Heuristic Evaluation

刘哲明
Prof. James A. Landay
Computer Science Department
Stanford University
Winter 2021
February 22, 2021

Hall of Fame or Shame?
Big basket
From Bharti Bhagtani
https://uxdesign.cc/heuristic-
evaluation-of-bigbasket-application-4a69f43be47d
"India's largest online supermarket"

Heuristic Evaluation

Good
-?
Bad
- not aesthetic & minimalist design
- popups with too much info
- cluttered

Outline

• Heuristic Evaluation Overview
• The Heuristics
• Team Break
• Exercise

Evaluation

• About figuring out how to improve design
• Issues with lo-fi tests?
Evaluation
- About figuring out how to improve design
- Issues with lo-fi tests?
  - Not realistic
    - visuals & performance
  - Not on actual interface
    - can’t test alone
  - Need participants
    - can be hard to find repeatedly

Heuristic Evaluation
- Developed by Jakob Nielsen
- Helps find usability problems in a UI design
- Small set (3-5) of evaluators examine UI
  - independently check for compliance with usability principles ("heuristics")
  - evaluators only communicate afterwards
  - findings are then aggregated
  - use violations to redesign/fix problems
- Can perform on working UI or on sketches

Why Multiple Evaluators?
- Every evaluator doesn’t find every problem
- Good evaluators find both easy & hard ones

Heuristics
H1: Visibility of system status
H2: Match between system & real world
H3: User control & freedom
H4: Consistency & standards
H5: Error prevention
H6: Recognition rather than recall
H7: Flexibility and efficiency of use
H8: Aesthetic & minimalist design

Heuristics (cont.)
Heuristic Evaluation
Not realistic
- visuals & performance
Not on actual interface
- can’t test alone
Need participants
- can be hard to find repeatedly
Heuristics (cont.)

H9: Help users recognize, diagnose, & recover from errors

Good Error Messages

- Clearly indicate what has gone wrong
- Human readable
- Polite
- Describe the problem
- Explain how to fix it
- Highly noticeable

H10 – Help & Documentation

- Better if the system can be used without documentation, but it may be necessary
  - How
    - easy to search
    - focused on task
    - list concrete steps

Severity Ratings

0 - don’t agree that this is a usability problem
1 - cosmetic problem
2 - minor usability problem
3 - major usability problem; important to fix
4 - usability catastrophe; imperative to fix

Heuristic Violation Examples

1. [H6 Recognition Rather Than Recall]
   Can’t copy info from one window to another
   - user needs to memorize the data & retype
   - fix: allow copying

2. [H4 Consistency and Standards]
   Typography uses different fonts in 3 dialog boxes
   - slows users down
   - probably wouldn’t be found by user testing
   - fix: pick a single format for entire interface
Severity Ratings Example

1. [H4 Consistency & Standards] [Severity 3]

The interface used the string “Save” on the first screen for saving the user’s settings, but used the string “Store” on the second screen. Users may be confused by this different terminology for the same function.

Fix: Use “Save” everywhere in the application.

Problems Found This Year

1. H4 (consistency): The use of red to indicate errors, out of stock items, and sales/savings [26]
2. H4 (consistency): two of the check boxes have yes/no next to them but none of the others do. Error prevention? [22]
3. H9 (Aesthetic): “#” is not needed [2]

Problems Found Last Year

1. H3 – no purchase button [100]
2. H4 – remove column has check boxes and then one entry w/ yes/no [100]
3. H5 – illegal input (text) allowed in quantity field [90]
4. H1 – not clear who is logged in [10]
5. H2 – “what fits my car” is not a good term that people would know [20]
6. H5 – user can add “out of stock” items [80]

Decreasing Returns

Heuristic Evaluation Summary

• Have evaluators go through the UI twice
• Ask them to see if it complies with heuristics – note where it doesn’t & say why
• Have evaluators independently rate severity
• Combine the findings from 3 to 5 evaluators - come to agreement on problems, fixes & severity
• Alternate with user testing
Speech UI Heuristics

S1. Give the agent a persona through language, sounds, and other styles.
S2. Make the system status clear.
S3. Speak the user’s language.
S4. Start and stop conversations.
S5. Pay attention to what the user said and respect the user’s context.
S6. Use spoken language characteristics.
S8. Adapt agent style to who users are, how they speak, and how they are feeling.
S9. Guide users through a conversation so they are not easily lost.
S10. Use responses to help users discover what is possible.
S11. Keep feedback and prompts short.
S12. Confirm input intelligently.
S13. Use speech-recognition system confidence to drive feedback style.
S14. Use multimodal feedback when available.
S15. Avoid cascading correction errors.
S16. Use normal language in communicating errors.
S17. Allow users to exit from errors or a mistaken conversation.

The list of heuristics along with detailed descriptions and examples can be found at http://hci.stanford.edu/publications/2018/speech-heuristics.html

Grading on Last Assignment

Assignment #5 Low-fi Prototype & Test
- A5 Group Report: ✓: 0% ✓: 38% ✓+: 56% +: 6%
- A5 Group Presentation: ✓: 0% ✓: 8% ✓+: 88% +: 24%
- A5 Individual Presentation: ✓: 0% ✓: 2% ✓+: 44% +: 54%

TEAM BREAK

EXERCISE
Heuristic evaluation practice
[8 min]: On your own, find 8+ usability violations
For each one: Which guideline was violated and why? How could it be fixed?

[8 min]: Share with your breakout room
What violations did you all find? Which ones did only one of you notice?

[10 min]: Share with the class
Raise your hand or post a screenshot with your description on Slack.

Find, label, & describe 8-10 Heuristic Violations

Problems Found

1. H1: no feedback on whether the message is sent or not, just navigates to inbox screen
2. H2: if you click on the wrong profile, cannot recall the recipient name on screen 2
3. H3: should just choose one format (potentially just first name if we want to avoid clutter)
4. H4: so many different colors, not consistent
5. H5: Could potentially select (null) users to write messages to. Fix: just don't display the icons of null users at all.
6. H6: James L is not displayed on create message screen
7. H6: no ability to edit message text
8. H7: unnecessary "next" button on the first page. Might instead click on the person to transition to the next screen (H6) and add back button there (H3)
9. H8: low contrast (especially the purple/pink) and should use less saturated colors for better contrast.
10. H9: "error" messages offer no explanation
11. H10: no help or documentation included - just buttons indicating the very next step
12. H11: text not visible on the first page. Might add a link in the text to the user on screen 2 (H4) and add back button (H3)

H2

H6

H3

H1
Further Reading

**Heuristic Evaluation**

- Longer lecture
  - [https://drive.google.com/file/d/0BweiB6wu4sBaN2tfZGxKb2tMDY5/view](https://drive.google.com/file/d/0BweiB6wu4sBaN2tfZGxKb2tMDY5/view)

- Books
  - Usability Engineering, by Nielsen, 1994

- Web site
  - [http://www.nngroup.com/articles/](http://www.nngroup.com/articles/)

Next Time

- Lecture
  - Human Abilities

- Readings
  - Listen to [99% Invisible Podcast on Progress / Waiting](https://99designs.com/blog/podcast)

- Next assignments
  - Individual Heuristic Evaluation
  - Group Heuristic Evaluation (in studio)