Teaching Standards-Based, Accessible Web Design

Terrill Thompson
AccessComputing, University of Washington

Joe McAuliffe
Squalicum High School

Kyle Ringo
Squalicum High School
The Typical Computer User
Resolutions:

- 640 x 480
- 640 x 480 (stretched)
- 720 x 480
- 720 x 480 (stretched)
- 800 x 500
- 800 x 600
- 800 x 600 (stretched)
- 1024 x 640
- 1024 x 768
- 1024 x 768 (stretched)
- 1152 x 720
- 1280 x 800
- 1280 x 1024
- 1280 x 1024 (stretched)
- 1440 x 852
- 1440 x 852 (stretched)
- 1680 x 1050

Font Size: 16
Ability on a continuum

Not able  Able

See
Hear
Walk
Read print
Write with pen or pencil
Communicate verbally
Tune out distraction
etc.
Teaching Respect for Diversity while Teaching Coding

• All this diversity provides technology teachers with a great opportunity!
• There is no technology without users
• Each user is different
• When learning to code, students should actively consider their users, including user differences
Web Design & Development I
Course Curriculum

UNIT 1

Module 3: Web Standards and Accessible Design

Overview

The purpose of this module is to assure that your web projects are accessible to all possible users. Computer users are incredibly diverse. They access the Web using a wide variety of browsers on different operating systems. They have different screen resolutions, font sizes, and color schemes. Many users access the Web on tablet computers with touch screens, or on mobile phones. Many users have disabilities and access the web with custom configurations or using assistive technologies. Web standards are the rules that govern how web pages are built so they work for all these different users. In this module you will learn about standard web coding languages, HTML and CSS, and will learn about the different versions of HTML that are available. You will also learn how web pages can erect barriers for users with disabilities if they aren't designed and coded properly, and will learn about accessibility standards that help you to create web pages that are fully accessible to everyone.

Lessons

- Lesson 1: Web Standards
- Lesson 2: How People with Disabilities Access the Web

http://uw.edu/accesscomputing/webd2
Features

• Teaches standards-based and accessible web design
• Is platform and vendor-neutral (teaches concepts, not specific tools)
• Standards-based, accessible design is taught early as a core design principle, and reinforced throughout the course
• For assignments students must use valid code & conform to accessibility standards
Example 1: Adding an image

```
<img src="/images/cstalogo.jpg" width="481" height="126">
```
Adding an image correctly

<img src="/images/cstalogo.jpg" width="481" height="126" alt="CSTA: Computer Science Teachers Association">
Example 2: Adding functional images

1–20 of about 134

<img src="leftarrow.png" alt="Left arrow">
<img src="rightarrow.png" alt="Right arrow">
Adding functional images correctly

1–20 of about 134

<img src="leftarrow.png" alt="Previous">

<img src="rightarrow.png" alt="Next">

<image src="leftarrow.png" alt="Previous">

<image src="rightarrow.png" alt="Next">
Example 3:
Adding CSS hover effects

```css
a:hover {
    color: white;
    background-color: #8E6DD7;
}
```
Adding CSS hover effects correctly

```
a:hover, a:focus {
  color: white;
  background-color: #8E6DD7;
}
```
Example 4: Adding Video

<video controls src="myvideo.mp4"> 
</video>
No video with supported format and MIME type found.
Adding video more correctly

<video controls>
  <source src="myvideo.mp4">
  <source src="myvideo.webm">
</video>
Adding video **correctly**

```html
<video controls>
  <source src="myvideo.mp4">
  <source src="myvideo.webm">
  <track kind="captions" src="mycaps.vtt">
</video>
```
We benefit from that because we get to enjoy the talents and the skills of those people who come in,
Unit 1: Designing and Planning Web Pages

- Active vs. passive Internet use
- Evaluation tool—developing web-based language
- Introduce web standards
Unit 2: Creating Content and Structure with HTML

• Content first—barebones editor
• Vendor neutral instruction
• Project based--portfolio
• html 5
• Basic mark up for most web communication
• reflections
Unit 3: Formatting Web Pages with Style Sheets

- Attention shifts to presentation—CSS
- Understanding and applying
- Layout and stylizing projects
Unit 4: Graphics

- Ethics
- Vendor neutral instruction
- Project based
  - Album
  - Button
  - Favicon
  - Banner
Unit 5: Scripting

- Basic JavaScript
- Project based
  - Starting simple: alert("hello world!")
  - Basic debugging techniques
  - Clock
Unit 6: Quality Control

• Validating
  – HTML
  – CSS
  – Accessibility
Unit 7: Website Management and Authoring Tools

• Introduce an editor
• Vendor-neutral instruction
• Hosting and publishing
Unit 8: Client Website

- Culminating project
- Review development process
- Emphasis on meeting client’s needs
- Publication
Accessibility: Language

- ELL Students taking this web design course become fluent in the language of HTML while learning English.
- Students in class whose first language is Ukrainian, Punjabi, Mandarin, Vietnamese, and Spanish.
Learning Web Coding = Career Opportunities

• Technology is the great equalizer and for students whose first language is not English, speaking HTML opens new doors.

• Example: Las Chicas del Mount Vernon
Not Just a Curriculum, A Community

• Nearly 4000 registered teachers worldwide
• Discussion list with 372 subscribers
• Teachers provide peer support:
  – Help with coding problems
  – Sharing resources
  – Discussing teaching strategies
Countries with 10 or more teachers
Teaching the World
(Countries with one or more teachers)
UNIT 1

Module 3: Web Standards and Accessible Design

Overview

The purpose of this module is to assure that your web projects are accessible to all possible users. Computer users are incredibly diverse. They access the Web using a wide variety of browsers on different operating systems. They have different screen resolutions, font sizes, and color schemes. Many users access the Web on tablet computers with touch screens, or on mobile phones. Many users have disabilities and access the web with custom configurations or using assistive technologies. Web standards are the rules that govern how web pages are built so they work for all these different users. In this module you will learn about standard web coding languages, HTML and CSS, and will learn about the different versions of HTML that are available. You will also learn how web pages can erect barriers for users with disabilities if they aren’t designed and coded properly, and will learn about accessibility standards that help you to create web pages that are fully accessible to everyone.

Lessons

- Lesson 1: Web Standards
- Lesson 2: How People with Disabilities Access the Web

http://uw.edu/accesscomputing/webd2