Lecture 8
Evaluation, Physical Design and Standards

Heuristic evaluation
Nielsen's heuristics
Schneiderman's rules
Norman's principles
Physical design (continued)
Interface design standards

Heim, Chapters 5.4-5.6

Evaluation

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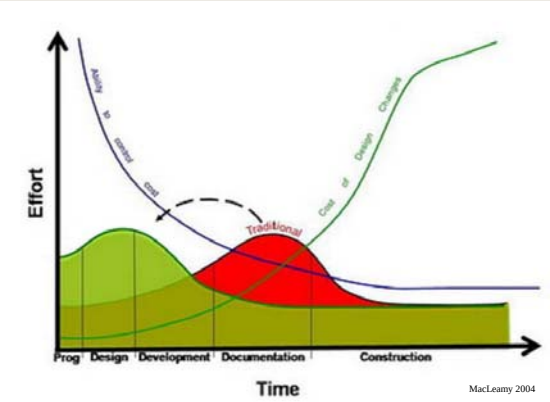
Begin evaluations early in the design process.

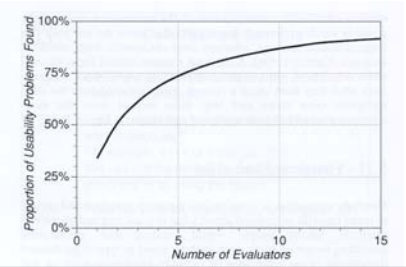
- Evaluation is an integral part of the development process and can take the form of an informal walkthrough or a more structured heuristic evaluation.
- Formal usability testing can begin once a prototype has been developed.
- Discuss some of the benefits of starting the evaluation process early in the design phase

MacLeamy curve



Evaluation – *Heuristic Evaluation*

- Heuristic evaluations are performed by usability experts using a predetermined set of criteria designed to measure the usability of a proposed design.
- The evaluator follows a scenario through the design and tests each step against the heuristic criteria.
- The evaluator makes recommendations to the design team either through a written document or during a team meeting.



Evaluation – *Nielsen's Heuristics*

- In collaboration with Rolf Molich, Jakob Nielsen developed a set of 10 heuristics for interface design.
- The revised set based on an analysis of 249 usability problems.
  http://www.useit.com/papers/heuristic/heuristic_list.html

Nielsen's 10 Usability Heuristics

- *Visibility of system status*
- *Match between system and the realworld*
- *User control and freedom*
- *Consistency and standards*
- *Error prevention*
- *Recognition rather than recall*
- *Flexibility and efficiency of use*
- *Aesthetic and minimalist design*
- *Help users recognize, diagnose, and recover from errors*
- *Help and documentation*

Nielsen's Advice for Heuristic Evaluations

- Use multiple independent evaluators
- Use observer to record evaluator
- Go through interface several times
- Compare interaction against list of heuristics
- Use heuristics specific to design
- List heuristic problems and how the heuristic is violated

Shneiderman's 8 Golden Rules

1. *Strive for consistency*
2. *Enable frequent users to use shortcuts*
3. *Offer informative feedback*
4. *Design dialogs to yield closure*
5. *Offer error prevention and simple error handling*
6. *Permit easy reversal of actions*
7. *Support internal locus of control*
8. *Reduce short-term memory load*

Norman's 7 Principles

1. *Use both knowledge in the world and knowledge in the head.*
2. *Simplify the structure of tasks.*
3. *Make things visible: bridge the gulfs of Execution and Evaluation.*
4. *Get the mappings right.*
5. *Exploit the power of constraints, both natural and artificial.*
6. *Design for error.*
7. *When all else fails, standardize.*

Physical Design Cont. - *Wireframes*

- Wireframes define:
  - Basic page layout
  - Screen components
- Wireframes are developed from flowcharts and paper prototypes
- They are basically more evolved paper prototypes that include detailed information about the interface elements

Physical Design Cont. - *Wireframes*

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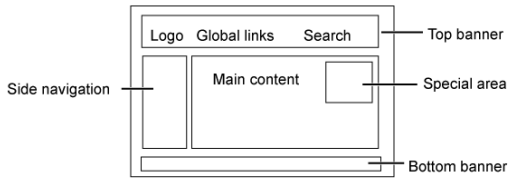
Wireframes help to create template layouts that can be used to impose a consistent structure throughout the interface



Physical Design Cont. – *Wireframes*

- Web Formats
  - Web sites from different domains use layouts particular to that domain

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Use page layouts that are common to the domain

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Use flexible design for Web pages

WideOpenDoors.net

Evaluation – *Functional Prototypes*

- Functional prototypes are interactive prototypes that represent various degrees of functionality
  - They can either be horizontal or vertical
- Can also be simulated – Wizard of Oz
- Functioning prototypes can be created using RAD environments, such as:
  - Microsoft
    - Visual Studio
  - Adobe
    - Flash
    - Dreamweaver
    - Director

Interface Design Standards

- These tools promote standards-based designs that have a consistent look and feel
  - Graphical libraries
  - User interface toolkits
  - Visual interface builders
  - Web development tools

Mac OS X

- Working in a standardized environment increases efficiency and promotes learning
  (Cooper & Reimann, 2003)

Interface Design Standards

- Shneiderman and Plaisant (2005, 185) identified the following benefits from the use of high-level software tools

- User Interface Independence
  - They separate interface design from internals.
  - They enable multiple user interface strategies.
  - They enable multiple-platform support.
  - They establish the role of the user interface architect.
  - They enforce standards.

- Methodology and Notation
  - They facilitate the development of design procedures.
  - They help in finding ways to talk about design.
  - They create project management.

Interface Design Standards

- Rapid Prototyping
  - They make it possible to try out ideas very early.
  - They make it possible to test, revise, test, revise, ...
  - They engage end users—managers and customers.

- Software Support
  - They increase productivity.
  - They offer constraint and consistency checks.
  - They facilitate team approaches.
  - They ease maintenance.