

Essentials of Web Design

CSCI 1210

Usability, Accessibility, Testing,
Implementation & Marketing

[Print to PDF](#)

This page left blank on purpose



Designing for Universal Usability

Two facets of diversity

Technology diversity

The Web is a very diverse deployment environment

Cannot design for one browser, platform, resolution, device, etc.

User Diversity

Users don't have the same abilities

Users with handicaps may need special accommodations

Two facets of diversity

The purpose of the Web is large-scale open communication

Approx. 20% of the U.S. live with some kind of disability

Approx. 14% of the U.S. is over the age of 65

From a practical standpoint, the market exists and is significant

From a legal standpoint, failure to provide accommodations can result in litigation

Accessibility

Accessible - Able to be used by people with handicaps. Usable for this audience

Accessibility - Focusing on creating accessible sites

Accessibility

Primary Concerns

Visual Impairment - Low vision or blindness

Motor Impairment - Difficulty using traditional point devices and/or keyboard

Designing for accessibility is often neglected

Requires additional effort on the part of the developers

Web Accessibility Initiative (WAI)

Research sponsored by the World Wide Web Consortium (W3C)  www.w3.org
(<https://www.w3.org>)

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect"

"The Web is fundamentally designed to work for all people, whatever their hardware, software, language, culture, location, or physical or mental ability. When the Web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability"

 <https://www.w3.org/WAI> (<https://www.w3.org/WAI>)

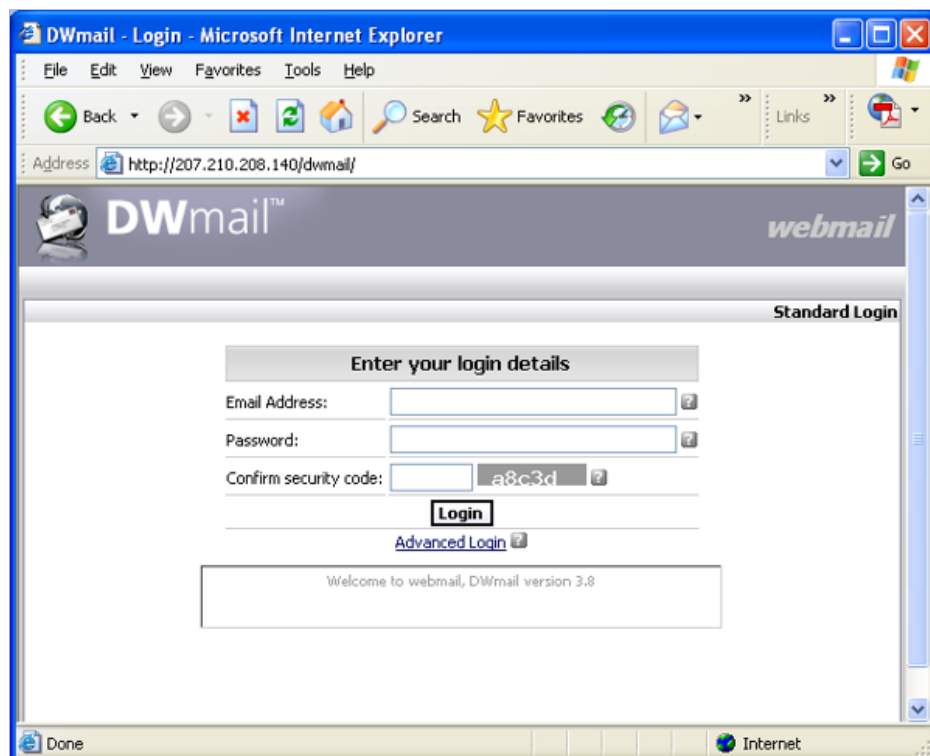
Web Accessibility Initiative (WAI)

Recommendations:

Establish a team or individual whose purpose is to learn about accessible design

Have the above promote and educate design team(s) about importance, techniques, etc

Accessibility




Text

Principle: Make sure contrast between text and background yields readable text

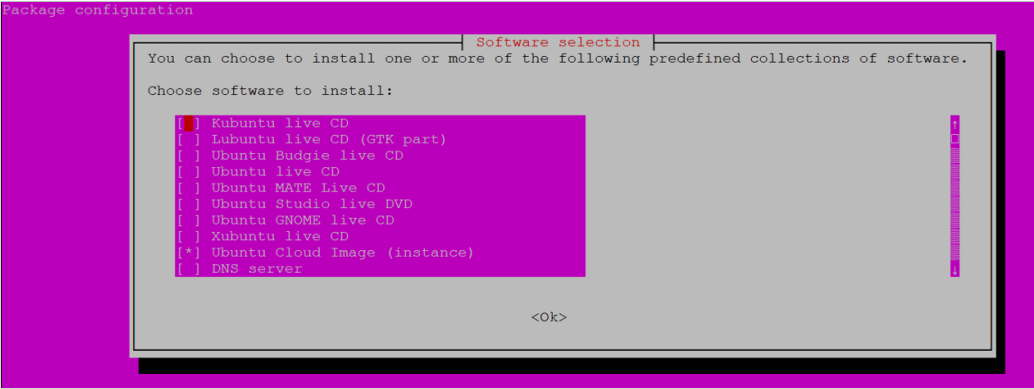
Why? Many people are color blind or lose visual acuity with age or handicap. Even people without handicaps can experience eye strain

Test: View on monochrome monitor, or print web page with background showing (monochrome)

Tools: There are many online tools that will perform these tests, including W3C and  **Paletton (<https://paletton.com>)**

Remedy: Adjust contrast as needed

Text



Text



Mouse

Principle: Make sure page is navigable without a mouse

Why? Special devices may be used or user's fine motor skills lacking

Test: Use keyboard-only to navigate the site. Ensure that all links and controls are accessible. Check tab order

Remedy: Remove controls or provide alternatives when problems discovered. Make sure all non-accessible navigation is paired with accessible alternative

Checks

W3C WAI has a Working Draft on some guidelines for first review of a website for web accessibility. These items include:

- Page title

- Image text alternatives (alt attribute)

- Headings

- Contrast ratio ('color contrast')

- Resize text

- Keyboard access & visual focus

- Forms, labels, and errors

- Multimedia alternatives

- Basic structure check

Accessibility

Be aware of the need for accessibility and factor accessibility needs into your design process

Test accessibility before site deployment. Use human testers with accessibility needs if possible

Be attentive to new tools or techniques that improve accessibility, and cautious of techniques that create accessibility problems

Set a goal of progressively improving your development team's knowledge of accessibility

Testing

Usability Testing

When creating a site, we've already thought about the users'

- Desires & goals

- Computer & Internet skills

- Education, gender, age, occupation, etc

Usability Testing

Usability testing is a great way to check if the site is meeting those needs

Usefulness and utility can be measured

Their satisfaction with the site – “likes” and “dislikes” – can be recorded as well

There are several types of testing, but the most common one involves watching users use the site and gathering data about what they're thinking and doing

Selecting Participants

People who match the personas are a good starting point

Find representative users from each of your audience groups

Within groups, try to find a mix of skill and experience levels

Most tests are done with 5 – 10 users, but even 1 or 2 may give you some good information

Tasks

Include the most commonly completed and most important tasks

Tasks should not be leading, and if possible, shouldn't contain the names of links or buttons to be clicked

When you write them, decide what defines a "success"

How long should it take?

What steps are required to complete the task?

Do errors or different paths matter?

Legalities for Major Studies

□ **Institutional Review Board (<https://etsu.edu/irb/>)**

Consent forms

Audio recording

Video recording

Participation in a research study

Legalities for Major Studies

The Milgram Experiment (<https://www.simplypsychology.org/milgram.html>)

Stanford Prison Experiment (<http://www.prisonexp.org/>)

Tuskegee Study of Untreated Syphilis in the Negro Male
(<https://www.cdc.gov/tuskegee/timeline.htm>)

Test Setup

🌐 **Morae** (https://csci1210.com/video_lectures/morae.php) is software that can be installed on a laptop to record a test

It can record the user's face with a webcam

It records what happens on the screen along with mouse clicks and keystrokes

If something like this isn't available, you can record with a video camera, use screen capture software like Camtasia or OBS (Open Source), or just take good notes

Conducting a Test

Introduce yourself and explain the purpose and process for the test

Let them know that you're testing the site, not their abilities

Give them the tasks

Watch what they do, and be sure to take note of anything that gave them trouble

Try to remain neutral and try not to help them complete the tasks

This is much harder when you're testing your own design

Conducting a Test

If they get stuck somewhere or you're not sure what is happening, ask neutral questions like "What do you think about X?" or "What are you doing now?"

Remember that users are more likely to be nervous and unsure of themselves when they're being watched

After the tasks are finished, you may want to wrap up with a questionnaire to gather their overall opinions about the site

Depending on the size of the site, a test should take about 30 minutes – 2 hours


Conducting a Test

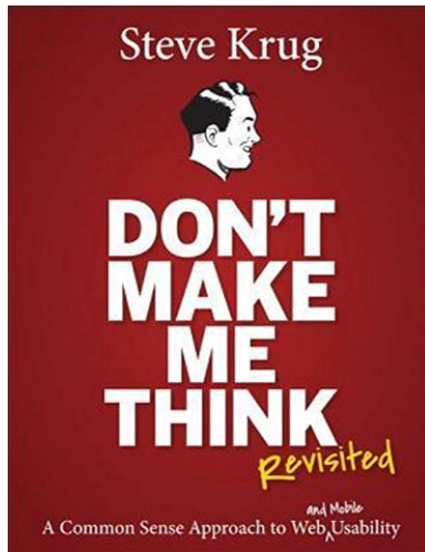
🌐 **Testing** (https://csci1210.com/video_lectures/testing.php)

Don't Make Me Think!

Steve Krug

Excellent book about website design and testing

You can read it at  **O'Reilly Books** (<https://learning.oreilly.com/library/view/dont-make-me/9780133597271/>) through Sherrod Library



Reports

Reports from a usability test include information about what happened in the test

Major usability issues that were uncovered, with recommendations for how to fix them

Description of user demographics

Objective measurements (time, number of errors, completion rate)

Subjective measurements (satisfaction and opinions)

Reports

Ideally, this is part of an iterative process

Design, test, redesign, test, design, test, redesign, test, design, test, redesign, test,
design, test, redesign, test, design, test, redesign, test, design, test, redesign, test,
design, test, redesign, test, design, test, redesign, test, design, test, redesign, test,
design, test, redesign, test, design, test, redesign, test, design, test, redesign, test,
design, test, redesign, test, design, test, redesign, test, design, test, redesign, test, etc.

Implementation & Marketing

Publishing a Web Site

Either self-host the site or outsource to a hosting company

Self-hosting:

- Establish computer system and needed software

- Find an ISP to provide Internet connection (Bandwidth is key issue)

- Work with ISP and/or InterNIC for an IP address

- Associate Domain Name with IP address

Outsource to hosting company:

- Contract with company for server space, functionality, and bandwidth

Drawing Visitors to the Site

"If you build it, they will come"--doesn't (necessarily) work on the web

Have a memorable domain name and promote

- In other media (TV, print, signs, bags, packages, etc.) - Branding

- In paid online advertising

- Using affiliates and cross-promotion

- Search engine placement (free and paid ad)

- Social Media

Promotion of Site-Affiliate Programs

Other web sites that promote ours to receive:

- Our promotion of their site on ours

- A commission every time someone clicks on our ad or visits our site from theirs and makes a purchase

- Pay-per-click vs. pay-per-sale

Establishing an effective affiliate program takes time, ongoing oversight, and legal consultation

Promotion of Site-Affiliate Programs

Pay per Sale (PPS)

Publisher is paid on the basis of referral sales

Example - Publisher is only paid if user clicks the ad on publisher site and then makes a sale on the advertised site

As very low percentage people ends up doing the sale , The percentage commission is highest in case of PPS programs

They pay between 4-20% of each sale

Promotion of Site-Affiliate Programs

Pay per Click (PPC)

Publisher is paid on the basis of Ad clicks that take the user to the advertised site

As Average number of people clicks the ads so this program offers less percentage commission than PPS

They pay between \$.25 to \$1.25 for each click depending on the product and number of unique clicks

More on Promotion

🌐 **More on Promotion** (https://csci1210.com/video_lectures/promote.php)

Search Engines

Search engine ↕	Company ↕	Software distribution license ↕	Pages indexed ↕	Daily direct queries ↕	Results count ↕	Advertisements ↕
Baidu	Baidu	Proprietary	Unknown	Unknown	Yes	Yes
Bing	Microsoft	Proprietary	13.5 billion ^[1]	Unknown	Yes	Yes
DuckDuckGo	DuckDuckGo	Mixed ^[2]	Unknown	16 million ^[3]	No	Optional
Gigablast	Independent	Free	1 billion ^[4]	Unknown	Yes	No
Google Search	Alphabet Inc	Proprietary	40 billion ^[1]	9.022 billion ^[5]	Yes	Yes
Soso.com	Tencent	Proprietary	Unknown	Unknown	No	No
YaCy	Independent, Distributed, Peer-to-Peer	Free	1.4 billion ^[6]	0.13 million ^[6]	Yes	No
Yahoo! Search	Yahoo!	Proprietary	10 billion ^[1]	Unknown	Yes	Yes
Yandex Search	Yandex	Proprietary	>2 billion ^[7]	Unknown	Yes	Yes

Searches per Day

Google	4,464,000,000
Bing	873,964,000
Baidu	583,520,803
Yahoo	536,101,505
Other (AOL, Ask, etc.)	128,427,264

Search Engine Placement

Make sure that, wherever possible, you request that a search engine add your site

<http://search.yahoo.com/info/submit.html>

(<http://search.yahoo.com/info/submit.html>)

<https://www.google.com/webmasters/tools/submit-url?pli=1>

(<https://www.google.com/webmasters/tools/submit-url?pli=1>)

<http://www.bing.com/toolbox/webmaster/>

(<http://www.bing.com/toolbox/webmaster/>)

Keyword advertising placement may be worthwhile investment

Many search engines rely on spiders and robots. Make sure meta information provides keywords and descriptions

How do search engines work?

Seems trivial, actually very complex to do well.

1st generation search engines:

- Keyword-based searches

- Problems with synonyms and retrieval quality

- Only information on the pages are used

- Easy to cheat/fool (adding keywords multiple times in hidden text)

How do search engines work?

Modern search engines

- Site hyperlink structure important

- Links to documents represent a deliberate act and a “quality indicator”

- Use of keywords in content

Summary

Accessibility

Almost 20% of users

Vision

Motor

W3C Web Accessibility Initiative

Testing

IRB

Representative users

Morae / Video

Reports

Implementation & Marketing

Publishing a website

Search engines

Plan for drawing audience

Plan for fostering loyalty

Lecture Quiz

Lecture Quiz

1. Approximately how many people in the US live with some form of impairment?

A. One in four

B. One in five

C. One in three

D. One in seven

Lecture Quiz

2. What are the two forms of diversity cited in Web Design?

A. Technology

B. Content

C. Designer

D. user

Lecture Quiz

3. What are the two primary impairments that affect user experience (ux) and the Web?

A. Vision

B. Hearing

C. Math

D. Motor

Lecture Quiz

4. What is the most important concern relating to vision impairment and web design

A. Contrast

B. Color

C. Hue

D. Saturation

Lecture Quiz

5. (T/F) You can 'fool' search engines by including multiple copies of keywords in the content as hidden text

A. True

B. False

Lecture Quiz

6. (T/F) Using an affiliate program is a quick and easy way to guarantee increased traffic

A. True

B. False

Lecture Quiz

7. (T/F) You can register a site directly with some search engines to improve its likelihood of appearing nearer the top of search results

A. True

B. False

Lecture Quiz

8. When conducting testing using human subjects, what is the greatest concern?

- A. That the subject is put at ease
- B. That the subject understands that you are testing your site, not their abilities
- C. That you record the test
- D. That no harm will come to the subject as a result of testing