IS 214 Needs Assessment and Evaluation of Information Systems

Tools & Guidelines

Tools and Guidelines

- Usability Test Tools
- Web Tracking Tools
- User Interface Guidelines
- Accessibility Guidelines
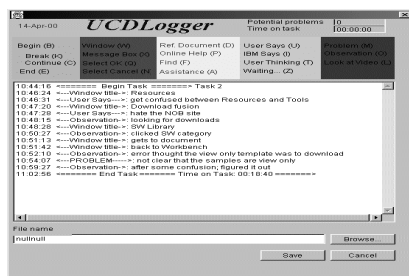- Ethics Guidelines

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Usability Test Tools

- Logging tools
- Digital video recording
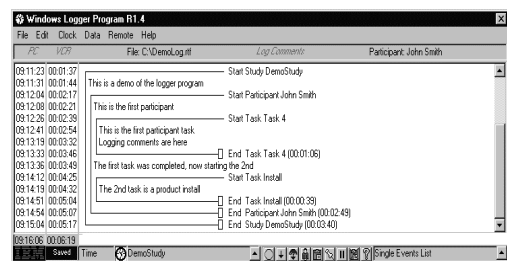- Card sorting
- Remote testing

Logging Tools

- Time-stamp observations
- Categorization of observations
- Automatically record task times

- Compare data across tasks
- Compare data across users

IBM Internal Logger - Basic

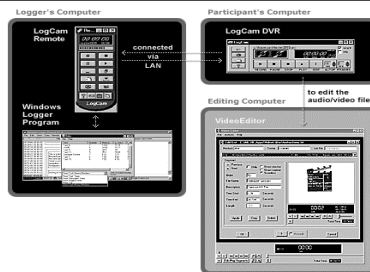---

IBM Internal Logger - Advanced

IBM Internal Logger - Advanced

Digital Video Recording

- Record user interaction and comments without the need for video taping
- Higher quality recording (no scan conversion)
- Easier editing for highlights
- Poorer or no capture of user facial cues

IBM Internal Digital Video Recording

Card Sorting – EZ Sort

- IBM Tool available on the web
  (http://www-3.ibm.com/ibm/easy/eou_ext.nsf/Publish/410)
- Enables virtual card sorting exercise for evaluating structure of a web site
- Performs cluster analysis to show the degree to which cards are perceived to be related

Remote Testing Tools

- Microsoft NetMeeting
- PC Anywhere
- Timbukto
- NetOp
- KopyKat

Remote Testing Methods

- Design exploration - User interacts with prototype installed on monitor's computer.
- Contextual usability test – Remotely observe users complete tasks on their own computer.
- Contextual inquiry – Remotely observe users in their normal work.

Remote Testing Tools

- Strengths – More of the user's environment, less expensive in travel, fast turn around.
- Weaknesses – Lose facial expressions, potential unnatural response time for user, potential missed interaction for observers.

Web Tracking Tools

- Web server logs (Bill Winnet, Tracking Your Visitors, Webmonkey)
- Cookies (Thau!, Advanced JavaScript Tutorial - Cookie Introduction, Webmonkey)
- WET (Web Event-logging Technique)
- ergoBrowser (www.ergolabs.com)

WET Results

- Usability Test
  o Several button labels were ambiguous: Options, View Deleted, Admin, …
  o Difficult to tell which view of the Fridge door you were on, what you could do there, how it differed

- WET Logs
  o Clicking several links before performing interactions on page, using back and forward…
  o Users navigated back and forth between several views of Fridge door without performing any actions

? "both methods yield similar usability information" ?

ErgoBrowser
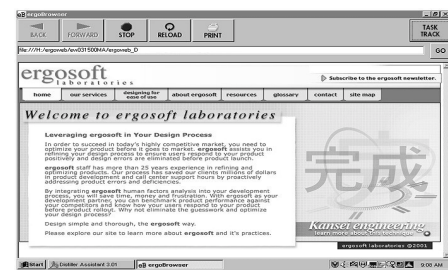
User Interface Guidelines

- Microsoft Windows User Experience
- Sun Java Look and Feel Design Guidelines
- Yale Web Style Guide
- Internal UI Guidelines – IBM Example
- Intranet / Extranet Guidelines – IBM Example

User Interface Guidelines

- Embody good design principles
- Embody lessons from past usability testing
- Ensure consistency across user interfaces
- May be required for certification
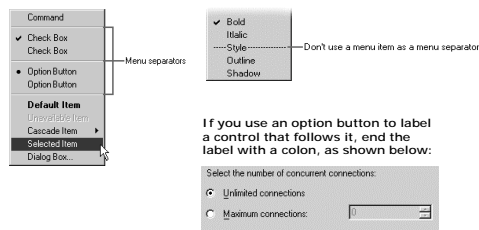 - Example: Windows or Back Office Certification

Windows UI Guidelines

- Design principles
- Basics on desktop, windows, icons, taskbar
- User interface controls: menus, buttons, lists, check boxes, radio buttons, toolbars
- Standard dialogs for open, save, fonts, colors
- Online help, wizards, visual design

Windows UI Guidelines
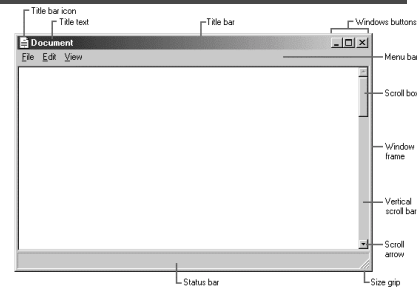
Windows UI Guidelines

Sun Java UI Guidelines
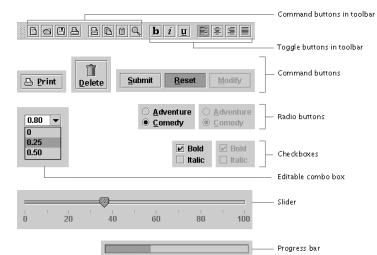
Sun Java UI Guidelines

When users must view a dialog box to finish the specification of a command initiated in a command button, use an ellipsis mark (...) after the button text. When a full specification of the command is made in the button text, do not use ellipses.
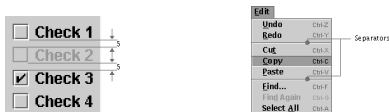
Yale Web Style Guide

- Interface design: UCD, access, navigation
- Site design: structure, elements, menus, faqs
- Page design: graphic design, typography
- Web graphics: colors, formats, optimizing
- Multimedia and animation

Yale Web Style Guide
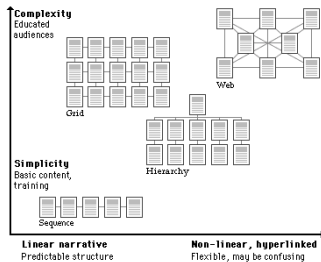
Internal UI Guidelines

- Build on Windows or Java guidelines
- Ensure strict UI consistency within an application
- Ensure consistent interpretation of ambiguous guidelines
- Define domain-specific controls

Internal UI Guidelines

Use the slosh bucket control for a fixed list of available items from which a user can select. This type of control helps reduce the user's memory load.

IBM Web Guidelines

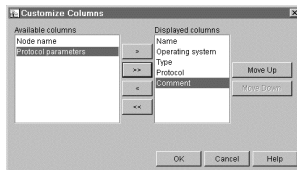- Build on Yale, AP, Sun and other guidelines
- Consistent colors, fonts, navigation controls
- Consistent headers and footers
- Supported by tools generating compliant web pages
- Enforced by web masters

IBM Web Guidelines

- Pull-down menus
    - Avoid lists with more than 12 items especially if there are other navigational paths available.
    - Be aware that some users may turn java script off and may not be able to access the pull-down list.
    - Pull-down list may impact size and performance of the Web page.
    - Provide descriptive text that sets expectation for users as to what they would find in pull-down list.
    - The default should read "select one" or "select."

Accessibility Guidelines

- Disabilities
- Basic principles for accessible software
- Assistive technology
- Incentives for accessibility
- Web Accessibility Initiative – Guidelines and Checklists
- IBM Accessibility Center Guidelines

Disabilities

- Vision: blindness, low vision, color blindness
- Hearing: deaf or hard of hearing
- Mobility: limited movement or fine motor control
- Cognitive and Learning: such as dyslexia, short-term memory deficit

Basic Principles

- User choice of input methods: keyboard, mouse, voice, and assistive devices
- User choice of output methods: display, sound, and print
- Consistency and flexibility: user choice of system behavior, colors, fonts sizes, and keyboard setting

Assistive Technology

- Vision
  - Home Page Reader - a self voicing Web browser.
  - Screen Magnifier - text and image enlarger.
  - Screen Reader - converts text and screen information into speech output.
  - Self Voicing Kit (SVK) - allows developers to add an audio user interface to Java tm applications.
  - Open Book, Ruby Edition - tool for the blind and low vision reader

Assistive Technology

- Hearing
  - SpeechViewer III - full function speech modification tool for Windows.
  - Visual Voice Tools - basic tools for developing voice control.

Assistive Technology

- Mobility
  - AccessDOS - utilities to enhance access to DOS
  - ViaVoice - speech input recognition, navigation, and dictation
  - Discover:Board - large keyboard for reading and writing
  - Discover:Kenx - your reading and writing solution
  - Discover:Screen - on-screen writing tool for your classroom
  - Discover Switch - for students who need a switch to write

Incentives for Accessibility

- Make your interface usable to more people: 750 million people with disabilities, 54 US
- Increase your sales: people with disabilities have $175 billion in disposable income
- Comply with regulations: US Federal (Section 508 and ADA), many other nations

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WAI Guidelines

- W3C specification providing guidance on accessibility of Web sites
- Priority and conformance levels
- Tools for evaluating and correcting accessibility problems
- Logo to identify conforming sites

WAI Guidelines - Examples

- 1.1 Provide a text equivalent for every non-text element
- 2.1 Ensure that all information conveyed with color is also available without color, for example from context or markup.
- 5.1 Create tables that transform gracefully

IBM Accessibility Guidelines

- Software, web sites, Java, Notes, hardware
- Simplified checklists with detailed implementation notes and rationales
- Required for all IBM products and web pages

Ethics Guidelines

- Informed consent agreements
- Privacy statements on web pages
- Usability in practice – case studies

Informed Consent Agreements

- Minimal risk – usability testing should not expose participants to more than minimal risk
- Information – users are informed of the procedures, purpose, risks, rights
- Comprehension – test monitor must ensure that participants understand the information
- Voluntariness – no subtle coercion or pressure can be used to induce participant agreement
- Participant rights – respect, right to leave without penalty, right to breaks, privacy, intellectual property

Informed Consent Agreements

- Nondisclosure – participant informed and agrees to keep test content confidential
- Confidentiality – data gathered about the participant will be kept confidential
- Waivers – user permission for use of data for analysis and separately for other purposes
- Legalese – consent agreements should be in easily understood language
- Expectations – account for cultural expectations

Privacy Statement

- When collecting data from web site users (surveys, registration, cookies, and so on)
- Inform of what is being collected, by who
- Who will information be shared with
- Supplementing information from third-party
- Opt-in / opt-out, ability to update, security
- Notification of changes

Ethics Case Study 1

In a usability study involving web testing of entry level Secondary School students a participant inadvertently typed in an incorrect URL. The test involved going to various governmental sites, including the White House in the USA. A 12 year old girl who wanted information on the White House was supposed to type in www.whitehouse.gov but instead typed www.whitehouse.com and was suddenly transported to a porn site. In the words of the usability engineer conducting the test: "She was pretty cool about it when shown what happened, but it was pretty intimidating at first."

Ethics Case Study 1 - Issues

- Has the participant been harmed?
- Should the participant have been informed of the potential for exposure to other web sites?
- Should parents sign consent forms?
- Should counseling be made available for the participant?

Ethics Case Study 2

You are a HCI consultant with extensive experience in evaluating web sites and GUI's for company A. During the initial configuration of your usability laboratory you become aware that software you are to evaluate contains a GUI already patented by a rival company B, which you evaluated several weeks before.

Under your contractual agreements you are not allowed to discuss the evaluation of a product with anyone outside the contract. You therefore have an obligation to company B not to provide information regarding their product to anyone else without their permission. You have a similar obligation to company A.

Ethics Case Study 2 - Issues

- Can you continue with the evaluation?
- If you cannot continue with the evaluation how do you inform company A of the patent violation?
- Do you have an obligation to let Company B know Company A has copied their GUI?

Ethics Case Study 3

An internal usability team wanted to usability test a website using half internal and half external participants. Would the consent form designed for external users also be used for the internals? Some members of the usability team argued that the terms of employment were sufficient to require internals participate. Others argued that the purpose of "consent" was to ensure that participants understood why they had been asked, what was going to happen, what data would be collected, how it would be used and that they were free to leave at any time. Given that the company has paid for usability testing, and given that the employee has agreed to work for the company for payment, is the employee REALLY FREE to leave?

Ethics Case Study 3 - Issues

- Do internal participants need to sign consent agreements?
- How can internal participants refuse without consequences?
- How can the test monitor lessen the pressure on internal participants to agree?

Ethics Case Study 4

You have been asked to observe how junior management use new accounting software at a leading city accountancy firm. As part of informed consent, staff are informed that they will remain anonymous. As part of your observations, you notice that many of the junior management staff are making a particular data entry error when using this software. These errors are causing the accountancy firm to lose profit. Company policy states clearly that workers salaries will be docked for clear mistakes leading to loss of company profit.

Ethics Case Study 4 - Issues

- Do you take the edge off the results to protect the people who helped you in the study?
- How can you report results without causing harm to the participants?
- Do you cancel the study as soon as this conflict of interest is detected?

Ethics Case Study 5

You are contracted by a Web design consultancy company to interview their staff to ascertain their current knowledge. The aim of the study is to inform the company about the type of training courses they need to implement. The aim is therefore to highlight areas of overall weakness as opposed to individual shortcomings. Despite this, the type of data you collect will be able to identify individual's weaknesses. Informed consent clearly states that comments made to you by interviewees are to remain private. Following the study, a senior Vice President of the company approaches you, asking you "who did well in the study?"

Ethics Case Study 5 - Issues

- What do you tell the VP?
- How can confidentiality be maintained when participants are on video tape?
- Should you have included disclosure of results to management as part of the informed consent?