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Information Systems Analysis

Topic 12:

Design or Evaluate an Interface with Regard to the Requirements and Characteristics of its Users

V1.0

Objectives

- Design an interface that addresses the requirements and characteristics of an interface user
- Evaluate and discuss whether interface design principles have been applied to an interface
- Evaluate and discuss whether interface design principles have addressed the requirements and characteristics of an interface user

Purpose of Evaluation

- The success of any interactive information system depends on its functionality, performance, reliability and user interface.
- Each one of these factors is important and inefficiency in any one of them can cause a problems in the system as a whole.
- A systems analyst needs to consider each factor when evaluating a user interface.

Evaluation of a User Interface - 1

- Can take the form of a user-acceptance test, based on the requirements specification produced by the Systems Analyst
- Also a HCI evaluation assessment that is derived from the User Analysis and Task Analysis (discussed in Topic 11)

Evaluation of a User Interface - 2

- The following ***usability goals*** are required to be included in any test of the usability of the interface:
  - free from errors
  - efficient
  - easy to learn
  - easy to recall
  - easy to use

Evaluation of a User Interface - 3

- The following ***user experience goals*** are required to be included in any test of the usability of the interface:
  - aesthetically satisfying
  - enjoyable to use
  - motivating
  - engaging
  - reliable

Evaluation Methods - 1

- There are a considerable number of methods available for evaluating a human computer interface.
- Some are undertaken by users of the actual system, others by experts or ‘evaluators’.

Evaluation Methods - 2

Empirical Methods (Users)	Informal Evaluations (Non users)
Controlled user tests	Heuristic Evaluation
Physiological data analysis	Cognitive walkthroughs
User walkthrough	Predictive modelling – GOMS
Focus groups	Guidelines review
Structured observations	Consistency inspection
Cooperative evaluations	Critical event analysis
Activity logging	Dialogue Error Analysis
Data logging	Usability testing
Observations	Expert reviews
Questionnaires	
Interviews	

Heuristic Evaluation - 1

- Not undertaken by real users
- Undertaken by an evaluator
- An observer answers an evaluator's questions about the interface or gives advice on using it
- The evaluator states what they don't like about the interface and their reasons why.

Heuristic Evaluation - 2

- An evaluator assesses if the following is present:
  - simple language and directions
  - easily recalled
  - consistency
  - feedback
  - clearly marked exits
  - shortcuts
  - clear and relevant error messages
  - lack of errors
  - help features

Heuristic Evaluation - 3

- However, this method has been criticised for the following reasons:
  - Usability problems are identified but there is not always an explanation of how they are to be improved or corrected.
  - Since the evaluators are not actual users, they may not identify all problems or potential problems with usability.

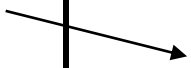
Evaluation Documentation

- The following are examples of the type of documents that can be used when undertaking evaluation of a human-computer interface:
  - An Evaluation checklist
  - An Evaluation Assessment

An Evaluation Checklist

PURPOSE	VALUE
Instruct	Learning
Inform	Accessibility
Entertain	Fun
Enable	Ease of Use

More factors can be added



Evaluation Assessment

General HCI Assessment	Example
Usability Goals	
Fewer errors Efficient Easy to learn Easy to remember Safe to use	
User Experience Goals	
Knowledge base Skills base	

More factors can be added

Impact of a New or Updated User Interface on an Information System

- The acceptance of a new or updated information system by its users usually depends on their experience with the user interface.
- It is therefore crucial to analyse their requirements and the system's requirements as thoroughly and accurately as possible and produce a specification that documents these needs precisely.
- Evaluation of the interface must be robust to identify and correct any problems.

Conclusion

- If an information system's users are satisfied and comfortable with their interface, this can:
  - increase productivity
  - reduce training costs
  - reduce maintenance costs
  - prevent user errors
  - contribute to job satisfaction

Summary

This topic covers:

- Interface design that addresses the requirements and characteristics of an interface user
- An evaluation of interface design principles and whether these principles address the requirements and characteristics of the interface

References

- Preece, J., Rogers, Y. and Sharp, H. (2002) *Interaction Design: Beyond Human-Computer Interaction,* John Wiley & Sons, New York.

- Hinze-Hoare, V. (2007). *Review and Analysis of Human Computer Interaction (HCI) Principles.* [Available Online] http://arxiv.org/ftp/arxiv/papers/0707/0707.3638.pdf