HUMAN-COMPUTER INTERACTION THIRD EDITION
DIX FINLAY ABOWD BEALE

chapter 11

user support

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user support

- Issues
  - different types of support at different times
  - implementation and presentation both important
  - all need careful design
- Types of user support
  - quick reference, task specific help, full explanation, tutorial
- Provided by help and documentation
  - help - problem-oriented and specific
  - documentation - system-oriented and general
  - same design principles apply to both

Requirements

- Availability
  - continuous access concurrent to main application
- Accuracy and completeness
  - help matches and covers actual system behaviour
- Consistency
  - between different parts of the help system and paper documentation
- Robustness
  - correct error handling and npredictable behaviour
- Flexibility
  - allows user to interact in a way appropriate to experience and task
- Unobtrusiveness
  - does not prevent the user continuing with work

Approaches to user support

- Command assistance
  - User requests help on particular command
    e.g., UNIX man, DOS help
  - Good for quick reference
  - Assumes user know what to look for

- Command prompts
  - Provide information about correct usage when an error occurs
  - Good for simple syntactic errors
  - Also assumes knowledge of the command

Approaches to user support (ctd)

- Context sensitive help
  - help request interpreted according to context in which it occurs.   e.g. tooltips
- On-line tutorials
  - user works through basics of application in a test environment.
  - can be useful but are often in flexible.
- On-line documentation
  - paper documentation is made available on computer.
  - continually available in common medium
  - can be difficult to browse
  - hypertext used to support browsing.

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wizards and assistants

- wizards
  - task specific tool leads the user through task, step by step, using user's answers to specific questions
  - example: resumé
  - useful for safe completion of complex or infrequent tasks
  - constrained task execution so limited flexibility
  - must allow user to go back

- assistants
  - monitor user behaviour and offer contextual advice
  - can be irritating e.g. MS paperclip
  - must be under user control e.g. XP smart tags

Adaptive Help Systems

- Use knowledge of the context, individual user, task, domain and instruction to provide help adapted to user's needs.

- Problems
  - knowledge requirements considerable
  - who has control of the interaction?
  - what should be adapted?
  - what is the scope of the adaptation?

Knowledge representation
User modeling

- All help systems have a model of the user
  - single, generic user (non-intelligent)
  - user-configured model (adaptable)
  - system-configure model (adaptive)

Approaches to user modelling

- Quantification
  - user moves between levels of expertise
  - based on quantitative measure of what he knows.
- Stereotypes
  - user is classified into a particular category.
- Overlay
  - idealized model of expert use is constructed
  - actual use compared to ideal
  - model may contain the commonality or difference
  Special case: user behaviour compared to known error catalogue

Knowledge representation
Domain and task modelling

- Covers
  - common errors and tasks
  - current task
- Usually involves analysis of command sequences.
- Problems
  - representing tasks
  - interleaved tasks
  - user intention

Knowledge representation
Advisory strategy

- involves choosing the correct style of advice for a given situation.
      e.g. reminder, tutorial, etc.

- few intelligent help systems model advisory strategy, but choice of strategy is still important.

Techniques for knowledge representation

- rule based (e.g. logic, production rules)
  - knowledge presented as rules and facts
  - interpreted using inference mechanism
  - can be used in relatively large domains.
- frame based (e.g. semantic network)
  - knowledge stored in structures with slots to be filled
  - useful for a small domain.
- network based
  - knowledge represented as relationships between facts
  - can be used to link frames.
- example based
  - knowledge represented implicitly within decision structure
  - trained to classify rather than programmed with rules
  - requires little knowledge acquisition

Problems with knowledge representation and modelling

- knowledge acquisition

- resources

- interpretation of user behaviour

Issues in adaptive help

- Initiative
  - does the user retain control or can the system direct the interaction?
  - can the system interrupt the user to offer help?

- Effect
  - what is going to be adapted and what information is needed to do this?
  - only model what is needed.

- Scope
  - is modelling at application or system level?
  - latter more complex
    - e.g. expertise varies between applications.

Designing user support

- User support is not an `add on'
  - should be designed integrally with the system.

- Concentrate on content and context of help rather than technological issues.

Presentation issues

- How is help requested?
  - command, button, function (on/off), separate application
- How is help displayed?
  - new window, whole screen, split screen,
  - pop-up boxes, hint icons
- Effective presentation requires
  - clear, familiar, consistent language
  - instructional rather than descriptive language
  - avoidance of blocks of text
  - clear indication of summary and example information

Implementation issues

Is help
  - operating system command
  - meta command
  - application

What resources are available?
  - screen space
  - memory capacity
  - speed

Structure of help data
  - single file
  - file hierarchy
  - database

Issues
  - flexibility and extensibility
  - hard copy
  - browsing