How do we get usability into a system?

• 1.2 Usability Requirements
• 1.3 Usability Measures
• 1.5 Universal Usability

Chapter 1.5 Universal Usability

• There is no average user
  – Each person has unique differences
  – Physical abilities and physical workplaces
  – Perceptual abilities
  – Cognitive and perceptual abilities
  – Personality differences
  – Cultural and international diversity
  – Users with disabilities
  – Age differences

• Universal usability attempts to accommodate different users
• Accessibility attempts to accommodate disabled users
Types of Differences

• Cultural and international diversity
  – Characters, numerals, special characters, and diastricicals
  – Left-to-right versus right-to-left versus vertical input and reading
  – Date and time formats
  – Numeric and currency formats
  – Weights and measures
  – Telephone numbers and addresses
  – Names and titles (Mr., Ms., Mme.)
  – Social-security, national identification, and passport numbers
  – Capitalization and punctuation
  – Sorting sequences
  – Icons, buttons, colors
  – Pluralization, grammar, spelling
  – Etiquette, policies, tone, formality, metaphors

• Users with disabilities
  – Designers must plan early to accommodate users with disabilities
  – Early planning is more cost efficient than adding on later
  – Businesses must comply with the "Americans With Disabilities” Act for some applications

• Elderly Users and Children
  – Physical and cognitive differences

Solutions

• Stereotypes
  – Compromise
  – Multiple versions of a system for different users
    • Learners (point and click menus)
    • Experienced users (command keys)
  – Allow user to customize
  – Follow standards (W3C, ISO) for accessibility
Web Accessibility Initiative (WAI)

- www.w3.org/WAI/
- "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."

10 Quick Tips for Web Accessibility (WAI)

1. Images & animations: Use the alt attribute to describe the function of each visual.
2. Image maps. Use the client-side map and text for hotspots.
4. Hypertext links. Use text that makes sense when read out of context. For example, avoid "click here."
5. Page organization. Use headings, lists, and consistent structure. Use CSS for layout and style where possible.

10 Quick Tips for Web Accessibility (WAI) cont.

6. Graphs & charts. Summarize or use the longdesc attribute.
7. Scripts, applets, & plug-ins. Provide alternative content in case active features are inaccessible or unsupported.
8. Frames. Use the noframes element and meaningful titles.
10. Check your work. Validate. Use tools, checklist, and guidelines at http://www.w3.org/TR/WCAG
Accessibility Tools

- **Window-Eyes (Windows screen reader)**
  - Uses an integrated voice synthesizer and computer’s sound card to output the content of computer screen to speakers
  - Also outputs to refreshable Braille displays.
  - Reads the underlying HTML code
  - In use by more than 40,000 people worldwide
  - Translated into Spanish, Danish, Dutch, German, French, Italian, Norwegian and Swedish
  - Windows9X/2000/Me/XP/2003 $825
  - NT/2000 Pro/XP $1025
  - [www.synapseadaptive.com/gw/wineyes.htm](http://www.synapseadaptive.com/gw/wineyes.htm)

- **JAWS**
  - [www.freedomscientific.com/fs_products/software_jaws.asp](http://www.freedomscientific.com/fs_products/software_jaws.asp)

- **MAGic (Magnification in Color)**

Tools for checking accessibility

- **WebXACT (Bobby)**

- **LIFT for Macromedia® Dreamweaver®**
  - [www.usablenet.com/products_services/lift_dw/lift_dw.htm](http://www.usablenet.com/products_services/lift_dw/lift_dw.htm)