Questioning "Accessibility", Conceptualizing Diversity, and Practising Inclusion

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

Tim Berners-Lee
Director, W3C
Inventor of the World Wide Web
• Describe how to make Web content accessible to people with disabilities.

• Foundation for accessibility guidelines for governments, education, and the private sector.

• General guideline:
  – Provide text alternatives for any non-text content.
  – Text can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.
• Focus on video for this presentation

• Video increasingly used in scholarly online publishing
  – to demonstrate a complex process
  – as data for content analysis
  – etc.

• But Web Accessibility Guidelines very narrow
  – address needs of users with disabilities
  – do not address accessibility needs of other groups online
Flash Video + Transcript Meets Guidelines

Text Transcript
• Currently defined primarily in terms of disability

• What about …
  – availability of Internet connection?
  – stability of Internet connection?
  – cost of Internet connection?
  – speed of Internet connection?
  – type of device?

• Broader conception is more socially inclusive
  – Across geography, socioeconomics, technology
“Here’s something I’m tired of: the phone and internet cables in our area are stolen.”
“I'm in that situation: my home connection is great, but my uni has really low limits and high costs. This is fine when I can download something at home and bring it into uni, but if I go over my cap at uni, I can not browse anything at uni. This means I can't look up some papers or follow some links.”
“[Current Internet applications] assume all users have high-speed connection in accessing the Internet. The problem is that when the connection is bad, they decide to fail the operation without leaving the user with any option.”

Software Researchers and Engineers
Yogyakarta State and Gadjah Mada University
Indonesia
• Users who access the Internet using cell phones
  – including users in developing countries

• Students, faculty, and professionals with the latest gadgets

• Flash support starting to appear for some devices

• No Flash support for Apple devices (iPhone/iPod)

And users with mobile devices?
1) Provide direct download options
   – enables users to save video to PC and view offline
   – one download, but users can view many times

2) Provide multiple file formats
   – for users with Windows, Mac, and Linux PCs
   – users will not need to install additional software

3) Provide high and low resolution
   – for users with bandwidth limitations and mobile devices

How can we improve things?
High Resolution:  [Windows]  [Mac]  [Linux]
Low Resolution:  [Windows]  [Mac]  [Linux]

Text Transcript
Why include file formats for GNU/Linux?

- 1/3 of all Dell netbook sales are Ubuntu Linux
- Increasingly adopted in developing countries
- Non-profits provide free PCs with Linux
### Before vs. After

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users with … disabilities</td>
<td>Users with … disabilities</td>
</tr>
<tr>
<td></td>
<td>expensive Internet</td>
</tr>
<tr>
<td></td>
<td>unstable Internet</td>
</tr>
<tr>
<td></td>
<td>slow Internet</td>
</tr>
<tr>
<td></td>
<td>various operating systems</td>
</tr>
<tr>
<td></td>
<td>mobile Internet devices</td>
</tr>
</tbody>
</table>
• License audio/video using Creative Commons\textsuperscript{8}
  – Many licence options to choose from

• Permits translation and subtitles to local languages

• Enables local distribution via more accessible media
  – DVD-ROMs and CD-ROMs
  – Local area networks
  – Courseware

• Applies equally to text content
## Revisiting Accessibility and Diversity

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users with …</td>
<td>Users with …</td>
</tr>
<tr>
<td>disabilities</td>
<td>disabilities</td>
</tr>
<tr>
<td>expensive Internet</td>
<td>unstable Internet</td>
</tr>
<tr>
<td>unstable Internet</td>
<td>slow Internet</td>
</tr>
<tr>
<td>slow Internet</td>
<td>various operating systems</td>
</tr>
<tr>
<td>various operating systems</td>
<td>mobile Internet devices</td>
</tr>
<tr>
<td>mobile Internet devices</td>
<td>other languages</td>
</tr>
</tbody>
</table>

*PKP 2009 Conference (Felczak)*
Bad Example: youtube.com
• Flash-based video player

• No direct download options

• Recently announced testing of direct download options and licensing using Creative Commons

Bad Example: youtube.com
Better Example: ted.com
• Flash-based video player

• Direct download options:
  – High and low resolution

• Licensed using Creative Commons

• However, only one download file format used: MP4
  – Requires every Windows and Linux user to install additional software
Better Example: ubuntuclips.org
• Direct download options in multiple file formats

• High and low resolution options
  – high resolution via direct download
  – low resolution via Flash player

• Licensed using Creative Commons

• However, no direct download of low resolution formats

Better Example: ubuntuclips.org
1) Download and install a free file conversion tool

2) Each time audio or video is published:
   – Convert file to additional file formats
   – Provide direct download links for all formats

• Free file conversion tools:
  – Graphical user interface for Windows and Apple tools
  – Select format, resolution, and quality and press “Go”
Free File Conversion Tools

• If you use a Windows PC:
  – Simplified Universal Player Encoder & Renderer (SUPER)\textsuperscript{10}
  – Converts files to Windows, Mac, and Linux formats

• If you use a Mac PC:
  – FFmpegX to convert to Windows and Mac formats\textsuperscript{11}
  – Simple Theora Converter to convert to Linux format\textsuperscript{12}

• If you use a Linux PC:
  – FFmpeg to convert to Windows and Mac formats\textsuperscript{13}
  – FFmpeg2Theora to convert to Linux format\textsuperscript{14}
For users accessing your video from a Windows PC:
- WMV container (.wmv suffix)
- WMV video + WMA audio

For users accessing your video from a Mac PC:
- MP4 container (.mp4 suffix)
- H.264 video + AAC audio

For users accessing your video from a Linux PC:
- OGG container (.ogv suffix)
- Theora video + Vorbis audio
File Conversion Process

• Use original file as source for each conversion
  – Try to avoid compression of already compressed content

• Some common higher and lower resolutions:
  – 640x480
  – 480x320
  – 320x240

• Similar problems and principles apply to audio
  – Audio component of video example

• Many free resources and guides available online
1. Web Accessibility Initiative. URL: http://www.w3.org/WAI/
8. Creative Commons: About. URL: http://creativecommons.org/about/
9. YouTube Tests Download and Creative Commons License Options. URL: http://creativecommons.org/weblog/entry/12757
11. FFmpegX. URL: http://ffmpegx.com/index.html
13. FFmpeg. URL: http://ffmpeg.org/
14. FFmpeg2Theora. URL: http://v2v.cc/~j/ffmpeg2theora/