needed page.
  - User Interface "Three Click Rule"
    - A web page visitor should be able to get from any page on your site to any other page on your site with a maximum of three hyperlinks
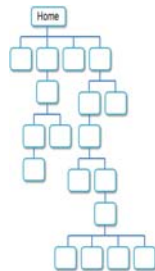
Linear Organization

A series of pages that provide a tutorial, tour, or presentation.

Sequential viewing

Random Organization

- Sometimes called "Web" Organization
- Usually there is no clear path through the site
- May be used with artistic or concept sites
- Not typically used for commercial sites

Design Principles

Repetition
- Repeat visual elements throughout design

Contrast
- Add visual excitement and draw attention

Proximity
- Group related items

Alignment
- Align elements to create visual unit

Design to Provide for Accessibility

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect." – Tim Berners-Lee

Who benefits from increased accessibility?

- A person with a physical disability
- A person using a slow Internet connection
- A person using an old, out-dated computer
- A person using a mobile phone

Legal Requirement: Section 508

Standards: WCAG 2.0

Design for Accessibility

- Web Content Accessibility Guidelines 2.0 WCAG 2.0
  http://www.w3.org/TR/WCAG20/Overview
  http://www.w3.org/WAI/WCAG20/quickref

Based on Four Principles (POUR)

1. **P**erceivable
     Content must be **P**erceivable
2. **O**perable
     Interface components in the content must be **O**perable
3. **U**nderstandable
     Content and controls must be **U**nderstandable
4. **R**obust.
     Content should be **R**obust enough to work with current and future user agents, including assistive technologies

Writing for the Web

Avoid long blocks of text

Use bullet points

Use headings and subheadings

Use short paragraph

Design "Easy to Read" Text

Use common fonts:

• Arial, Helvetica, Verdana, Times New Roman

Use appropriate text size:

• medium, 1em, 100%

Use strong contrast between text & background

Use columns instead of wide areas of horizontal text

More Text Design Considerations

• Carefully choose text in hyperlinks
  – Avoid "click here"
  – Hyperlink key words or phrases, not entire sentences
• Chek yur spellin (Check your spelling)

Color Theory

Color Theory:

• the study of color and its use in design

Color Wheel

• Primary Colors

• Secondary Colors

• Tertiary Colors

Color Schemes Based on the Color Wheel (1 of 2)

Monochromatic – shades, tints, or tones of the same color
http://meyerweb.com/eric/tools/color-blend

Analogous – a main color and two colors adjacent to it on the color wheel

Complementary – two colors that are opposite each other on the color wheel

Color Schemes Based on the Color Wheel (2 of 2)

Split Complementary – a main color, the color opposite it on the color wheel (the complement) and two colors adjacent to the complement

Triadic- three colors that are equidistant on the color wheel

Tetradic – two complementary color pairs

Implementing a Color Scheme

Choose one color to be dominant

Use other colors in the color scheme as accent colors

- headings,
- subheadings
- borders,
- list markers, etc.

Use neutrals such as white, off-white, gray, black, or brown

Do not restrict yourself to web-safe colors

Feel free to use tints, shades, or tones of colors

Verify Sufficient Contrast

When you choose colors for text and background, sufficient contrast is needed so that the text is easy to read.

Use one of the following online tools to verify contrast:

- http://webaim.org/resources/contrastchecker
- http://snook.ca/technical/colour_contrast/colour.html
- http://juicystudio.com/services/luminositycontrastratio.php

Color Scheme Resources

http://meyerweb.com/eric/tools/color-blend

http://colorschemedesigner.com

http://www.colorsontheweb.com/colorwizard.asp

http://www.leestreet.com/QuickColor.swf

https://color.adobe.com

http://www.colorspire.com

http://colrd.com

http://hslpicker.com

Color & Target Audience

Appealing to Kids & Preteens

Appealing to Everyone

Appealing to Young Adults

Appealing to Older Adults

Checkpoint 5.1

1. List the four basic principles of design.
   View the home page of your school and describe how each principle is applied.

2. View http://www.walmart.com, http://www.willyporter.com, and http://www.sesamestreet.org/muppet
   Describe the target audience for each site.
   How do their designs differ?
   Do the sites meet the needs of their target audiences?

Use of Graphics & Multimedia

- File size and dimension matter
- Provide for robust navigation
- Antialiased/aliased text considerations
- Provide alternate text
- Use only necessary multimedia

Graphic Design Best Practices (1 of 3)

- Be careful with large graphics!
  - Remember 60K recommendation
- Use the alt attribute to supply descriptive alternate text
- Be sure your message gets across even if images are not displayed.
  - If using images for navigation provide plain text links at the bottom of the page.
- Use animation only if it makes the page more effective and provide a text description.

Graphic Design Best Practices (2 of 3)

- There is no requirement to limit your color choices to web safe colors.
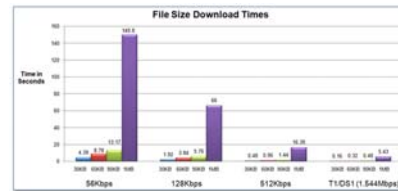- Use anti-aliased text in images

Antialiased

Aliased

Graphic Design Best Practices (3 of 3)

- Use only necessary images
- Reuse images
- Goal: image file size should be as small as possible with acceptable display quality

Web Page Design Load Time

- Watch the load time of your pages
- Try to limit web page document and associated media to under 60K on the home page

Web Page Design Browsers & Screen Resolution

- Test with multiple browsers
  - Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari
- Test at various screen resolutions
- Design to look good at various screen resolutions
  - Centered page content
  - Set to either a fixed or percentage width

Navigation Design

Make your site easy to navigate

- Provide clearly labeled navigation in the same location on each page
- Most common – across top or down left side

Consider:
- Navigation Bars
- Breadcrumb Navigation
- Using Graphics for Navigation
- Dynamic Navigation
- Site Map
- Site Search Feature
- "Skip to Content" Hyperlink

Wireframe

A sketch or blueprint of a web page

Shows the structure of the basic page elements, including:

- Header
- Navigation
- Content
- Footer
- Image locations

Web Page Design Page Layout (1 of 3)

- Place the most important information "above the fold"
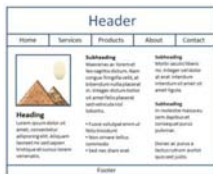- Use adequate "white" or blank space
- Use an interesting page layout

This is usable, but a little boring. See the next slide for improvements in page layout.

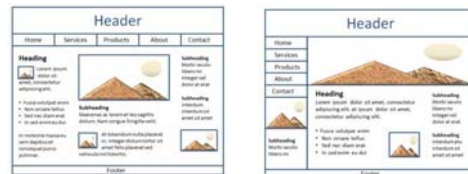
Web Page Design Page Layout (2 of 3)

Better

Columns make the page more interesting and it's easier to read this way.

Web Page Design Page Layout (3 of 3)

Best

Columns of different widths interspersed with graphics and headings create the most interesting, easy to read page.

Page Layout Design Techniques (1 of 2)

Fixed Layout

- AKA rigid or "ice" design
- Fixed-width often at left margin
- More appealing if fixed with content is centered

Page Layout Design Techniques (2 of 2)

Fluid Layout

- AKA "liquid" design
- Expands to fill the browser at all resolutions.
- Adaptation:
  - Page content typically centered and often configured with a percentage width such as 80%

Design for the Mobile Web

Predicted that by 2015, more users will access websites using mobile devices than with desktop computers

Three Approaches:

• Separate .mobi mobile site

• Host the mobile site within your current domain

• Configure your current website for mobile display using responsive web design techniques

Mobile Design Quick Checklist

• Small screen size

• Bandwidth issues

• Single-column layout

• Maximize contrast

• Optimize images for mobile display

• Descriptive alternate text for images

• Avoid display of non-essential content

Responsive Web Design

Ethan Marcotte, noted web developer
http://www.alistapart.com/articles/responsive-web-design

Progressively enhancing a web page for different viewing contexts (such as smartphones and tablets) through the use of coding techniques, including flexible layouts and media queries.

Examples: http://www.mediaqueri.es

Web Design Best Practices Checklist

http://terrymorris.net/bestpractices

• Page Layout

• Browser Compatibility

• Navigation

• Color and Graphics

• Multimedia

• Content Presentation

• Functionality

• Accessibility

Checkpoint 5.2

1. View the home page of your school. Use the Best Practices Checklist (Table 5.1) to evaluate the page. Describe the results.

2. View your favorite web site (or a URL provided by your instructor).
   • Maximize and resize the browser window.
   • Decide whether the site uses fixed or fluid design.
   • Adjust the screen resolution on your monitor (Start > Control Panel > Display > Settings) to a different resolution than you normally use.
   • Does the site look similar or very different?
   • List two recommendations for improving the design of the site.

3. List three best practices of using graphics on web pages. View the home page of your school. Describe the use of graphic design best practices on this page.

Table 5.1 Web Design Best Practices Checklist Note (1 of 7)

Page Layout

1. Appealing to target audience

2. Consistent site header/logo

3. Consistent navigation area

4. Informative page title that includes the company/organization/site name

5. Page footer area includes copyright, last update, contact e-mail address

6. Good use of basic design principles: repetition, contrast, proximity, and alignment

7. Displays without horizontal scrolling at 1024 × 768 and higher resolutions

8. Balance of text/graphics/white space on page

9. Good contrast between text and background

10. Repetitive information (header/logo and navigation) occupies less than one-quarter to one-third of the browser window at 1024 × 768 resolution

Table 5.1 Web Design Best Practices Checklist Note (2 of 7)

11. Home page has compelling, interesting information above the fold (before scrolling down) at 1024 × 768 resolution
12. Home page downloads within 10 seconds on dial-up connection
13. Viewport meta tag is used to enhance display on smartphones
14. Media queries configure responsive page layout for smartphone and tablet display

Browser Compatibility

1. Displays on current versions of Microsoft Edge
2. Displays on current versions of Firefox
3. Displays on current versions of Google Chrome
4. Displays on current versions of Safari
5. Displays on current versions of Internet Explorer
6. Displays on mobile devices (including tablets and smartphones)

Table 5.1 Web Design Best Practices Checklist Note (3 of 7)

Navigation

1. Main navigation links are clearly and consistently labeled
2. Navigation is easy to use for target audience
3. If main navigation uses images, clear text links are in the footer section of the page
4. If main navigation uses Flash, clear text links are in the footer section of the page
5. Navigation is structured in an unordered list
6. Navigation aids (such as site map, skip to content link, and/or breadcrumbs) are used
7. All navigation hyperlinks work

Color and Graphics

1. Color scheme is limited to a maximum of three or four colors plus neutrals
2. Color is used consistently
3. Background and text colors have sufficient contrast
4. Color is not used alone to convey meaning
5. Use of color and graphics enhances rather than detracts from the site

Table 5.1 Web Design Best Practices Checklist Note (4 of 7)

6. Graphics are optimized and do not slow download significantly
7. Each graphic used serves a clear purpose
8. Image tags use the alt attribute to configure alternate text replacement
9. Animated images do not distract from the site and do not endlessly repeat

Multimedia

1. Each audio/video/Flash file used serves a clear purpose
2. The audio/video/Flash files used enhance rather than distract from the site
3. Captions or transcripts are provided for each audio or video file used
4. The file size is indicated for audio or video file downloads
5. Hyperlinks to downloads for media plug-ins are provided

Table 5.1 Web Design Best Practices Checklist Note (5 of 7)

Content Presentation

1. Common fonts such as Arial, Verdana, Georgia, or Times New Roman are used
2. Writing techniques for the Web are used: headings, bullet points, brief paragraphs, and so on
3. Fonts, font sizes, and font colors are consistently used
4. If web fonts are configured, no more than one font typeface is used.
5. Content provides meaningful, useful information
6. Content is organized in a consistent manner
7. Information is easy to find (minimal clicks)
8. Timeliness: The date of the last revision and/or copyright date is accurate
9. Content does not include outdated material
10. Content is free of typographical and grammatical errors
11. Avoids the use of "Click here" when writing text for hyperlinks
12. Hyperlinks use a consistent set of colors to indicate visited/nonvisited status
13. Alternate text equivalent to content is provided for graphics and media

Table 5.1 Web Design Best Practices Checklist Note (6 of 7)

Functionality

1. All internal hyperlinks work
2. All external hyperlinks work
3. All forms function as expected
4. No JavaScript errors are generated by the pages

Accessibility

1. When the main navigation consists of images and/or multimedia, the page footer area contains text hyperlinks
2. Navigation is structured in an unordered list
3. Navigation aids, such as site map, skip navigation link, or breadcrumbs are used
4. Color is not used alone to convey meaning
5. Text color has sufficient contrast with background color

Table 5.1 Web Design Best Practices Checklist Note (7 of 7)

6. Image element use the alt attribute to configure alternate text replacement
7. If graphics are used to convey meaning, the alternate text equivalent is provided
8. If media is used to convey meaning, the alternate text equivalent is provided
9. Captions or transcripts are provided for each audio or video file used
10. Attributes designed to improve accessibility, such as alt and title, are used where **appr**opriate
11. Use the id and headers attributes to improve the accessibility of table data
12. If the site uses frames, frame titles are configured and meaningful content is placed in the no-frames area
13. To assist screen readers, the spoken language of the page is indicated with the HTML element's **lang** attribute

Summary

- This chapter introduced you to best practices of web design.
- The choices you make in the use of color, graphics, and text should be based on your particular target audience.

Copyright