

National Information Library Service | Accessible Information Solutions | W3C MEMBER

Web Accessibility University of Melbourne

Dr Andrew Arch
Manager Online Accessibility Consulting
National Information & Library Service

Accessible Information Solutions, NILS © 2004

Agenda

- ❖ Why Web accessibility is important
- ❖ Case for incorporating accessibility
- ❖ Barriers to using the Web
- ❖ Accessibility and non-HTML material
- ❖ Designing accessibility in from the start

Accessible Information Solutions, NILS © 2004

Web Accessibility

“The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect.”

Tim Berners-Lee, W3C Director and inventor of the World Wide Web, October 1997

“Accessible design is good design.”

Steve Ballmer, President of Microsoft, August 2001

Accessible Information Solutions, NILS © 2004

Accessibility is Experiential

- ❖ Person is able to use data, information and services as effectively as someone without a disability
- ❖ Compliance with technical rules is necessary, but not sufficient

Accessible Information Solutions, NILS © 2004

What is Web Accessibility

- ❖ Web sites and applications that people with disabilities can
 - Perceive
 - Operate
 - Understand
 - and that are Robust

Accessible Information Solutions, NILS © 2004

Why Worry about Web Accessibility

- ❖ Who benefits
- ❖ Disability in Australia
- ❖ Rural and remote users
- ❖ Legal and Policy issues
- ❖ Good business practice

Accessible Information Solutions, NILS © 2004

Who Benefits From Accessible Design

- ❖ People with disabilities
- ❖ Older people and new users
- ❖ People with old equipment
- ❖ People with "non-standard" equipment or restricted access environments
- ❖ People with temporary impairments or who are coping with environmental distractions
- ❖ People with poor communications infrastructure
- ❖ Rural and remote Australians

Accessible Information Solutions, NILS © 2004

Disability in Australia

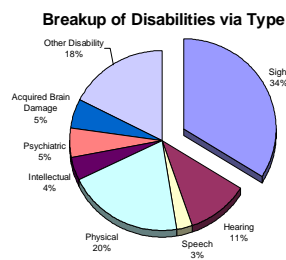
- ❖ ABS (1998):
 - 3.6m people had a disability
 - 50% of people aged 65 and over, living in private dwellings, had a disability
- ❖ Ageing population 'greying baby boomers'
- ❖ Ageing workforce

www.agelight.com/Resources/webdesign.htm
www.microsoft.com/enable/aging/workforce.aspx

Accessible Information Solutions, NILS © 2004

Disability Statistics

- ❖ Primary Disability
 - Sight – 34%
 - Physical – 20%
 - Hearing – 11%
 - Psychiatric – 5%
 - Acquired Brain Damage – 5%
 - Intellectual – 4%
 - Speech – 3%
 - Other – 18%



Accessible Information Solutions, NILS © 2004

What is Disability?

- ❖ Vision
 - blindness, low vision, color-blindness
- ❖ Hearing
 - deafness (varying degrees)
- ❖ Physical
 - inability to use a mouse, slow response time, limited fine motor control
- ❖ Cognitive
 - learning disabilities, distractibility, inability to remember or focus on large amounts of information
- ❖ Literacy
 - difficulty with language (particularly text)

Accessible Information Solutions, NILS © 2004

Vision Impairment

- ❖ Blindness
 - use "screen readers"
 - use their keyboard, rather than a mouse
- ❖ Low vision
 - often enlarge/reduce the text size
 - often use screen magnification software
 - often benefit from higher contrast
 - sometimes change the system's default background and font colours
- ❖ Colour blindness
 - can see colours - just have difficulty distinguishing between certain colours
- ❖ Key Concepts
 - www.webaim.org/techniques/visual/blind#keyconcepts
 - www.webaim.org/techniques/visual/lowvision.php#keyconcepts
 - www.webaim.org/techniques/visual/colorblind.php#keyconcepts

Accessible Information Solutions, NILS © 2004

Hearing Impairment

- ❖ Mild
 - The inability to hear sounds below about 30 decibels. Speech can be difficult to understand, especially with background noise.
- ❖ Moderate
 - 50 decibels. A hearing aid may be required.
- ❖ Severe
 - 80 decibels. Hearing aids are useful in some cases, but are inadequate in others.
- ❖ Profound
 - Absence of the ability to hear. Use of sign language or lip-reading techniques.
- ❖ Implications
 - Need transcripts of audio; captioning for video
- ❖ Key Concepts
 - www.webaim.org/techniques/hearing/culture#keyconcepts

Accessible Information Solutions, NILS © 2004

Physical/Motor Impairment

- ❖ Injury
 - Spinal cord; limb damage
- ❖ Disease or Birth Defect
 - Cerebral palsy; Muscular dystrophy; Multiple sclerosis; Spina bifida; ALS (Lou Gehrig's Disease); Arthritis; Parkinson's disease; Essential Tremor
- ❖ Implications
 - Requires non-mouse access to interface and functions.
- ❖ Key Concepts
 - www.webaim.org/techniques/motor/#keyconcepts

Accessible Information Solutions, NILS © 2004

Cognitive Impairment

- ❖ Learning Disabilities
 - Dyslexia
- ❖ Attention Deficit Hyperactivity Disorder
- ❖ Brain Injury
 - Accident, Illness, Stroke
- ❖ Genetic Diseases
 - Down's syndrome, Autism, Dementia
- ❖ Implications
 - Clear and consistent interface and presentation
 - Plain English writing
- ❖ Key Concepts
 - www.webaim.org/techniques/cognitive/design.php#keyconcepts

Accessible Information Solutions, NILS © 2004

Literacy Difficulties

- ❖ Deaf community
- ❖ Immigrants
- ❖ Indigenous Australians
- ❖ Key Concepts
 - English as a Second Language
 - Written cf. Spoken English
- ❖ Implications
 - Clarity of writing
 - Consistent presentation

Accessible Information Solutions, NILS © 2004

Rural and Remote Users

- ❖ More than 55% can only operate at 14.4 kb per second or less, 30% @ 9.6 kb per second
 - New minimum std. is 19.2 kb per second
- ❖ Estimated that more than 30% of rural users keep images turned off

Web Sites for a Rural Australia: Designing for Accessibility (Rural Industry R&D Corp)
<http://www.rirdc.gov.au/reports/HCC/00-13.pdf>

Accessible Information Solutions, NILS © 2004

Beneficiaries – Another View

- ❖ People who have difficulties with daily tasks or employment or who identified as having an impairment
- ❖ 60% of US working age (19-64 year olds) are likely to benefit from the use of assistive technology
- ❖ 57% of 18-64 year-old computer users in USA are likely to benefit

IMPLICATION:
 Accessible Design is a mainstream issue.

Source: Forrester Research 2003
 (www.microsoft.com/enable/research/)

Accessible Information Solutions, NILS © 2004

Legal and Policy Contexts

- ❖ Disability Discrimination Act 1992
 - HREOC guidelines
 - Maguire vs. SOCOG
 - Disability Standards for Education (draft)
- ❖ Online Council of Ministers agreement
- ❖ Victorian Equal Opportunity Act 1995
- ❖ Uni Melbourne
 - Disability Action Plan
 - Equity and accessibility on the web (resources)

Accessible Information Solutions, NILS © 2004

Good Business Practice

- ❖ Market Share / Audience Reach
 - Improves general usability
 - Improves resource discovery
 - Improves access for technologically disadvantaged
- ❖ Technical Efficiency
 - Can reduce site maintenance
 - Can reduce server load and bandwidth requirements
- ❖ Social Responsibility
 - Improves public image

Auxiliary Benefits of Accessible Web Design
<http://www.w3.org/WAI/bcase/benefits.html>

Accessible Information Solutions, NILS © 2004

Barriers to Using the Web

- ❖ How people with disabilities use the Web
 - Demonstration with JAWS
- ❖ Web Content Accessibility Guidelines
- ❖ Common issues with Web pages
- ❖ Issues with non-HTML attachments

Accessible Information Solutions, NILS © 2004

How People with Disabilities use the Web

- ❖ WebAIM Interviews
www.webaim.org/info/asdvideo
 - Kyle (blind)
 - Curtis (hearing impairment)
 - Gordon (quadraplegia)
- ❖ How people with disabilities use the Web
www.w3.org/WAI/EO/Drafts/PWD-Use-Web/

Accessible Information Solutions, NILS © 2004

Screen Reader

- ❖ Demonstration of JAWS

Accessible Information Solutions, NILS © 2004

Web Content Accessibility Guidelines (WCAG 1.0)

14 Guidelines:

- ❖ Text equivalents for non-text elements
- ❖ Do not use colour alone
- ❖ Use markup and stylesheets properly
- ❖ Specify natural language
- ❖ Tables that transform gracefully
- ❖ New technologies that transform gracefully

Accessible Information Solutions, NILS © 2004

WCAG 1.0 ... Cont.

- ❖ User control of time sensitive material
- ❖ Accessibility of embedded interfaces
- ❖ Device independent
- ❖ Interim solutions
- ❖ Use W3C technologies
- ❖ Provide context and orienting information
- ❖ Clear navigation
- ❖ Documents are clear and simple

Accessible Information Solutions, NILS © 2004

Accessibility of every page

- ❖ Text equivalents
- ❖ Navigation
- ❖ Customisation (relative units)
- ❖ Style sheets
- ❖ Layout tables
- ❖ Page structure

Accessible Information Solutions, NILS © 2004

Other issues

- ❖ Colour alone
- ❖ Contrast
- ❖ Pop-ups & New windows
- ❖ Forms
- ❖ Data tables
- ❖ Scripting

Accessible Information Solutions, NILS © 2004

Common Issues Demonstrated

- ❖ Could you use the page?
- ❖ Could you complain?
- ❖ Could you read the page?
- ❖ Do you know whose site it is?
- ❖ Can you navigate the site?

Accessible Information Solutions, NILS © 2004

Could you use this page?

Accessible Information Solutions, NILS © 2004

Could you complain?

Accessible Information Solutions, NILS © 2004

Can you read the page?

Accessible Information Solutions, NILS © 2004

Or this one?

Accessible Information Solutions, NILS © 2004

Whose site is it?

Accessible Information Solutions, NILS © 2004

Can you navigate the site?

Accessible Information Solutions, NILS © 2004

Non-HTML materials

- ❖ Office applications
 - Word, PowerPoint
- ❖ PDF
- ❖ Multimedia
 - Audio, Video, Flash

Accessible Information Solutions, NILS © 2004

Microsoft Word

- ❖ Use Word's style sheet for headings
 - Create a table of contents (for orientation and navigation)
- ❖ Avoid text boxes
- ❖ Avoid multi-column layout
- ❖ Use footnotes rather than endnotes
- ❖ Ensure all graphs, diagrams, images are described in the text
 - Use relative positioning to ensure that they stay with the appropriate heading/paragraph if the text is resized

Accessible Information Solutions, NILS © 2004

Microsoft PowerPoint

- ❖ Use Microsoft's templates
- ❖ Don't clutter the slides with too much text
- ❖ Avoid adding text-boxes
 - Ensure that all the text is visible in the left column when in "normal view"
 - Else, add a hidden slide containing the text-box text

Accessible Information Solutions, NILS © 2004

Microsoft PowerPoint

- ❖ Add a hidden slide, with a description, after each slide containing graphs, diagrams or images
- ❖ Do not “save as HTML” without using the University of Illinois PPT/WWW publishing accessibility wizard
 - <http://www.rehab.uiuc.edu/office/>

Accessible Information Solutions, NILS © 2004

Adobe Acrobat & PDF

- ❖ Issues
 - Acrobat reader
 - Conversion tools
 - Download issues
 - Text vs Images
 - Security
 - No accessible reader for Unix or Mac (some capability)
 - Technology lag with assistive technology

Accessible Information Solutions, NILS © 2004

Adobe Acrobat & PDF

- ❖ Alternatives
 - HTML
 - RTF (rich text file)
- ❖ Acrobat 5 & 6
 - skilled authors producing structured documents
 - ‘alt’ text added for images
 - security
 - set to allow assistive technology access

Accessible Information Solutions, NILS © 2004

Multimedia

- ❖ Includes
 - Audio
 - Video
 - QuickTime, Real media, Media Player
 - Graphics and Animations
 - GIF, JPEG, PNG
 - Scalable Vector Graphics (SVG)
 - Animations and Interactive objects
 - Flash, Shockwave & SVG

Accessible Information Solutions, NILS © 2004

Multimedia Issues

- ❖ Issues
 - non-mouse access, interactivity
 - Audio, video and images
 - player required
 - assistive technology access
- ❖ Solutions
 - Transcripts, captions video description
 - Alternative formats
 - Use latest versions (e.g. Flash MX)

Accessible Information Solutions, NILS © 2004

Accessible Multimedia

- ❖ Multilingual audio tracks and captions
- ❖ Described images & actions
- ❖ Multi-device access, eg. keyboard navigation
- ❖ Tutorials – Captions
 - <http://www.webaim.org/techniques/>
- ❖ Demonstrations
 - SMIL - <http://ncam.wgbh.org/richmedia/examples/>

Accessible Information Solutions, NILS © 2004

Flash Issues

- ❖ non-mouse access
- ❖ audio
- ❖ images and video
- ❖ interactivity
- ❖ player required
- ❖ assistive technology access

Accessible Information Solutions, NILS © 2004

Software Accessibility Principles (IBM/MS)

- ❖ Choice of Input Methods
 - Primarily keyboard access (non-mouse input)
- ❖ Choice of Output Methods
 - Text labels for graphics and interface elements
 - Visual indications for sounds
 - Implementation of the accessibility APIs
- ❖ Consistency and Flexibility
 - Consistent with the user's choice of system behaviours, colours, font sizes and keyboard settings
 - Provide a user interface that can be customised to accommodate the user's needs and preferences
- ❖ Compatibility with accessibility aids

Accessible Information Solutions, NILS © 2004

Building for Accessibility

- ❖ Concept and Design
- ❖ Checking and Testing
 - as you go & on completion
- ❖ User Testing
- ❖ QA processes

Accessible Information Solutions, NILS © 2004

Content Management Systems

- ❖ Need to conform to 'Authoring Tool Accessibility Guidelines 1.0' and must:
 - Enable production of accessible content
 - Support & encourage the production of accessible content
 - Be accessible themselves
- ❖ Supported by business rules, training & quality management processes

Accessible Information Solutions, NILS © 2004

Thankyou – Questions?

- ❖ Andrew Arch
 - Manager Online Accessibility Consulting
Accessible Information Solutions
National Information & Library Service
andrew.arch@nils.org.au
 - Member Education & Outreach W/Group
Web Accessibility Initiative, W3C
- ❖ NILS offers:
 - Website design assistance, reviews, training
 - Alternative format production (Braille, Audio, Daisy)



Accessible Information Solutions, NILS © 2004