

Eliminating Accessibility Barriers in Distance Learning

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Abstract:

The development of ever complex and comprehensive courseware increases issues concerning accessibility for people with learning, visual, and hearing impairments. The mitigation or elimination of barriers is best addressed in the course planning stages, and is more a matter of simple configuration than complicated programming.

This presentation will demonstrate how taking some simple measures in the initial stages of course development, can result in Level One and 508 compliance and facilitate the use of screen readers, visual enhancements, captioning, and other tools.

The American Disabilities Act of 1990

This landmark legislation created new and comprehensive civil right protections for individuals with disabilities in the private sector. It prohibits discrimination on the basis of disability in:

- private employment (**Title I**),
- all state and local government agencies (**Title II**),
- places of public accommodation such as museums, restaurants, and theaters (**Title III**)
- mandates accessibility to communication services for people who are deaf, hard of hearing, or speech impaired (**Title IV**).
- All businesses of 15 or more employees are required to make **reasonable accommodations**.
- **Does not identify specific requirements** to make electronic information technology accessible, it relies on existing government guidelines to determine what "reasonable accommodation" for IT implies.
- Recently, however, a lawsuit was filed to consider the Internet as a public facility and therefore subject to ADA accessibility requirements.

Telecommunications Act of 1996

Section 255 of the Telecommunications Act requires all:

- telecommunication equipment, CPE (customer premise equipment) and software to be directly accessible to individuals with disabilities where "readily achievable".
- Where not readily achievable, equipment and software must be compatible with existing accessibility aids.
- Section 255 guidelines identify detailed requirements for accessibility.
- Compatibility requirements focus on the need for standard connectors and TTY compatibility. The new rules define "accessibility" as access to the product and to information about the product which is functionally equivalent to what is provided to individuals without disabilities.
- Input and output must be usable without time constraints by persons who are:
 - without vision
 - have limited vision or color perception;
 - who are deaf or have limited hearing;
 - who have limited dexterity, strength or reach;
 - who are without speech; and who have limited cognitive skills.
- The requirements of Section 255 became effective in 1999.

Section 508

Section 508 of the Rehabilitation Act Amendments of 1998 is the most extensive new law with the most immediate effect.

- **US federal agencies** to make their information technology accessible to their employees and customers with disabilities.
- Starting in August 2000, all new IT equipment and services purchased by federal agencies must be accessible.
- This rule applies to all electronic equipment used in federal agencies (not just workstations).
- Customers must be able to access information available to the public. The law also gives federal employees and members of the public the right to sue if the government agency does not provide comparable access to the information and data available to people without disabilities.
- Section 508 also applies to Web sites that are produced for government agencies.
- **All state agencies** that receive federal funds under the Assistive Technology Act of 1998 are also required to comply with S. 508 requirements.

State Regulations

Through the pressure of federal grants and the same public pressure applied to the federal government, state governments are following suit in legislating IT accessibility.

States following suit include:

- Arkansas, California, Maryland, New York, Texas Virginia.
- Bids to agencies in these states are being asked to include statements regarding accessibility just to qualify for consideration.
- It is probable that every state will develop its own accessibility requirements, similar to those of section 508;
- the federal government is likely to apply the same requirement to universities, public schools, and other recipients of federal assistance.

The World Wide Web Consortium (W3C)

WAI

<http://www.w3.org/WAI/>

- The World Wide Web Consortium's (W3C) commitment to lead the Web to its full potential includes promoting a high degree of usability for people with disabilities.
- WAI, in coordination with organizations around the world, pursues accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development.

Policies Relating to Web Accessibility

<http://www.w3.org/WAI/Policy/>

- The policy links are compiled as a resource by the World Wide Web Consortium's (W3C) Web Accessibility Initiative (WAI) Education and Outreach Working Group (EOWG).
- The page is not a comprehensive or definitive resource for all applicable laws and policies regarding Web accessibility. The information contained on this page is not legal advice.
- If you have questions about the applicability of the referenced laws to specific situations, please consult legal authorities in the appropriate jurisdiction

Checkpoint Priorities

- Each checkpoint has a priority level. The priority level reflects the impact of the checkpoint in meeting the goals of this specification. These goals are:
- The priority levels are assigned as follows:
- **[Priority 1]**
 - If the checkpoint is essential to meeting the goals.
- **[Priority 2]**
 - If the checkpoint is important to meeting the goals.
- **[Priority 3]**
 - If the checkpoint is beneficial to meeting the goals.

Conformance levels

- **Conformance Level "A"**: all Priority 1 checkpoints (including Relative Priority checkpoints) are satisfied.
- **Conformance Level "Double-A"**: all Priority 1 and 2 checkpoints (including Relative Priority checkpoints) are satisfied.
- **Conformance Level "Triple-A"**: all Priority 1, 2, and 3 checkpoints (including Relative Priority checkpoints) are satisfied.
- **Note:** Conformance levels are spelled out in text (e.g., "Double-A" rather than "AA") so they may be understood when rendered as speech.



Checkpoints

Some of the applicable Web Content Accessibility Guide (WCAG) 1.0 checkpoints may be satisfied automatically (without author participation) while others require human judgment and support from the tool in the form of prompts and documentation.

Different tools may satisfy the same checkpoint differently.

Compliance starts here

- Text alternatives
- Deprecated notation
- Graphics
- ALT tags
- Redundant entries
- Long descriptions
- Style sheets
- Table configuration
- Summaries

Java Applet

```
<DIV><OBJECT TITLE="Java Applet: Horizontal news ticker explaining the Napa 2002
convention and link to online registration." CLASSID="java:advnewsticker.class">
    VALUE="The International Masters of Gaming Law">
    <PARAM NAME="title2" VALUE="Presents California 2002">
    <PARAM NAME="text2"
        VALUE="Attend the year's most exclusive conference focusing on issues pertinent
to gaming law in one of the world's most elite resorts, The Silverado Country Club & Resort
in Napa Valley December 4-6, 2002.">
    <PARAM NAME="title3" VALUE="Who Should Attend?">
    <PARAM NAME="text3"
        VALUE="Attorneys, Regulators, Corporate Counsels, Casino Executives, Native
American Gaming Executives, Public Officials, Tribal Officials, Entertainment Executives,
Gaming Vendors, Slot Executives, Internet Gaming Operators, Marketing Executives,
Educators, Students">
</DIV>
```

DEPRECATED tags and attributes

Deprecated tags and attributes are those that have been replaced by other, newer, HTML constructs.

- Deprecated tags are still included in the HTML draft or recommendation but are clearly marked as deprecated.
- The draft "strongly urges" the nonuse of deprecated tags.
- If your intended audience is using a version 4.x browser, you should use Style Sheets, and avoid using deprecated tags in your new documents. If a significant portion of your audience is using an older browser, use the deprecated tags.
- A deprecated element or attribute is one that has been outdated by newer constructs.
- *Deprecated* means that they will probably become obsolete in the next version of HTML.

<http://www.w3.org/TR/REC-html40/index/list.html>

DEPRECATED tags and attributes

(I'm confused)



```
<APPLET CODE="advnewsticker.class"  
  ALT="News ticker">
```



```
<OBJECT TITLE="Java Applet: News ticker"  
  CLASSID="java:advnewsticker.class">
```

Graphics

- Don't use graphics for decoration.
- Graphics support the lesson.
- Graphics need a alt tag or longdesc tag.
- Use of alt text
- Don't use white space between navigation links, viz, forward back up down should be written as forward | back | etc.
- Bullets:
 - Using a red bullet at the start of each link with ALT = "red bullet" would be read:
red bullet link name
red bullet link name
red bullet link name
alt="histogram showing the average age"

Table configuration

- Table are read linearly
 - Table summary
 - Row
 - Nested table
 - Row
 - [Table Example](#)

```
<TABLE SUMMARY="This table contains two tables with navigation links and College and University logo graphics, and links to video"
```

```
<TBODY>
```

```
<TR>
```

```
<TD ALT="HRM Online logo" SRC="hrmonline.gif"
```

```
LONGDESC="The Master of Hospitality Management OnLine program logo is a maroon m h m in block letters, a black italic on line and the hilton college lamp logo etc.">
```

```
</TD>
```

```
</TR>
```

```
</TBODY>
```

```
</TABLE>
```

```
<TABLE SUMMARY="This table has the links to the site pages"
```

```
<TBODY>
```

```
<TR>
```

```
<TD>&nbsp;</TD>
```

```
</TR>
```

```
</TBODY>
```

```
</TABLE>
```

Table configuration

October 27, 1996	New York, NY	Los Angeles, CA
Time	12:36 PM	9:36 AM

October 27, 1996		
Time	New York, New York	12:36 PM
	Los Angeles, California	9:36 AM

October 27, 1996			
Time	Departure	New York, New York	12:36 PM
	Arrival	Los Angeles, California	9:36 AM

Table configuration

This is a caption

Elementary School Breakfast Menu	Monday	Assorted Dry Cereals Morning Sausage & Cheese Roll Crispy Hash brown Milk or Fruit Juice
	Tuesday	Apple Cinnamon Biscuit Stick Breakfast Burger Turkey Sausage Link Milk or Fruit Juice
	Wednesday	Assorted Dry Cereals Biscuit with Sausage Patty Scrambled Eggs Milk or Fruit Juice
	Thursday	Breakfast Burger Fruit Pastry Crispy Hash brown Milk or Fruit Juice
	Friday	Assorted Dry Cereals Warm Honey bun Breakfast Smokies Milk or Fruit Juice

Using Color

Print Legibility and Partial Sight

Making Text Legible

Designing for People with Partial Sight

Print Legibility and Partial Sight -

Lighthouse International

by Aries Arditi, Ph.D

<http://www.lighthouse.org>

Captioning made easy

"Captions" are essential [text equivalents](#) for movie audio. Captions consist of a [text transcript](#) of the auditory track of the movie (or other video presentation) that is synchronized with the video and auditory tracks. Captions are generally rendered graphically and benefit people who can see but are deaf, hard-of-hearing, or cannot hear the audio.

A "transcript" is a text representation of sounds in an audio clip or an auditory track of a multimedia presentation.

A "collated text transcript" for a video combines (collates) caption text with text descriptions of video information (descriptions of the actions, body language, graphics, and scene changes of the visual track). Collated text transcripts are essential for individuals who are deaf-blind and rely on braille for access to movies and other content.

[Captioned QT \(SMIL\) File](#)

CP/WGBH NCMA National Center for Accessible Media

<http://ncam.wgbh.org/> (Magpie)

Resources

Disabilities, Opportunities, Internetworking, and Technology

<http://www.washington.edu/doi/>

**EASI Online Training on Accessible Information
Technology for Persons with Disabilities**

<http://www.rit.edu/~easi/>

Web Accessibility in Mind

<http://www.webaim.org/>

Ability Hub Assistive Technology Solutions

<http://www.abilityhub.com/>

The Access Board: A Federal Agency Committed to Accessible Design

<http://www.access-board.gov/>

Resources

**Section 508 of the Rehabilitation Act:
Electronic and Information Technology Accessibility Standards
*Technical Assistance to Ensure Successful Implementation***

<http://www.access-board.gov/508.htm>

The Alliance for Technology Access

<http://www.ataccess.org/>

ADA Hot Links and DocumentCenter

<http://www.jan.wvu.edu/links/adalinks.htm>

Job Accommodation Network

<http://www.jan.wvu.edu/>

CP/WGBH NCMA National Center for Accessible Media

<http://ncam.wgbh.org/>

Resources

AHEAD Association on Higher Education and Disability
<http://www.ahead.org/>

Blackboard Accessibility
<http://products.blackboard.com/cp/bb5/access/index.cgi>

Bobby Website Accessibility Technology Developed by CAST
<http://bobby.watchfire.com/bobby/html/en/index.jsp>

UsableNet
<http://www.usablenet.com/>

NIDE Network for Inclusive Distance Education
<http://nide.snow.utoronto.ca/>

Resources

**Trace UD/DA Project Universal Design /
Disability Access - for Advanced Computational Infrastructure**

<http://trace.wisc.edu/world/udda/>

ABLE DATA Database Program

<http://www.abledata.com/>

ADA Technical Assistance Program

<http://www.adata.org/>

Accessible Society Action Project (ASAP)

<http://www.accessiblesociety.org/>

American Council of the Blind

<http://www.acb.org/>

Resources

Disability Resources on the Internet

<http://www.disabilityresources.org/>

DisabilityInfo.gov

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

•

Lighthouse International

<http://www.lighthouse.org/>

•

National Association for the Deaf

<http://www.nad.org>

•

National Center for the Dissemination of Disability Research (NCDDR)

<http://www.ncddr.org/>

Resources

National Federation of the Blind

<http://www.nfb.org/>

National Organization on Disability

<http://www.nod.org>

National Rehabilitation Information Center (NARIC)

<http://www.naric.com/>

Office of Special Education Programs (OSEP)

<http://www.ed.gov/offices/OSERS/OSEP/>

RESNA Technical Assistance Project

<http://www.resna.org/taproject/>

Resources

JAWS

<http://www.freedomscientific.com/>

Window Eyes

<http://www.gwmicro.com/>

IBM Home Page Reader

<http://www-3.ibm.com/able/hpr.html>

American Foundation for the Blind

<http://www.acb.org/>

Self Help for Hard of Hearing (SHHH)

<http://www.shhh.org/>

Resources

TASH - Equity, Diversity, Social Justice and Inclusion!

<http://www.tash.org/>

The Rehabilitation Services Administration (RSA)

<http://www.ed.gov/offices/OSERS/RSA/>

U.S. Census Bureau Disability Data

<http://www.census.gov/hhes/>

Family Center on Technology and Disability (FCTD)

<http://www.fctd.info/>

Sun Microsystems Designing for Disabilities

<http://www.sun.com/access/background/design.html>