

# Using Your Website for Knowledge Translation



**NIDRR  
MODEL SYSTEM'S  
KNOWLEDGE TRANSLATION CENTER**

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# The Webcast Series



## Using Your Website for Knowledge Translation

- Part 1: Creating User-Friendly Websites (January 27<sup>th</sup>)
- Part 2: Improving Your Website's Effectiveness (March 24<sup>th</sup>)
- **Part 3: Website Accessibility: Becoming an Advocate for People with Disabilities (today)**

# Recordings of Previous Webcasts



- Link to recorded Webcast #1:

<https://sas.illuminate.com/site/external/jwsdetect/playback.jnlp?psid=2009-01-27.0654.D.F56A72FD8EC0D4C65A5A9C50F660B4.vcr>



- Link to recorded Webcast #2:

<https://sas.illuminate.com/p.jnlp?psid=2009-03-24.0913.D.F56A72FD8EC0D4C65A5A9C50F660B4.vcr>

# Using Elluminate



Elluminate is an interactive, real-time, online system.

- Interact with moderators
  - Raise hand
  - Laugh
  - Applaud
  - Show disapproval
  - Show confusion
- Chat 
  - Ask questions, offer comments
- Take a Web tour 

# Webcast Goals



- Become an advocate for website accessibility in your Model System
  - Understand why website accessibility is important,
  - Learn how to evaluate basic website accessibility issues,
  - Learn a process for implementing & sustaining website accessibility.

# Caveat



- Evaluating a website comprehensively for accessibility is a complex process.
  - Relies on both manual and automated procedures, and on the seasoned judgment of the evaluator.
  - Teaching this process in its entirety is beyond the scope of this webcast.

# Why should your website be accessible?



- Many individuals served by Model Systems will have disabilities that may interfere with their ability to use the Web.
  - SCI—fine motor, reach, strength,
  - TBI—cognition, learning, vision, hearing, speech
  - Burn injury—fine motor, vision,
- NIDRR expects that grantees will develop accessible websites.

# What is web accessibility?



- An accessible website is one that can be used by people with disabilities:
  - Perceive,
  - Understand,
  - Navigate,
  - Interact,
  - Contribute.
- Web accessibility depends on understanding
  - The needs of people with different types of disabilities,
  - The different types of assistive technology and how people use them to access the Web,
  - The technical means of addressing accessibility challenges.



# Who benefits from accessible web design?

- Users who benefit from accessible web design include people with disabilities such as:
  - blindness
  - low vision
  - deafness
  - hearing loss
  - speech impairments
  - color deficit or distortions

- paralysis, weakness, and other problems with movement and coordination of limbs
- learning disabilities
- impairments of intelligence memory, or thinking
- photo sensitive epilepsy

Source: *Web Content Accessibility Guidelines Version 2.0*

# Who benefits from accessible web design?



- Many groups of users without disabilities will also benefit from accessible web design.
  - Accessing the Web using technologies such as cell phones, handheld display units, or in-car computers.
  - Accessing the Web with a temporary disability (e.g., carpal tunnel) or when fatigued

# How do people with disabilities use the Web?



- Some use personal assistance
- Can be more independent if use assistive technology (AT)
  - Screen readers for people who are blind
  - Screen enlargement software for people with low vision
  - Alternative input devices (joysticks, eye gaze, keyboard) for people who cannot use a mouse
  - Text to speech for people who cannot use a mouse
- Scenarios of Web use by people with disabilities
  - <http://www.w3.org/WAI/intro/people-use-web.php>

# Evaluating your website



- How much of your website is accessible?
- How do you know?
- How would you find out?

# Challenges for Model Systems



- Model System websites come in several different flavors
  - Small, stand alone websites,
  - Larger sites that are part of a clinic or hospital website,
  - Even larger sites that are part of a university system.
- Will be more challenging for Model Systems who are part of larger websites to make accessibility changes.

# How do we test for accessibility?



- **Accessibility review by someone with expertise in accessibility testing.**
  - Review according to criteria in standards and guidelines.
  - Use evaluation tools as appropriate.
  - Record data about accessibility problems
- **Consumer review (usability studies) by people with disabilities.**
  - Use site with their assistive technology,
  - Try to complete tasks and find information,
  - Talk out loud about problems, challenges.

# What about tools for evaluating accessibility?



- Lots of evaluation tools out there.
  - Bobby , Wave, A-Prompt,
- What evaluation tools can do
  - Assist in carrying out evaluations by automating some functions and assisting reviewers on others.
- What evaluation tools cannot do
  - Cannot replace human judgment. Many accessibility checks must be evaluated manually.
- Overview of evaluation tools
  - <http://www.w3.org/WAI/eval/selectingtools>



# Common accessibility problem areas



- Color
- Images
- Tables
- Forms
- Multimedia
- Client-side Scripting
- Inaccessible File Formats
- Language/clarity



# Color



- When color alone is used to convey information on webpages it is inaccessible to people with disabilities in vision.

# Color



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## Application for Admission

Please provide the following information (all fields in red are required):

First Name

Last Name

Email

Street Address

Apt#

City

State

 ▼

# Color



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## Application for Admission to Accessible University

Please provide the following information (required fields appear in **bold red text** and are preceded by \*):

**\* First Name**

**\* Last Name**

**\* Email**

Street Address

Apt#

City

State

# Images



- Images that convey important information must include alternative text to describe the image contents.
- Images used for spatial placement or for visual appeal, but that do not otherwise add to the information presented on the page, should allow screen readers to purposely skip them.



# Images



```
<HTML>
<HEAD>
  <TITLE>Accessible University Index</TITLE>
</HEAD>
<BODY>
```

<!-- The following IMG element has no ALT attribute. Therefore, screen reader users are unable to access the contents of this graphic. -->

```
<IMG src="images/aulogo.gif"> <BR><BR>
```

<!-- These are the menu buttons, which are presented using graphics. Again, they are inaccessible because they have no ALT attributes -->

```
<A HREF="calendar.html"></A><BR>
<A HREF="z.html"></A><BR>
<A HREF="z.html"></A><BR>
<A HREF="z.html"></A><BR>
<A HREF="z.html"></A><BR>
<A HREF="z.html"></A><BR>
```

```
<P style="font-size:90%;margin-top:5%">
```

```
<A HREF="index1a.html">Accessible Version</A> </P>
```

```
</BODY>
</HTML>
```

# Images



```
<HTML>
<HEAD>
<TITLE>Accessible University Index</TITLE>
</HEAD>
<BODY>
<!-- All graphics on this page now have ALT attributes, which make them accessible to
screen readers, text-based browsers, phone-based browsers, and other audible web
clients -->
<IMG SRC="images/aulogo.gif" ALT="Accessible University"> <BR><BR>
<A HREF="calendar.html"><BR>
<A HREF="z.html"></A><BR> <A
HREF="z.html"></A><BR> <A
HREF="z.html"></A><BR> <A
HREF="z.html"></A><BR> <A
HREF="z.html"></A><BR> <BR><BR>
<FONT SIZE="-1"><A HREF="index2.html">New improved home page</A>
</BODY>
</HTML>
```

# Images



- How do you compose alternate text?
  - In order to compose useful alternative text, imagine describing the image to someone over the telephone.
  - Images that do not convey content use a null tag (i.e., alt="")
- How much information?
  - Simple images vs. complex images
    - ✦ How would you label this image?
- Guidelines for alt text
  - <http://www.webaim.org/techniques/alttext/>
- Alt text blunders
  - <http://www.webaim.org/articles/gonewild/#alttext>



# Tables



- Tables are used on Web pages in two very different ways, and if not used correctly will cause problems for people using screen readers.
  - Layout
  - Data
- Guidelines for accessible tables
  - <http://www.webaim.org/techniques/tables/>



# Layout Tables



<b>Basement</b>			<b>UP!</b>
<b>Toilets</b>		<b>Flush</b>	
	<b>Must</b>		

<b>1 - Basement</b>	<b>2</b>	<b>3</b>	<b>4 - UP!</b>
<b>5 - Toilets</b>		<b>7 - Flush</b>	<b>8</b>
<b>6</b>			
<b>9</b>	<b>10 - Must</b>	<b>11</b>	<b>12</b>

# Data Tables



- Unless data tables are created carefully, they can be extremely difficult to interpret by a user accessing them with a screen reader.

Table with 8 columns and 16 rows. Course Title  
Section Credits Days Time Location Instructor  
PHYS 101 Introduction to Physics A 4 MTThF  
1230-120 PHB A102 Lewin PHYS 111 Mechanics  
A 4 MTThF 130-220 PHB A102 Tsui PHYS 122  
Electromagnetism and Oscillatory Motion A 1 W  
330-620 PHB 102 Stormer PHYS 123 Waves A  
1 Th 330-620 PHB 102 Laughlin PHYS 214 Light  
and Color A 1 T 330-620 PHB 114 Phillips PHYS  
215 Form and Structure A 1 T 630-920 PHB 120  
Cohen-Tannoudji

# Data Tables



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## Physics Course Catalog

Course	Title	Section	Credits	Days	Time	Location	Instructor
<a href="#">PHYS 101</a>	Introduction to Physics	A	4	MTThF	1230-120	PHB A102	Lewin
<a href="#">PHYS 111</a>	Mechanics	A	4	MTThF	130-220	PHB A102	Tsui
<a href="#">PHYS 122</a>	Electromagnetism and Oscillatory Motion	A	1	W	330-620	PHB 102	Stormer
<a href="#">PHYS 123</a>	Waves	A	1	Th	330-620	PHB 102	Laughlin
<a href="#">PHYS 214</a>	Light and Color	A	1	T	330-620	PHB 114	Phillips
<a href="#">PHYS 215</a>	Form and Structure	A	1	T	630-920	PHB 120	Cohen-Tannoudji
<a href="#">PHYS 216</a>	Time and Change	A	3	MTThF	830-920	PHB 219	Chu
<a href="#">PHYS 224</a>	Thermal Physics	A	3	MTThF	830-920	PHB 172	Richardson
<a href="#">PHYS 232</a>	Introduction to Computational Physics	A	5	MTThF	830-920	PHB 217	Osheroff
<a href="#">PHYS 311</a>	Relativity and Gravitation	A	5	MTThF	830-920	PHB 309	Lee
<a href="#">PHYS 315</a>	Applications of Modern Physics	A	5	MTThF	830-920	PHB 112	Reines
<a href="#">PHYS 321</a>	Electromagnetism	A	4	MTThF	830-920	PHB B108	Perl
<a href="#">PHYS 324</a>	Quantum Mechanics	A	4	MTThF	830-920	PHB B114	Shull
<a href="#">PHYS 341</a>	Energy and Environment	A	4	MTThF	830-920	PHB 200	Brockhause

# Forms



- Forms can be difficult to complete for users who cannot see or who cannot use a mouse.
  - Need to be accessible to someone who only uses keyboard (not a mouse)
  - Logical
  - Easy to use
- Creating accessible forms
  - <http://www.webaim.org/techniques/forms/>

# Forms



First Name	Email <input type="text"/>	Home Phone	<input type="text"/>
<input type="text"/>	Middle Initial	Computer type	Work Phone <input type="text"/>
Last Name	<input type="text"/>	<input type="radio"/> Mac <input type="radio"/> PC	Country
<input type="text"/>	Internet speed <input type="radio"/> 28.8 <input type="radio"/> 56k <input type="radio"/> T1	<input type="text"/>	

1	2	3	
4	5	6	7
8	9	10	11
12	13	14	

# Forms



First Name	<input type="text"/>
Last Name	<input type="text"/>
Middle Initial	<input type="text"/>
Home Phone	<input type="text"/>
Work Phone	<input type="text"/>
Country	<input type="text"/>
<b>Computer Type</b> <input type="radio"/> Mac <input type="radio"/> PC <input type="radio"/> Linux	<b>Internet Speed</b> <input type="radio"/> 28.8 <input type="radio"/> 56k <input type="radio"/> T1

# Dynamic content



- Includes flyout menus, mouseover images, etc.
- Is developed using some kind of scripting or program code
  - Can be run on the local computer (client-side) or the server (server-side).
  - Client-side scripting is not as accessible.
  - All client-side scripts must be able to *degrade gracefully*, and alternatives to the scripted content should be provided.
- Accessible Javascript
  - <http://www.webaim.org/techniques/javascript/>

# Multimedia



- The use of multimedia (e.g., video, audio) can create barriers for people with disabilities.
  - At a minimum, all multimedia must be captioned with synchronized text.
  - If possible, multimedia should also be audio-described.
  - Multimedia should be playable via an accessible player.
- Example
  - Accessible Information Technology in Education: Building Toward a Better Future
    - ✦ <http://www.washington.edu/accessit/betterfuture.php>



# Captioning



- What is it?
  - Textual transcription of spoken words
- How do I get it done?
  - During production (live transcription—like we are doing today)
  - After production (captioning service)
- How do I pay for it?
  - Must be built into the budget at the beginning.
- Captioning overview
  - <http://www.webaim.org/techniques/captions/>

# Audio Description



- What is it?
  - Audio description of visual events
- How do I get it done?
  - Typically done in post production
  - Requires that someone identify important elements to narrate
  - In presentations can be dealt with by having the presenter describe what is on the screen

# Accessible Multimedia Players



- **Multimedia Players**
  - Windows Media Player
  - Real Player
  - Quicktime
- **General Rule**
  - Allow multimedia players to open in new windows rather than embed in a website

# What about Flash?



- The Flash player is very commonly used.
- Plays videos, but also audio, graphics, animations
- Presents unique accessibility challenges, particularly for screen reader users.
- Creating accessible Flash content
  - <http://www.webaim.org/techniques/flash/>

# Multimedia



- Do you have multimedia on your website or do you intend to in the future?
- Is it captioned or do you have a way to caption it?



# Accessible File Formats



- Common file formats used on the Web
  - HTML
  - PDF
  - Microsoft Office documents (Word, PowerPoint)
- Are they accessible?
  - Yes, if you consider some basic requirements
    - ✦ Text must be accessible to assistive technologies
    - ✦ Documents must have “structural integrity”

# Accessible File Formats



- Text available to AT
  - Some types of PDF are just pictures. No textual information is available.



# Accessible File Formats



- **Structural Integrity**

- To create a file with structural integrity, users must use tags or styles that communicate the structure of a document to assistive technologies.
  - ✦ In Word, you would need to carefully use styles to communicate structural integrity.
  - ✦ In HTML, you would use heading levels (e.g., H1, H2)





1  
COLLECTING AND  
MANAGING ASSETS  
AND INVESTING  
FOR THE FUTURE

2

3

4



5  
MANAGING RISK  
AND INVESTING  
FOR THE FUTURE



6  
PLANNING FOR  
RETIREMENT AND  
Estate Planning

# Financial focus

8

DRESSING THE NEEDS OF INDIVIDUAL INVESTORS AND PLANTING  
THE SEEDS FOR A SECURE FUTURE

9

It is your duty to ensure, consistently addressing all the risks with  
a clear focus on the future. We are here to help you achieve your  
financial goals and secure your future. Our team of experts, from global to  
local, will help you achieve your financial goals.

10

## Helping you achieve your financial goals

Let us help you achieve your financial goals. We are here to help you  
achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals. We are here to help  
you achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals.

11

Let us help you achieve your financial goals. We are here to help you  
achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals. We are here to help  
you achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals.



## MARKET WATCH 12

Let us help you achieve your financial goals. We are here to help you  
achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals. We are here to help  
you achieve your financial goals. Our team of experts, from global to  
local, will help you achieve your financial goals.

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# HTML



- HTML is a preferred format from an accessibility perspective because highly structured language and there is growing support for accessible markup.
- Consider always having an HTML version for materials you produce.

# PDF



- There are three types of PDF files:
  - Unstructured (image),
  - Structured (embedded fonts), and
  - Tagged.
- Only tagged PDFs are optimized for accessibility.
  - Tagged PDFs have an HTML like structure and support alternate text. They are easily created from Word documents if the Word document is itself correctly styled
- Adobe Acrobat accessibility training
  - <http://www.adobe.com/accessibility/products/acrobat/training.html>



# Microsoft Word



- Word
  - Make Word more accessible by
    - ✦ Creating structured documents (use Styles)
    - ✦ Adding alternative text to images
    - ✦ Note: no way to make accessible tables in Word
  - Guidelines for making Word more accessible
    - ✦ <http://www.webaim.org/techniques/word/>

# PowerPoint



- **PowerPoint**
  - Only way to make PPT truly accessible is to post an HTML version
    - ✦ Consider using the Accessible Web Publishing wizard
      - <http://www.virtual508.com/>
    - ✦ Or create an html version on your own.
  - Guidelines for PowerPoint accessibility
    - ✦ <http://www.webaim.org/techniques/powerpoint/>

# Native applications vs. viewers



- Can view PowerPoint and Word in the native application (the Microsoft product loaded on your computer) or in a web viewer (opens inside your browser).
- Viewers are less accessible than the native application (especially for people using screen readers)
- Always try to develop using software your users own. HTML is always a good default since the web browser is the native application.

# Language/Clarity



- All people benefit from using simple, straightforward language and a clear, simple to use interface, but people with cognitive and learning disabilities require those things in order to successfully use your website.
- Design considerations for people with cognitive disabilities
  - <http://www.webaim.org/articles/cognitive/design.php>

# Summary



- A starting point in making your website accessible is to conduct an evaluation of your current site.
- Many of these checks can be accomplished by a person with an understanding of web development and an interest in accessibility (All of you!)
- Additional technical support can be accessed from the MSKTC



# A process for supporting website accessibility



- Gain support from leaders in your organization
- Organize a team
- Decide on a standard
- Develop an implementation plan
- Plan for training and technical support
- Plan for sustainability
- Be flexible

Adaptation of the WebAIM: 8-Step Implementation Model.  
<http://webaim.org/articles/implementation/>

# Gain support from leaders



- Who participates in ensuring that your website is accessible?
  - Website developers
  - Content developers
  - Consumers
  - Principal Investigators, Directors, Project Managers
- Why commitment from leaders?
  - Raises visibility
  - Provides needed resources (e.g., training, materials, time)
  - Increases likelihood that accessibility will be maintained

# Gain support from leaders



- How do you make the case?
  - Emphasize the factors your organization values
    - ✦ Social
    - ✦ Technical
    - ✦ Financial
    - ✦ Legal & Policy
    - ✦ <http://www.w3.org/WAI/bcase/Overview>
- To whom should you make the case?
  - Find an advocate?
  - Go straight to the top?
  - Connect to existing committees?

# Organize a Web Accessibility Team



- Can be hard to create change as an individual
- A team can:
  - Provide consistency over time
  - Have the official support of top level leaders
  - Serve as a repository of information about decisions
  - Serve as a central point for disseminating information
- Who should be on it?
  - Time and interest to participate
  - Skills that are of value (e.g., technical, informational)
  - Size depends on the organization and complexity of changes.

# Define a Standard



- Questions to ask:
  - What is your definition of web accessibility?
  - What level of standards does the government hold?
  - What level of standards do other institutions choose?
  - What standards are feasible for your institution?
  - What special features might you add to your standard, that you did not see at other institutions?

# Define a Standard



- What are your choices?
  - Currently, there are two primary sets of standards and guidelines for web accessibility:
    - ✦ Section 508 of the Rehabilitation Act, and
    - ✦ The Web Content Accessibility Guidelines (WCAG) developed by The World Wide Web Consortium (W3C).

# Section 508 of the Rehabilitation Act



- Section 508 mandates that only accessible information technology can be acquired and used by the federal government.
  - These amendments also establish accessibility standards for websites.
  - A website that meets Section 508 standards is considered accessible for the purposes of the federal government. However, this level of accessibility may not be the right goal for the Model Systems.

<http://www.section508.gov/>

# The Web Content Accessibility Guidelines



- Developed by The World Wide Web Consortium (W3C)
  - W3C is an international organization that was created to develop the specifications, guidelines, software, and tools that promote the continued development of the Web.
  - W3C developed technical web accessibility guidelines that include checkpoints for compliance and coding examples.  
(<http://www.w3.org/TR/WCAG20/>)



# Create an Implementation Plan



- Establish timelines,
- Set priorities in terms of what standards to achieve and on what timeline,
- Delegate responsibilities, and
- Monitor progress.

# Plan for Training & Technical Support



- Who needs training and technical support?
- What needs to be taught
  - Issues of web accessibility,
  - Your institution's personal standards,
  - Coding and multimedia strategies and techniques.

# Plan for sustainability



- Must have a plan to maintain accessibility over time or it will fade as new materials online and new staff work on the site.
  - Ideas
    - ✦ Make it part of someone's job responsibility
    - ✦ Schedule yearly or quarterly checks
    - ✦ Hire or contract with a consultant who can conduct checks

# Remain Flexible



- Be flexible enough to deal with changes
  - Technologies will change
  - Employees will leave and new ones will be hired
  - Top level leaders will change positions
- Keep your eye on the prize—access for all to the content found on your website.

# Additional Resources on Accessible Web Design



- **Web Accessibility in Mind**
  - [http:// WebAIM.org](http://WebAIM.org)
- **Web Accessibility Initiative of the World Wide Web Consortium**
  - <http://www.w3.org/WAI/>
- **Designing More Usable Web Sites (Trace Research and Development Center)**
  - <http://trace.wisc.edu/world/web/>

# Provide us with Feedback



Please give feedback on the quality, relevance and usefulness of this webcast

- <https://catalysttools.washington.edu/webq/survey/bmatter/77600>

# Contact Information



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# References



- WebAIM: 8-Step Implementation Model. <http://webaim.org/articles/implementation/>
- Web Accessibility Initiative. <http://www.w3.org/WAI/>
- U.S. Department of Health and Human Services, and U.S. General Services Administration.(2004). *Research-Based Web Design & Usability Guidelines. Version 2.* Washington, DC: Author.



# Discussion

