A Framework for Organizing Web Usability Guidelines

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Aims and goals

◆ Aims of the EvalWeb project
  – To provide designers with assistance on designing web pages
  – To guide designers in evaluating design choices
  – To support designers in documenting design choices for tracability
  – To be aimed at people who are not necessarily very familiar with usability
Goals of this particular work

Assumption: to rely on guidelines

– Guideline = consolidated statement containing design wisdom or recommendations with supporting evidence

– Can propagate some knowledge of web usability in the design and development

– Can be used for both formative input and summative evaluation
Goals of this particular work

However, guidelines are rarely used:

– Incompleteness
– Context-independence
– Hard interpretation
– Lack of experimental studies
– Conflicting issues
– Hard integration in design process
Goals of this particular work

◆ Main goal is
  – To develop a framework
  – For organizing web usability guidelines
  – That address these shortcomings
  – That facilitates the structuring and the use of guidelines for
    • Design
    • Evaluation
Method for building the framework

◆ Step 1: Guidelines collection
  – 1.1 Web guidelines collection
  – 1.2 Addition of GUI guidelines
◆ Step 2: Guidelines organization
  – 2.1 Classifying guideline by ergonomic criteria
  – 2.2 Further classifying guideline
◆ Step 3: Incorporation of guidelines into approach
Step 1: Guidelines collection

1.1 Web guidelines collection

- Apple Web Design Guide
- Ameritech Web Page User Int. Standards and guidelines
- Yale Web Style Guide
- SUN Guide to Web Style

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Step 1: Guidelines collection

1.2 Addition of GUI guidelines
Step 2: Guidelines organization

2.1 Classifying guideline by ergonomic criteria

- Initial set is huge, has varying credibility, expressions, poor structure
- Ergonomic criteria = a usability factor recognized in HCI has having usability impact that is experimentally assessed
Ergonomic criteria

1. Guidance
2. Work load
3. Explicit control
4. Adaptability
5. Error management
6. Homogeneousness / Consistency
7. Significance of codes
8. Compatibility
Guidelines by Ergonomic Criteria

Distribution of guidelines by elementary c.

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Step 2: Guidelines organization

2.2 Further classifying guidelines
- Resulting set is still huge
- Alternate index keys: actions, alignment,…
- Method/technique with examples
- Tool support
  - Full automatic
  - Semi-automatic
  - Questions-based
  - Delegated
  - Manual
- Importance
Step 2: Guidelines organization

2.2 Further classifying guidelines

Guideline: In order to support different levels of user skills, direct manipulation dialogues should be designed to minimize the need for users to alternate between different input devices.

Example: To fill in a form a user points and selects every field with the mouse and then enters text with the keyboard. As the experience grows the user moves the cursor from field to field with the tab key before entering text. Thereby the need for the user to alternate between input devices is minimized and efficiency is increased.

Source: Ergonomic requirements for office work with visual terminals (VDTs) - Part 16: Direct-manipulation dialogues, ISO/DIS 9241-16.

Guideline Number: (5.4.3)

Ergonomic criteria: Users' experience

Index Key: Dialogue

Evaluation method: user observation (Level of automation: manual)

Score: rather important
Step 3: Incorporation of guidelines into approach

Design process = series of design operations

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Applying the framework: Example #1

**Guidelines**
- Each personal home page should contain the company logo at the top left corner.
- Each personal home page should contain the photo of the person after the logo.

**Expression according to the framework**

2.1.2.5. Specification C.E.-Guidance
2.1.2.5.1.3.2.4 Picture: picture=company logo
2.1.2.5.2 Specification C.E.-Grouping/distinction
2.1.2.5.2.1 Spec. C.E.-By location: location=left corner
Applying the framework: Example#1

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Applying the framework: Example #2

◆ Guideline
– Select colors that will make your page easy to read by people with color blindness

◆ Expression according to the framework
1. Requirements engineering
   1. Users
      1.2 Handicaps: impairment = color blindness
   2. Site specification
      2.1.1 Spec. C.E.-Compatibility
      2.1.1.2.6 Accessibility: user limitation = lack of color differentiation
      2.1.2.8 Colors: colors = readable by users
2. Site specification
   5. Site evaluation
      5.1.3.4 Color scheme = readable by users; legible in black & white

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Applying the framework: Example #2

Keep the good color combinations

<table>
<thead>
<tr>
<th>Background</th>
<th>Thin lines and text</th>
</tr>
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<tbody>
<tr>
<td>White</td>
<td>Blue (94%) Black (63%) Red (25%)</td>
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<tr>
<td>Black</td>
<td>White (75%) Yellow (63%)</td>
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Applying the framework: Example #2

◆ Keep the good color combinations

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Applying the framework: Example #2

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Conclusion

◆ 400 Web usability guidelines organized
◆ Design operations
  – Design questions
  – Design actions
    • Design choices
    • Data collection actions
    • Conformance verification
◆ Design operations are triggered by
  – Design questions
  – Usability guidelines

A Framework for Organizing Web Usability Guidelines
Thank you for your attention!

Questions?
Future work

◆ At least 3 directions
  – Guidelines: GDL language
  – Incorporation into approach: life cycle
  – Heuristic evaluation
  – Supporting tools
Envisioned tools

- **EvalWeb** = Design/evaluation assistant
- **MetroWeb** = Tool for automated evaluation of usability guidelines
### Ergonomic criteria

<table>
<thead>
<tr>
<th>Step</th>
<th>Design operations</th>
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**Note:**

- 1) Long information items should be partitioned into groups with a specified number of characters which are consistently used for entry and display.
- 2) A space should be used as a separator, unless this conflicts with existing conventions or user expectations.
- Numbers and letters should not be mixed in one group unless there is a convention for this.

**Examples**

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>recom Iso 9241</td>
<td>Example 1: A 10-digit telephone number is represented as 10 00 35 45 35 or 100 035 4535. Example 2: A 6-digit bank code is represented as 359459.</td>
</tr>
</tbody>
</table>

**Comments**

- Compatibility
- Users characteristics
- Items organization
- Conventions d'écriture
- Conception
- Visual terminals (VDT) - Part 12
MetroWeb

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Guideline evaluation
Starting URL
Example #3

◆ Guideline
  – All data fields must be accessible via a tabulation key in the same order. If fields are grouped together, then tab must access the fields within the group.

1. Requirements engineering
   1.1.1.2 Task order/sequencing: task order = domain objects sequence
2. Site specification
   2.1.1 Spec. C.E.-Compatibility
   2.1.1.1.2 Task.order/sequencing: fields order = task order

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