Heuristic Evaluation

Hall of Fame!

LG F7100
courtesy of Genevieve Bell, Intel
Launched in 2004 in UAE, Saudia Arabia, North Africa, India, Malaysia
Good
- targeted at Muslim audience
- need to pray 5x/day pointing towards Mecca

Outline

• Wizard of Oz
• Heuristic Evaluation Overview
• The Heuristics
• Team Break
• Exercise

Wizard of Oz Technique

• Faking the interaction. Comes from?
  - the film ‘The Wizard of OZ’
  - ‘the man behind the curtain’

• Long tradition in computer industry
  - e.g., prototype of a PC w/ a DEC VAX behind the curtain
Wizard of Oz Technique

- Faking the interaction. Comes from?
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  - “the man behind the curtain”
- Long tradition in computer industry
  - e.g., prototype of a PC w/ a DEC VAX behind the curtain
- Much more important for hard to implement features

Evaluation

- About figuring out how to improve design
- Issues with lo-fi tests?

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

Carbon Shopper

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
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

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

http://blog.screensteps.com/10-examples-of-great-end-user-documentation
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

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

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.

Decreasing Returns

Problem / benefits / cost vs number of evaluators

Speech UI Heuristics

S1: Give the agent a persona through language, sounds, and other stylistic touches.
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.
S7: Make conversation a back-and-forth exchange.
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.
Speech UI Heuristics

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

Administrivia

• Free Figma pro licenses if you use your Stanford emails to verify (instructions on Piazza)
• Questions on medium-fi prototype assignment?

TEAM BREAK

EXERCISE

Find 12-15 Heuristic Violations
Problems Found

1. ?

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]

Problems Found Two Years Ago

1. H5 Error Prevention
   allows non-numeric data in the quantity field. fix: don’t allow it. [90]
2. H5 Error Prevention
   quantity field doesn’t multiply by the price to give a correct total. fix: make it work. [55]
3. H10 Help & Documentation
   ask for international visitors hidden at bottom & may not be readable by non-english speakers. fix: move up to prominent location & include flags? [30]
4. H5 Error Prevention
   “Remove item bolded in red”, but red used for multiple purposes. Fix: get rid of ads in the checkout! More direct way to remove out of stock item or not even let me add a item that is out of stock. [100]
5. H5 Error Prevention
   No way to check out. [110]

Problems Found Three Years Ago

1. H4 Consistency
   remove column, 4th item is different w/ checkboxes. [150]
2. H9 Error Prevention
   non-numeric data in the quantity. Do not allow. [125]
3. H2 Match between system & real world
   vehicle selection link not language I’d expect [100]
4. H1 Visibility of System Status
   unclear which item to remove based on error message (“red/bold”). [150]

Further Reading

Heuristic Evaluation

• Longer lecture
  https://drive.google.com/file/d/0BweiB6wv4sBaN2f7GxKb2P3Qg/view

• Books
  - Usability Engineering, by Nielsen, 1994

• Web site
  - http://www.nngroup.com/articles/

Next Time

• Lecture
  - Human Abilities

• Readings

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