



MONASH University
Information Technology 

Lecture 11

Designing User Information and Universal Usability


Topic Overview

- What constitutes user information?
- Designing user information:
 - Online help
 - Error messages
 - System messages
- Impact of poor quality information on users

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What makes a system usable?

- From user's perspective, what is important?
 - Workflow
 - Clear messages
 - Usable interface
 - Clear, available user information eg online help, system messages
 - Not having to guess the answer/direction/solution

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User information


- Typically an information system provides three levels of information for users:
 - Online help
 - Messages informing users of a problem (error message)
 - Messages that provide users with some guidance or information on system activities.
- In Web based systems, the only information users will access or be presented with will be system and error messages, thus design is even more important. Online help usually very limited.

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Definitions

Line between online help, system and error messages is blurred.


- **Online help**
- **Error messages**
- **System messages**

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Definitions – providing online help

- Online manual: electronic form of comprehensive paper manuals.
- Online help: brief descriptions of specific topics to help users cope when problems arise.
- Context sensitive help: is a controlled interactive help includes balloon help.
- Online tutorial: online training users of electronic media to teach novices by explaining objects and actions through descriptions.

(Shneiderman ch 13)

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Online help v paper-based manuals

Advantages

- Information always available.
- Online help can provide navigation features.
- Can be bookmarked
- Cheaper to produce and distribute and can be much more easily updated.
- There are similarities in writing style and presentation of text.

Disadvantages

- Display space much reduced therefore quantity of information reduced.
- On-screen information not as easy to read as paper manuals.
- Information provided can be significantly less because of displays.
- Can be initially confusing.
- Extra effort (navigation) may interfere with concentration.
- Difficult on small screen devices.


Effectiveness of online help

- 5% to 20% of user interactions typically involve help.
- Although small percentage of time, very substantial in terms of effort for users.
- 15% of help messages never accessed, 10% of messages accounted for 90% of usage.
- After questioning, more than half the users were not sure if they had got what they wanted from the help.

Preece et al (1994)


Guidelines for online help

- The document should adhere to rules similar to writing paper-based manuals such as:
 - taking care with choice of colour,
 - font size
 - consistency with layout of information.
- Appropriate indexing and linking of information is necessary.

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Online help


- Consistency in presentation is important.
- Navigational devices used should be consistent as well as simple and clearly marked.
- Use devices such as scroll bars and buttons.
- Consistent screen design helps users differentiate between different online help functions
- Skilled writer also needs skills such as:
 - understanding needs of audience
 - how to write for online delivery
 - how to design appropriate links

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Problems users have with online help


Based on studies my research:

- *The language is too technical* - A user of one system said that the help was too cryptic and he had tried initially to use it but had given up.
- In another system users were not using the help because "It was written by a technical person trying to use the English language. It is ambiguous."
- The poor quality of the help created more serious problems. The same user suggested that when instructions were unclear, mistakes were made entering data.

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Problems users have with online help

- *Online help too superficial* - Online help lacks sufficient detail
User comment “There are no instructions. When you read the help, it doesn’t help.”
- In another system, users consistently complained about the quality of online help, saying that it was too basic and that it insulted their intelligence. (The users were lawyers). They commented that the developers didn’t seem to care as simple errors, such as icon misalignment, were evident

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Problems users have with online help


- In another section of the same system, definitions are provided which a user described as stating the obvious. Following is an example of such a definition including grammatical errors.

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Problems users have with online help


- *Online help inaccurate, incomplete or out-of-date* – users consistently complained when online help did not cover all aspects of system, users did not use it.
- If Help did not provide the answer, then users see no point using it.

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Problems users have with online help 

Ambiguous because it is out of date.


One of the problems with the system is that not all of the functionality has online help and I cannot be bothered to find out which parts do and which parts don't. I can sit back and brood over it. I guess if the online help was complete and for all functions I would use it a lot more.

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Problems users have with online help


- Users of one system all commented that the online help was not complete, only some of the information was included, one user described it as follows:

Because it was a package off the shelf, they [the developers] had written the online help and it was sporadic in its availability, patchy in its quality. The language was often unclear. The online help often didn't make a lot of sense because it was not modified in line with the system it was attached to. If the online help is good then I would use it.

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Types of online help

- *Context sensitive*: allows users to access help document within the program. User selects topic within help document.
- *Automatically selected*: advanced form of context sensitive help automatically selected based on system state.
- *Track the user actions*: help displayed at the time user is trying to perform an action

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Understand the audience

- Understand your users:
 - Novice users may have trouble focusing attention not knowing what is essential what is trivial often reluctant to ask questions.
 - Occasional users, may have mastered system but now use it infrequently.
 - Transfer users, know part of the system now learning a new section.
 - Experts don't want to waste time learning how to do something.
 - Rote users learned without knowing/understanding simply by repeating tasks

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Guidelines for design - topics

- Users do not read in long passages. Users scan, skim, skip etc
- Must link information to topics:
 - Write small self-contained modules not long flowing passages.
 - Make each topic fully answer one question but to keep it short.
 - Size topic according to complexity of subject.
 - Cross-reference rather than include non-essential information.
 - Start by deciding what question? Topic? Answers?

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Designing help

- Make dialogues efficient, don't waste time.
- Don't make users press three buttons when they could get the same result with two.
- Simplify access to documents
- Use familiar metaphors: for example the book metaphor, table of contents, look and feel, blue for hyper links.
- Create maps to online help information.
- Match needs of users with help information provided

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Dumas and Redish (1994)

Identified that users are:

- “Unsure what is happening because
 - >No message that action has been taken
 - >No confirmation that user intends action
 - >No message that system is working
 - >No cursor shape change to indicate system is working
 - >No message indicating where user is in screens.

Dumas and Redish (1994)


- Confused about what went wrong because
 - >Error messages not specific
 - >Error messages do not describe what happened
 - >Error messages do not describe what to do
 - >Error messages assign blame
 - >Error messages need additional level of detail. ”

Designing system & error messages

- Messages not carefully designed likely to make users angry particularly if written in an accusing manner, ie suggesting the error is the user's fault
- Any message, which does not convey to the user what the difficulty is and how to rectify it will slow users down and possibly intimidate novice users.
- Infamous DOS error “abort, retry, fail” classic example of message that provides no help to users.


Designing messages

- For novice users important that message be:
 - timely
 - in a language user can understand
 - provide enough information for user to continue.
- System / error messages occur unexpectedly and often relate to technically complex situations that users do not specifically understand.

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Designing messages


- Apart from the actual text there is also the issue of where the messages are located on the screen.
- Users prefer messages displayed in the window in which they were working.
- Despite importance and often critical nature of system and error message text, users today still confronted with messages that do not communicate effectively what problem is or what system is doing.

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Cost of poor messages

Often not assessed / quantified, costs include:


- Increased calls to help desk or programming team
- Higher level of user frustration
- Lower productivity of user
- Lower productivity of other users who stop to help when there is a problem.
- Increased error rate. Users rate error messages very important for effectively using a system - more important than online help.
- Most messages written by programmers.

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User responses


User response to poor error message text:

- ignore messages
- turn error messages off where possible
- if a code, do not generally ring to ask meaning of messages
- did not read all of message if more information was provided.

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Common problems: Written style

- Message often in code. User required to ring programmer for answer. Users don't.
- Messages containing spelling and grammatical errors. Insulted users.
- Users described messages as: 'computer speak', 'not in English', 'technical jargon', 'cryptic', 'gobbledee gook'.

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System status messages: Problems

- Lack of information provided.
- One user said, "It would be nice if after 10 seconds it just flashed up something like 'out to lunch'."
- Users react inappropriately because of a lack of system status messages
- Many users encounter inaccurate status messages.
- Writing user messages requires written communication skills and understanding users.

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Writing user messages

- Should indicate clearly to the user what the problem is and in nonjudgemental language.
- Message should indicate problem solution, if there is one.
- Many messages are useless because they only provide half the needed information.
- Cooper says "a well formed error message box should conform to these requirements:
 - be polite
 - be illuminating
 - be helpful" (443)

The Gap


- Skills and knowledge taught concentrate on building effective systems.
- Technical skills covered but little attention paid to other side of the system - making it work for users.
- Development teams generally consist of technical or business people.
- Rarely skills relating to writing and communicating information included on teams specifically/

Summary

- Effective information for users critical for users to be able to complete tasks.
- System messages very important for users. High cost when poorly designed and written.
- There are significant costs to an organisation when user information is not effective.

Guiding principles


- Shneiderman suggests that there are a number of fundamental principles that designers must use in designing for universal usability.
 - Determining the user's skill level
 - Identifying the users' tasks
 - Selecting an interaction style

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Universal usability


- Concept articulated by Shneiderman.
- Concerned to ensure the diversity of people, backgrounds, motivations cultures working styles etc are accommodated in system design.

“Understanding the physical, intellectual, and personality differences between users is vital for expanding market share, supporting required government services, and enabling creative participation by the broadest possible set of users.” (25)

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Universal usability considerations

- Variations in physical abilities and workplaces
- Diverse cognitive and perceptual abilities
- Personality differences
- Cultural international diversity
- Users with disabilities
- Older adult users
- Designing for them with children
- Accommodating diversity in hardware and software

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References

- Cooper (2003) chapter 33
- Dumas and Redish (1994)
- Dix et al (2004) chapter 11
- Preece et al (1994) chapter 15

Summary

- For the practitioner:
 - Be aware of the standards and guidelines that apply to effective design
 - Be mindful of the diversity of users and aim for universal usability
- For the organisation:
 - Understand good design has its own rewards.
 - Be aware of the standards and guidelines and ensure attention to these are written into the plans.
 - Look at new systems with the diversity of users who may use them, in mind.
