



# Web Accessibility: Why it's important, what to look for and how to do it

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# Topics

- **Definition**
- **Why Accessibility is Important**
- **Who Benefits from Accessibility**
- **What Accessible Design is**
- **How to Create Accessible Designs**
- **How to Evaluate Accessibility**
- **Questions**

# Definition of Accessibility

- **Wikipedia**: “Accessibility is a general term used to describe the degree to which a system is usable by as many people as possible.”
- **W3C (World Wide Web Consortium)**: “Web accessibility means that people with disabilities can use the Web...people with disabilities can perceive, understand, navigate, and interact with the Web, and that they can contribute to the Web.”

# Why Accessibility Is Important

- **Facts**
- **Legal**
- **Economic**

# Basic Facts About Disabilities

- **About 12 percent of the Canadian population has a disability**
  - 3.6 million have disability
  - 34 percent report mild disabilities, 25 percent moderate and 41 percent severe or very severe disabilities (ages 15+)
  - 43.5 percent of persons with disabilities had a job--just over half the rate of those without disabilities (74%).  
Source: 2001 Participation and Activity Limitation Survey (PALS)

# Persons with Disabilities

3.6 million people =



Population of Montreal (3635.6 M)

This equates to 500+ million worldwide!

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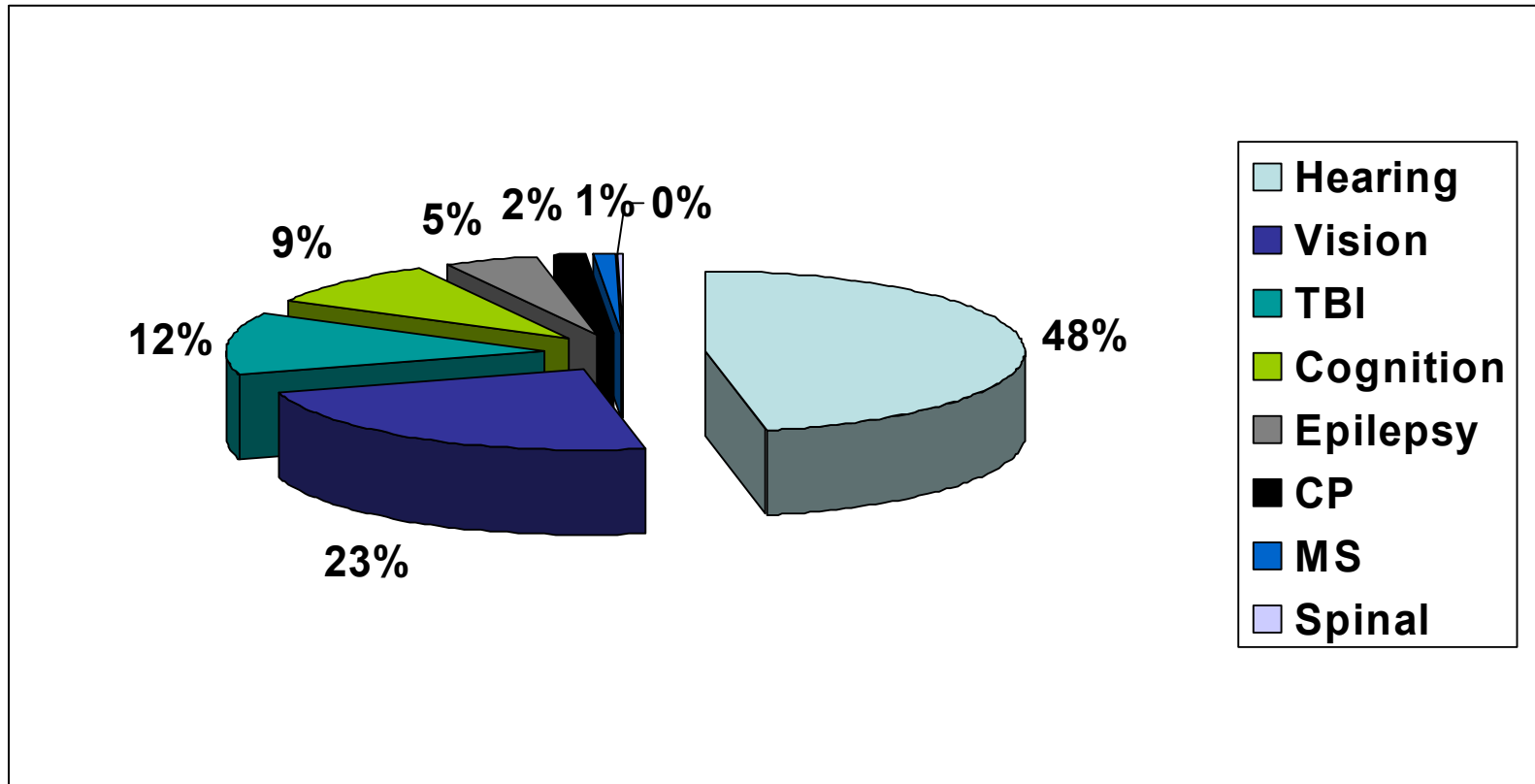
- **Disabilities include a wide range of conditions**
- **Persons with disabilities rely on the Internet**

# Types of Disabilities

- **Hearing—Conductive, sensorineural**
- **Visual—Color blindness, low vision, blindness**
- **Cognitive Impairments—ADD, TBI, Dyslexia**
- **Physiological Impairments—Temporary, permanent**



# Share of Disabilities



# Online Use by PWD

- **Adults with disabilities spend, on average, twice as much time online as adults without disabilities- 20 hours per week compared to 10 hours per week.**
- **Adults with disabilities are much more likely than adults without disabilities to report that the Internet has significantly improved the quality of their lives (48% vs. 27%)**

“How the Internet is Improving the Lives of Americans with Disabilities,” Humphrey Taylor, Harris Poll #30, June 7, 2000

# Accessibility is the Law—US

- **ADA prohibits discrimination against persons with disabilities**
- **In 1998 the Federal Government amended the Rehabilitation Act of 1973 with Section 508**
  - Section 508 now requires Federal agencies to provide persons with disabilities equal access to Federal information, and employees with disabilities equal access to electronic and information technology
- **Some states have 508-based requirements (Texas and California)**
- **Issue: Does requirement for physical access carryover to virtual access?**

# Outcomes in the US I

- **In past, lawsuits about online access settled out of court; led to compliance and/or award of dollar damages**
  - State of New York (Ramada.com & Priceline.com--2004)
  - AccessNow vs. Southwest Airlines (2002)
  - CA Council for the Blind vs. Bank of America & Wells Fargo ATM (2000)
  - NFB vs. Connecticut Attorney General's Office (IRS forms) (2000)
  - National Federation for the Blind (NFB) vs. AOL (1999)

# Outcomes in the US II

- **ADA suit against Target is something new**
  - Target decided to fight suit rather than settle
  - Sexton and NFB Vs. Target (2006): Judge Marilyn Hall Patel ruled that retailers can be sued if their websites are not accessible to the blind
  - “The 'ordinary meaning' of the ADA's prohibition against discrimination in the enjoyment of goods, services, facilities or privileges, is that **whatever goods or services the place provides, it cannot discriminate on the basis of disability** in providing enjoyment of those goods and services.”
  - Recently, judge ruled it can proceed as a class-action suit

# Accessibility is the Law—Canada I

- **Canadian Charter of Rights and Freedoms (the Charter), Section 15 (1985)**
  - “**Every individual is equal** before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, **without discrimination based on** race, national or ethnic origin, colour, religion, sex, age or **mental or physical disability.**”
  - Does not mean treating all individuals the same way. Rather, it means **recognizing and accommodating their differences.**
  - Canadian courts tend to consider not only the objective basis for certain exclusionary practices (i.e. the actual existence of functional limitations), but also the subjective and erroneous perceptions regarding the existence of such limitations.

# Accessibility is the Law—Canada II

- **Canadian Human Rights Act (CHRA)**
  - Equality of opportunity without the hindrance or prevention by discrimination in **federal jurisdiction**.
  - Treasury Board Common Look and Feel Standards for Federal sites  
Human Resources and Social Development Canada website,  
10/31/07  
(<http://www.hrsdc.gc.ca/en/hip/odi/documents/Definitions/Definitions005.shtml>)

# Accessibility is the Law—Ontario

- **Accessibility for Ontarians with Disabilities Act, 2005 (AODA)**
  - Covers both public and private sectors, explicitly addresses information and communications
  - Standard Development Committee (SDC) meeting to discuss Accessible Information and Communications Standard
  - “Everyone has the right to access **public information**. If a person cannot access a public document because of a disability, they are being denied their right to access.”
  - “The Ontario Human Rights Code establishes, in accordance with the Canadian Charter of Rights and Freedoms, the principle of access by persons with disabilities to goods, services, facilities and employment.”  
Ontario Ministry of Community and Social Services website, 10/31/07  
(<http://www.mcass.gov.on.ca/mcass/english/pillars/accessibilityOntario/>)



# Outcomes in Canada

- **Interpretation of virtual as well as physical venues**
  - Canadian Broadcasting Corporation (CBC) and Henry Vlug: 100% of broadcasting not closed captioned, therefore discriminatory
- **Low incidence of Canadian court decisions**
  - Cases involving human rights don't go immediately to regular court. They go to human rights tribunals. These tribunals are governed by various Human Rights Commissions
  - Complaints are confidential until they reach the hearing stage. This means that most companies settle before it becomes public, so we never hear about the complaint or the terms of the settlement.  
Tara Cleveland, on evolt website, 10/31/07  
([http://www.evolt.org/article/Accessibility\\_Laws\\_In\\_Canada/4090/28074/](http://www.evolt.org/article/Accessibility_Laws_In_Canada/4090/28074/))
  - “Doesn’t mean it doesn’t happen—just may not hear about it.”  
(<http://www.bioethicsanddisability.org/dislawstatistic.html>)

# An Untapped Market

- **Persons with disabilities have \$175 (1) to \$220 (2) billion in disposable income in the U.S.**
  - Almost 2 times the spending power of teens and more than 17 times the spending power of tweens (8-12 year-olds)
    - (1) Bureau of Labor Statistics (<http://www.usdoj.gov/crt/ada/busstat.htm>)
    - (2) National Organization on Disability (<http://www.nod.org>)
- **Persons in Canada with disabilities have \$25 billion in disposable income**

Royal Bank, “Outlook for people with disabilities,” 2000
- **Persons in the UK with disabilities have £80 billion in disposable income**
- **This is a fraction of what they influence**

# Who Benefits From Accessibility

- **Persons with Disabilities—Video Clips**
- **Persons without Disabilities—Curb cut analogy**

# Designing for Blindness

- **Web content is read by screen readers (like JAWS) and blind persons navigate with the keyboard**
- **Benefit from keyboard shortcuts, organized content, contextual clues**

Example:

[www.webaim.org/media/video/kyle/kyle.aspx](http://www.webaim.org/media/video/kyle/kyle.aspx)

# Designing for Low Vision

- Use stylesheets, browser settings or screen enlarging software (like ZoomText)
- Benefit from sites that support text enlargement (CSS) , window resizing (%) and image magnification (SVG)

Example:

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

# Designing for Deafness

- **Need text for all audio-based information**
- **Benefit from sites that provide text of audio**

Example:

[www.webaim.org/media/video/curtis/curtis.asx](http://www.webaim.org/media/video/curtis/curtis.asx)

# Designing for Dexterity

- Need varying assistance including special keyboards, brain switches, mouth sticks, joysticks and rollerballs

(<http://www.synapseadaptive.com/>)

- Benefit from large clickable area and pre-loaded fields

Example:

[www.webaim.org/media/video/gordon/gordon.asx](http://www.webaim.org/media/video/gordon/gordon.asx)

# Adaptive Technologies



Brain Switch



Head Tracking Device



Ergonomic Keyboard



# Designing for Cognition

- **Need support for comprehension**
- **Benefit from logical, uncluttered sites, navigation cues, alternative presentations of content, simple terminology, consistency**

Additional information:

[http://www.webaim.org/articles/cognitive/cognitive\\_too\\_little/](http://www.webaim.org/articles/cognitive/cognitive_too_little/)

# How Accessibility Benefits Everyone

- **“Non-impaired” users**
  - “Curb-cut Analogy”
  - Usability improvements
- **Business**
  - Paying attention to content = “Staying On-Message”
  - Minimizing Clutter = Emphasizes Branding
  - Expanded customer base
  - Legal protection
  - Good will

# What Accessibility Design Is

- **Adjusts to user needs**
- **Is usable for persons with disabilities, not solely standards-compliant**
- **Basic criteria**
  - Don't need mouse—Keyboard-only
  - Can be enlarged without user losing context
  - Can be understood when read aloud
  - Can be understood without sound
- **Formal criteria**
  - Section 508 (U.S.)
  - WCAG 1.0, soon to be WCAG 2.0 (Rest of World)

# Formal Web Evaluation Criteria I

- **WCAG 1.0**
  - Web Content Accessibility Guidelines
    - Priority One: MUST be done
    - Priority Two: SHOULD be done
    - Priority Three: MAY be done (helpful)
  - Based on specific html-based standards

# Formal Web Evaluation Criteria II

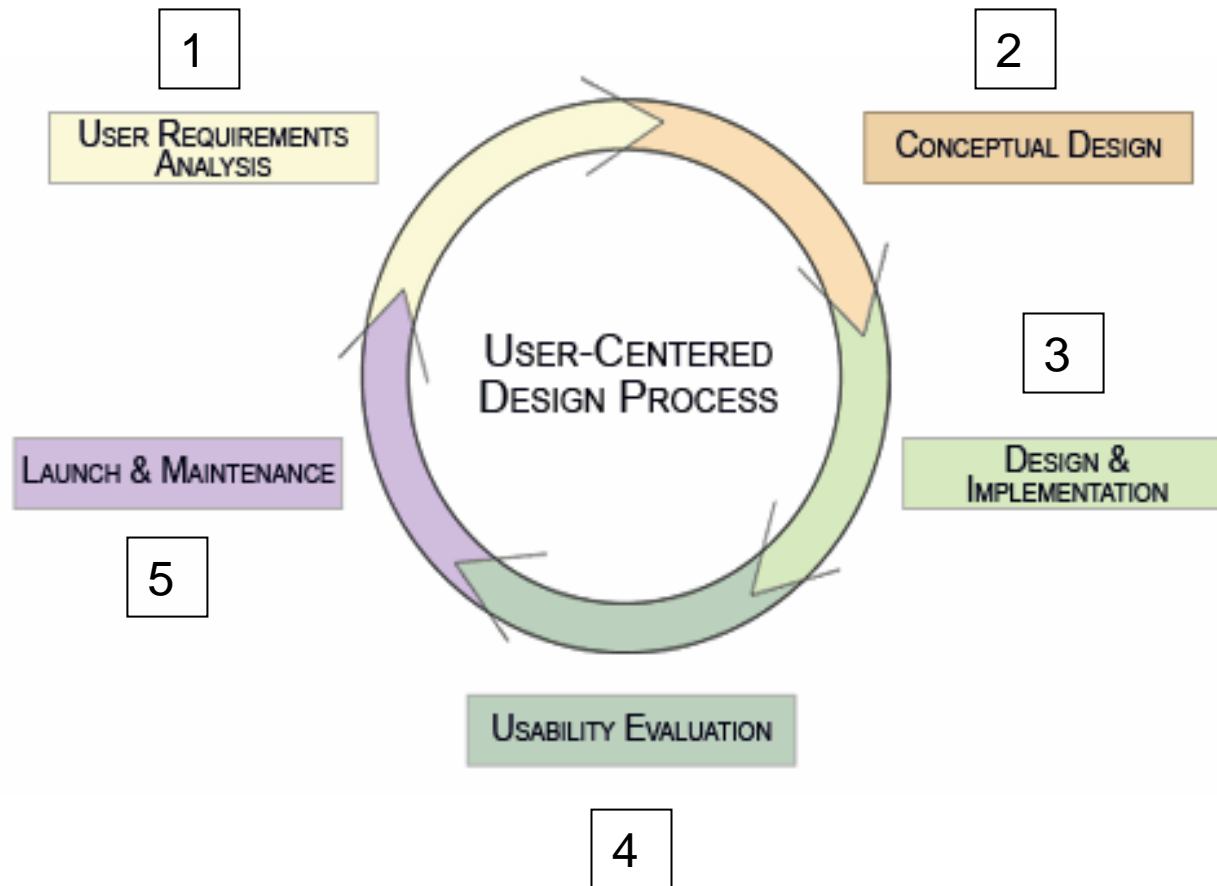
- **WCAG 2.0**

- Technology- and programming language-agnostic
- Baseline conformance vs. html-based standards
- Principles: Perceivable, operable, understandable, robust
- Levels:
  - **Level 1 success criteria:**
    - Achieve a minimum level of accessibility.
    - Can reasonably be applied to all Web content.
  - **Level 2 success criteria:**
    - Achieve an enhanced level of accessibility.
    - Can reasonably be applied to all Web content.
  - **Level 3 success criteria:**
    - Achieve additional accessibility enhancements.
    - Can not necessarily be applied to all Web content.

# How to Create Accessible Designs I

- **Make accessibility part of the process**
  - Design for people; include PWD
  - Establish internal standards
  - Train designers and developers
  - Use web editors with prompts
  - Practice User-Centered Design (UCD)

# User-Centered Design Process



# Accessibility and User-Centered Design

## 1. User Requirements Analysis

- Include Persons With Disabilities (PWD) among your personas
- Identify their functional and practical needs

## 2. Conceptual Design

- Include PWD functional and practical needs
- Follow “Practical Accessibility Guidelines”
- Conduct a simple accessibility evaluation

## 3. Design & Implementation

- Use accessibility prompts in your web editor
- Conduct a comprehensive accessibility evaluation

## 4. Usability Evaluation

- Include PWD in user testing

## 5. Launch & Maintenance

- Review additions and revisions for accessibility
- Repair problems



# How to Create Accessible Designs II

- **Include accessibility concepts**
  - Separate content from presentation (HTML vs. CSS)
    - Tables for data, not layout
  - Consistent navigation and layout
  - Organize content into digestible chunks
- **Include accessible elements**
  - Image descriptions
  - Headings, summaries, lists
  - Relate content to structure: tables, forms
  - Mindful design: skip links, meaningful link phrases, captions
- **Include accessible components**
  - JavaScript that degrades gracefully
  - DOJO library

# How to Evaluate Accessibility I

- **Two Fluid protocols**
  - Simple Assessment
    - Step 1: Assess layout, structure and content of page
    - Step 2: Adjust layout
    - Step 3: Navigate through the page
    - Step 4: Check for alternative text
  - Comprehensive Assessment
    - Step 1: Check for appropriate mark-up
    - Step 2: JAWS Review
    - Step 3: Check compliance

# How to Evaluate Accessibility II

- **Simple Evaluation Tools—IE or Firefox**
- **Comprehensive Evaluation Tools**
  - Macintosh:
    - Firefox 2.x (<http://www.mozilla.com/en-US/firefox/>)
    - Accessibility Evaluation Toolbar extension (<https://addons.mozilla.org/en-US/firefox/addon/1891>)
    - Fangs extension (<http://fangs.sourceforge.net/fangs.xpi>)
  - PCs:
    - Internet Explorer 7 (<http://www.microsoft.com/windows/downloads/ie/getitnow.msp>)
    - The AIS Accessibility Toolbar Beta 2.0 (<http://www.paciellogroup.com/resources/wat-ie-about.html>)
    - JAWS Demo ([http://www.freedomscientific.com/fs\\_downloads/jaws.asp](http://www.freedomscientific.com/fs_downloads/jaws.asp))

# Questions?