Finding Usability Problems Through Heuristic Evaluation

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for

ISE 5714: Usability Engineering
Heuristic Evaluation (HE)

• based on judging interfaces according to established usability principles ("heuristics")
• uses a small set of judges (typically three)
• inspection methodology – similar to claims analysis or the cognitive walkthrough
• originally intended for those familiar with usability, but not experts

Goal of Heuristic Evaluation:
To find usability problems in an existing design: “debugging the user interface”
Generalized HE Method

1. A group of evaluators perform tasks with the system (either on paper or with the working software).
2. The evaluators judge their usage experience based upon the predefined criteria (heuristics).
3. The identified problems are categorized as either “major” or “minor” problems.
4. A problem is found when any member of the group recognizes it and the severity categorization is done by consensus.

Either a paper mockup or a full program can be used to perform HE. However, there is some speculation that HE might be easier with interfaces with a high degree of persistence.
Areas of Focus

Evaluator Expertise:

• Double Specialist: a person knowledgeable in both usability and the specific application area
• Regular Specialist: a person knowledgeable in general usability issues
• Novice Evaluator: a person with computers, but not usability

Problem Severity

Individual Heuristics

Location of Problem:

• Single Dialog Element
• Comparison of two elements
• Overall Structure
• Something Missing
Evaluator Expertise

Usability Problem Detection Rates

Number of Evaluators vs. Detection Rate

- 0% detection rate
- 20% detection rate
- 40% detection rate
- 60% detection rate
- 80% detection rate
- 100% detection rate

- Double Experts
- Regular Experts
- Novice Evaluators
Problem Severity

• HE identifies a larger proportion of major usability problems than “minor”
• HE identifies more minor usability problems than other methods do
• Caution should be use when reporting these problems so the numerical advantage of minor problems do not mask the major problems’ greater importance
Individual Heuristics

Single and natural dialogue
Speak the user’s language
Minimize user memory load
Be consistent
Provide feedback
Provide clearly marked exits
Provide shortcuts
Good error messages
Prevent Errors

• Overall, with three judges, not much difference
• “Good error messages” and “Prevent” errors slightly worse
• “Provide clearly marked exits” worse – should “look harder” for these and/or perform a user test
Location of Problem

Single Dialog Element: only need to consider the interface element in isolation
Comparison of Two Elements: both single elements may be fine by themselves, but in conjunction causes a problem
Overall Structure: systemic problem
Something Missing: an element which should be present but is not

- Insignificant, but significantly interacts with implementation technique (i.e., paper mockup vs. actual software) for the “missing” element
Strengths and Weaknesses of HE

**Strengths:**
- Can be performed quickly
- Can be much cheaper than user testing
- Can find many more “minor” problems with the interface

**Weaknesses:**
- Even with three specialists, only 60-75% of the problems may be found
- Usability experts may be difficult and/or expensive to find
Summary

- Double experts perform Heuristic Evaluation better than regular usability specialists who, in turn, perform better than non-specialists
- Major problems have a higher probability of being identified than minor ones
- About twice as many minor problems are found than major ones
- “Clearly marked exits” is the most difficult heuristic to find, thus special consideration for this should be made
- Missing interface elements are more difficult to find with paper mockups of the system