Accessibility & Instructional Design for Online Learning

Teaching and Learning Technology Roundtable
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Introduction

Why is accessibility important?

Why now more than ever?

What are the legal requirements?

What can we do to begin to make online learning equally accessible to all?
Data from the U.S. Census Bureau (2005) indicate approximately 40 million Americans have at least one form of disability.

More recent estimates from the Institute of Medicine put the American disability population as high as 50 million, and this number is expected to double by 2030 (Zwillich, 2007).

Wellner (2000) estimated of the total number of disabled Americans, approximately 40 percent use computers and access the Internet.
The 1990 Americans with Disabilities Act prohibits discrimination based on disability that would prevent participation in “the services, programs, or activities of a public entity.”

Section 504 of the Rehabilitation Act of 1973 similarly prohibits discrimination based on disability by any program or activity that receives federal funding.

Section 508 provides specific guidelines on how to make Web sites accessible - the World Wide Web Consortium also provides detailed recommendations for accessible Web sites, although these guidelines do not carry the force of law.

Accessibility of online courses is included as well in the Higher Education Opportunity Act (2008), which established an advisory commission on accessible instructional materials and allocated money for professional development and technical support on accessibility.
Online Learning

- One of every four higher education students is taking at least one course online (Allen and Seaman, 2009)
- In the 2006-07 academic year, 97 percent of public two-year and 88 percent of public four-year postsecondary institutions offered college-level online or hybrid credit courses (Parsad and Lewis, 2008)
- In 2008, **students with disabilities represented nearly 11 percent of all postsecondary students** (U.S. Government Accountability Office, 2009)
Benefits of Accessible Online Education

• Designing online Internet-based courses that are accessible to students with disabilities results in courses that are easier to use and understand for everyone (Nielsen 2000)
  – Alt text allows students to search for keywords and phrases
  – Captioned videos may help ESL students
  – Accessible courses are more compatible with new technology i.e. wireless handheld computers
  – Accessible online courses benefit instructors with disabilities
  – Providing information in a variety of formats addresses different learning styles
OHSU Disability Statistics

- #s of disabled students who request accommodation is increasing - up 12% from last year
- Under 2% of students request accommodation (~60 students)
- Approximately ½ have been previously diagnosed and know the system and how to acquire accommodations
- The reminder are not sure or have been diagnosed as adults; most prevalent are learning disabilities, ADHD, and chronic health issues and mental health
Learning Management Systems

• All of the major LMSs make an effort toward accessibility of their sites, though some are more successful than others
• Much still depends on the accessibility of the content developed by faculty
• It is impossible to guarantee complete accessibility; however, careful planning and good design will decrease the number of individual accommodations that must be made
General Guidelines for Accessibility

• Use Text Styles
• Use table and column creation tools provided, not spacing/tabs
• Provide alternative text for images
• Avoid text boxes (text-to-speech cannot detect)
Word – Text Styles

NOTE: Order Check screen will display:

Exhibit 2: CPRS Chart Order Checks

8. Users **Enable** or **Disable** Order Checks which are not **Mandatory** by selecting an Order Check or de-selecting the Order Check.

9. After you have gone through the Order Check list and made your selections, click "Apply", then click "OK" (to save the changes).

Instructions for Placing an Inpatient Medication Order

Clinical note: This activity simulates the procedure that a physician would follow to order a medication when using the VistA CPOE, or computerized provider order entry... allows clinicians to enter orders directly into the system, rather than having orders transcribed into the system by a third party. Eliminating intermediary steps reduces task duplication and also increases the potential for information errors.

This Heading is using Normal Style; it will be designated by a screenreader as a "header" if it uses the Heading Style.
Use the insert tab for images; dragging and dropping may ‘not’ translate to a format that is readable and/or it may not allow insertion of alt text.

This image has detailed alt text but for sighted students, the image is very blurry.

Right click image for pull-down menu; click on Format Picture to see Alt Text Box.
PowerPoint Presentations

General Guidelines for Accessibility

• Use the Slide Layouts provided
• Use plain text, compliant fonts
• Do not use color to designate
• Do not use animations or moving/flashing objects
• Use alternative text for all images, graphs, and charts
• Make sure that all slide information is visible in the Outline View
• If converting to Flash, include verbatim audio transcript in the Notes section of each slide
Click to edit Master title style

Accessibility is built into the templates provided in PPT; select the Slide Layout, then insert information into the appropriate boxes.
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Types of Computers

Personal Computers

- Desktop computer
- Laptop/Notebook/Netbook
- Tablets/Pad
- Smartphones

The first computers were extremely large and expensive. They were developed by the government, universities and large corporations. In the 1970s personal computers were introduced. These were used by businesses and eventually became commonplace by the 1980s and 90s.

Desktop computers were the first personal computers, then laptops were introduced. Notebooks and netbooks are basically smaller, lighter laptops. Tablet computers have touch screens and are usually very small and light. They may include a keyboard or they may not. The iPad is one of the latest tablet computers to be introduced.

Today, personal computing has become even more widespread with the advent of mobile computing and smart phones. Initially mobile phones were only able to provide basic voice communication, but with the advancement of technology, they have become powerful computers with the capability to perform a wide range of tasks.
Types of Computers

Personal Computers

- Desktop computer
- Laptop/Notebook
- Tablets/Pad
- Smartphones

Android Smartphone

(iPhone, 2011)

MSI laptop computer

(CC BY-SA 3.0, Korneliussen, 2010)

First Generation iPod

(Flesherman, 2010)

Types of Computers

Large Scale Computers

- Mainframe
- Server
- Supercomputer

IBM 704 Mainframe (Lawrence Livermore National Laboratory, 1955)

Columbia Supercomputer

(Traverse NASA)

Types of Computers

Embedded Computers

- (Top) A portable DVD player by Philips (Evans-Amos, 2010)
- (Bottom) ABS Brakes (Dean, 2007)

Dishwasher

(Pats, 2000)

MGI Laboratory of Functional and Molecular Imaging

(NINDS, NIH, nd)

The first computers were extremely large and expensive. They were developed by the government, universities and large corporations. In the 1970s personal computers were introduced. These were used by businesses and eventually became commonplace by the 1980s and 90s.
Right click on an image and drop down menu will appear; choose Size & Position to see Alt Text box.
Voice-Over PowerPoint (Flash)

- Typically created from PowerPoint using Presenter, Articulate
- Not easily accessible to students using *i* products
- Not technically accessible but can be provided in many instances if different formats of the presentation are presented, i.e. Flash, MP3, audio transcript, PowerPoint slides (with verbatim audio transcript in the notes of each slide)
Audio & Video

- Audio and video can add depth and interest to an online course for all students; however, video should be used only if it adds more to the course content than audio alone.

- A transcript (verbatim script of the audio content) of audio files is required to make them accessible; the transcript should be provided at the same time the audio is made available.

- For video the text must be synchronized with the video using captions – open (part of the video/always visible) or closed (can be turned on/off); transcripts are not sufficient but can provide additional benefits.
Other Things to Consider

- Use of color and color contrast
- Use of animation and moving/flash objects
- Scanned and PDF documents
- Embedded audio and/or video files
- Links to websites – full URL/live/compliant
Usability Guidelines

• Provide useful content
• User-centered design
  – Understand and meet users’ expectation
  – Users’ ability to successfully find information and accomplish tasks
• User interface design considerations
  – Page download time
  – Design for common browsers and screen resolution
  – Ease of use, such as navigation
  – Color contrast

Importance of Proactive Design

- Making courses accessible as they are designed costs little in time, effort, and resources (assuming faculty and instruction design staff are trained)
- Most departments already have a number of courses that have been created without attention to accessibility, and a plan should be created for addressing their accessibility
- And while it is much more time-consuming and expensive to retrofit a course to make it accessible after the fact, accessible course design benefits ALL students and faculty, not just those with disabilities
Incorporating Accessibility

- Accessibility cannot be learned in a day
- Faculty training is essential and should extend over time
- Providing a forum for faculty and instructional designers interaction is helpful
- Accessibility is a design parameter, NOT a feature request
- Leaving accessibility to the end is NEVER a workable strategy
Resources

• HHS Web Communications Division
  – Checklists and Standards
    www.hhs.gov/web/508/index.html
  – Online 508 Training
    www.hhs.gov/web/508/Training/index.html

• General Services Administration (GSA)
  – Section 508: www.section508.gov/
  – Usability: www.usability.gov/

• U.S. Access Board
  – Guide to Section 508 Standards for Electronic and Information Technology
    www.access-board.gov/sec508/guide/index.htm
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Questions?

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Health IT Workforce Curriculum
http://onc-ntdc.org