



HUMAN-COMPUTER INTERACTION

THIRD
EDITION

DIX
FINLAY
ABOWD
BEALE

chapter 11

user support

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 unpredictable 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 inflexible.
- 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.

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