HUMAN-COMPUTER INTERACTION

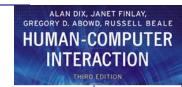
THIRD EDITION





user support

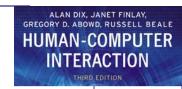




user support

- 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

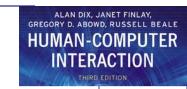




Requirements

- 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 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

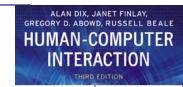




Approaches to user support (ctd)

- 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.





wizards and assistants

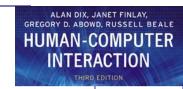
wizards

- 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





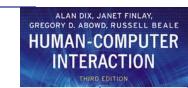
Adaptive Help Systems

 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?

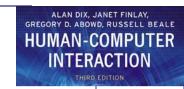




Knowledge representation User modeling

- 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.

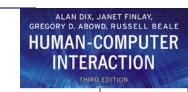




Techniques for knowledge representation

- 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?

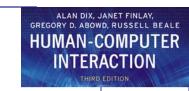
Effect

- 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.

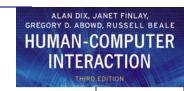




Presentation issues

- 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

Structure of help data

- single file
- file hierarchy
- database

What resources are available?

- screen space
- memory capacity
- speed

Issues

- flexibility and extensibility
- hard copy
- browsing