Heuristic Evaluation

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CS 147
Autumn 2016
November 3, 2016

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

Hall of Fame or Shame?

WhatsApp mobile messaging

Good
- do not have to pay expensive SMS
- can contact people on other phones
- works on "feature" phones → led to rapid take-off in developing world

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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

- Much more important for hard to implement features
  - speech & handwriting recognition
  - how would we do it for VR?

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

Heuristics

H2-1: Visibility of system status
H2-2: Match between system & real world
H2-3: User control & freedom

Heuristics (cont.)

H2-4: Consistency & standards
H2-5: Error prevention
H2-6: Recognition rather than recall
H2-7: Flexibility and efficiency of use
H2-8: Aesthetic & minimalist design
H2-9: Help users recognize, diagnose, & recover from errors

Heuristics (cont.)

bad

You have not specified a Web Browser, or Web Browser specified is incorrect

good

The page at https://mail.google.com says:
A server failed when it tried to deliver your message. The following error occurred:
Your message was discarded because the server does not have the domain name for the addressee.
In particular, the domain name provided for the first addressee is incorrect.
Check the domain name and try again.
No one can read your message; it will be rejected.
Resolution:
You may need to notify your system administrator. The name of the server that rejected your message was mail.google.com.
Good Error Messages

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

Heuristic Violation Examples

1. [H1-3 Minimize the users’ memory load]
   - Can’t copy info from one window to another
     - fix: allow copying

2. [H2-4 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. [H1-4 Consistency] [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.

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
- Combine the findings from 3 to 5 evaluators
- Have evaluators independently rate severity
- Alternate with user testing

* Caveat: graphs for a specific example
Problems Found

1. H2-5 Error Prevention
   - Allows non-numeric data in the quantity field. Fix: don’t allow it. [90]
2. H2-5 Error Prevention
   - Quantity field doesn’t multiply by the price to give a correct total. Fix: make it work. [55]
3. H2-10 Help & Documentation
   - Link for international visitors hidden at bottom & may not be readable by non-English speakers. Fix: move up to prominent location & include flags? [30]
4. H2-5 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 an item that is out of stock. [100]
5. H2-5 Error Prevention
   - No way to check out. [110]

Problems Found Last Year

1. H2-4 Consistency
   - Remove column, 4th item is different w/ checkboxes. [150]
2. H2-9 Error Prevention
   - Non-numeric data in the quantity. Do not allow. [125]
3. H2-2 Match between system & real world
   - Vehicle selection link not language I’d expect [100]
4. H2-1 Visibility of System Status
   - Unclear which item to remove based on error message (“red/bold”). [150]

Find 12-15 Heuristic Violations
Further Reading
Heuristic Evaluation

- Longer lecture
  - https://drive.google.com/file/d/0BweiB6wu4sBAntZGxKb2tuOTq/view

- Books
  - Usability Engineering, by Nielsen, 1994

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

Next Time

- Lecture
  - Visual Information Design

- Read
  - Watch Scott Klemmer’s HCIOnline lectures:
    - 6.1 Visual Design (7:37)
    - 6.2 Typography (10:47)
    - 6.3 Grids & Alignment (17:33)

- Studio
  - Medium-fi Prototype Presentations
  - Start Heuristic Evaluation

TEAM BREAK