UI Design Issues

Balancing Function and Fashion

Introduction

- **User experiences play a critical role in influencing software acceptance**
  - **Messages**
  - **Design**
    - **Information layout**
    - **Multi-window coordination**

Error messages

Phrasing of error messages or diagnostic warnings are critical, especially when dealing with novices

- **Avoid**
  - **superior tone that condemns user (Correct syntax)**
  - **generic messages (e.g. SYNTAX ERROR)**
  - **obscure messages (e.g. FAC RJCT 004004400400)**
- **Be Specific**
  - **Instead of** SYNTAX ERROR **use** → Unmatched left parenthesis
- **Use constructive guidance and positive tone**
  - **Instead of** Resource Conflict Bus: 00 Device: 03 Function: 01 **use** → Remove your compact flash card and restart
- **Use User-centered phrasing**
  - Suggests user controls the interface
  - User should have control over amount of information system provides

Error messages (cont.)

- **Appropriate physical format**
  - **use uppercase-only messages for brief, serious warnings**
  - **avoid code numbers; if required, include at end of message**
  - **debate over best location of messages. E.g. Could be:**
    - **near where problem arose**
    - **placed in consistent position on bottom of screen**
    - **near to, but not obscuring relevant information**
  - **audio signals useful, but can be embarrassing - place under user control**

Error messages (cont.)

- **Development of effective messages**
  - **Messages should be evaluated by several people and tested with suitable participants**
  - **Messages should appear in user manuals and be given high visibility**
  - **Users may remember the one time when they had difficulties with a computer system rather than the 20 times when everything went well**

- **Recommendations**
  - **Increase attention to message design**
  - **Establish quality control**
  - **Develop guidelines**
    - **Have a positive tone**
    - **Be specific and address the problem in the user's terms**
    - **Place the users in control of the situation**
    - **Have a neat, consistent, and comprehensible format**
  - **Carry out usability test**
  - **Collect user performance data**

Anthropomorphic design

- **Concerns**
  - **attributions of intelligence, autonomy, free will, etc can deceive, confuse, and mislead users**
  - **important to clarify differences between people and computers**
  - **users and designers must accept responsibility for misuse of computers**
  - **although attractive to some people, an anthropomorphic interface can produce anxiety in others**
    - **computers can make people feel dumb**
    - **computers should be transparent and support concentrating on the task in hand**
  - **anthropomorphic interfaces may distract users**
    - **Microsoft's ill-fated Clippet character was intended to provide help suggestions**
      - Amused some, but annoyed many
      - Disruptive interference
      - Lacked appropriate emotional expressions
  - **Advocates of anthropomorphic interfaces su   that they may be most useful as teachers, salespeople, therapists, o   ertainment figures**

Anthropomorphic design (cont.)

- **An alternative design is to present a human author of a package through prerecorded audio or video**

- **Guidelines**
  - **Be cautious in presenting computers as people.**
  - **Design comprehensible, predictable, and controllable interfaces.**
  - **Use appropriate humans for introductions or guides.**
  - **Use cartoon characters in games or children's software, but usually not elsewhere**
  - **Provide user-centered overviews for orientation and closure.**
  - **Do not use 'I' pronouns when the computer responds to human actions.**
  - **Use "you" to guide users, or just state facts.**

Display design

- **Effective display designs must provide all the necessary data in the proper sequence to carry out the task**

- **Mullet and Sano's categories of design principles:**
  - **Elegance and Simplicity: unity, refinement and fitness**
  - **Scale, Contrast, and Proportion: clarity, harmony, activity, and restraint**
  - **Organization and Visual Structure: grouping, hierarchy, relationship, and balance**
  - **Module and Program: focus, flexibility, and consistent application**
  - **Image and Representation: immediacy, generality, cohesiveness, and characterization**
  - **Style: distinctiveness, integrity, comprehensiveness, and appropriateness**

Display design (cont.)

- **Field layout**
  - Blank spaces and separate lines can distinguish fields.
  - Names in chronological order, alignment of dates, familiar date separators.
  - Labels are helpful for all but frequent users.
  - Distinguish labels from data with case, boldfacing, etc.
  - If boxes are available they can be used to make a more appealing display, but they consume screen space.
  - Specify the date format for international audiences
  - Other coding categories – background shading, color, and graphic icons

Display design (cont.)

- **Empirical results**
  - structured form superior to narrative form
  - improving data labels, clustering related information, using appropriate indentation and underlining, aligning numeric values, and eliminating extraneous characters improves performance
  - performance times improve with fewer, denser displays for expert users
  - screen contents should contain only task-relevant information
  - consistent location, structure, and terminology across displays important
  - sequences of displays should be similar throughout the system for similar tasks
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Web page design

Top Ten Mistakes

1. Burying information too deep in a web site
2. Overloading pages with too much material
3. Providing awkward or confusing navigation
4. Putting information in unexpected places on the page
5. Not making links obvious and clear
6. Presenting information in bad tables
7. Making text so small that many users cannot read it
8. Using color combinations for text that many users cannot read
9. Using bad forms
10. Hiding (or not providing) features that could help users

The top ten mistakes of web-based presentation of information (Tullis)

Window design

- **Introduction**
  - **Users need to consult multiple sources rapidly**
  - **Must minimally disrupt user's task**
  - **With large displays, eye-head movement and visibility are problems**
  - **With small displays, windows too small to be effective**
  - **Need to offer users sufficient information and flexibility to accomplish task, while reducing *window housekeeping* actions, distracting clutter, eye-head movement**
    - **opening, closing, moving, changing size**
    - **time spent manipulating windows instead of on task**
  - **Can apply direct-manipulation strategy to windows**
  - **Rooms - a form of window macro that enables users to specify actions on several windows at once**

Window design

- **Coordinating multiple windows**
    - Designers may break through to the next generation of window managers by developing coordinate windows, in which windows appear, change contents, and close as a direct result of user actions in the task domain
    - Such sequences of actions can be established by designers, or by users with end-user programming tools
    - A careful study of user tasks can lead to task-specific coordinations based on sequences of actions
    - Important coordinations:
        - Synchronized scrolling
        - Hierarchical browsing
        - Opening/closing of dependent windows
        - Saving/opening of window state

Window design

- **Image browsing**
  - A two-dimensional cousin of hierarchical browsing
    - Work with large images
    - Overview in one window (context), detail in another (focus)
    - Field of view box in the overview
    - Panning in the detail view, changes the field of view box
    - Matched aspect ratios between field of view box and the detail view