

James Landay CS Summer Camp: Designing & Prototyping Smart Applications

Heuristic Evaluation

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Outline

- Wizard of Oz
- Heuristic Evaluation Overview
- The Heuristics
- 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

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- 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



Wizard of Oz Technique

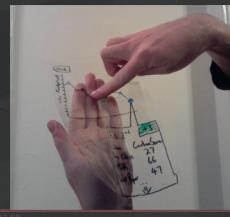


Carbon Shopper

- Much more important for hard to implement features

Evaluation

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



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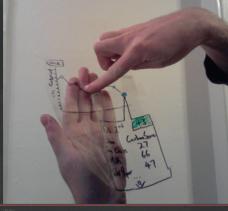
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Evaluation

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Not realistic
– visuals & performance

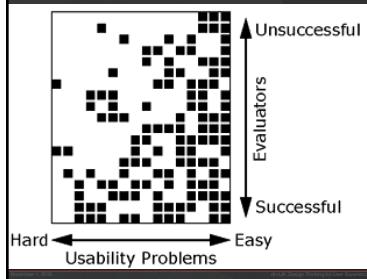
Not on actual interface
– can't test alone

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

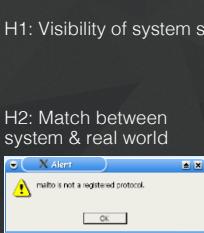
Why Multiple Evaluators?



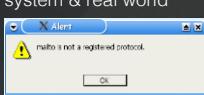
- Every evaluator doesn't find every problem
- Good evaluators find both easy & hard ones

Heuristics

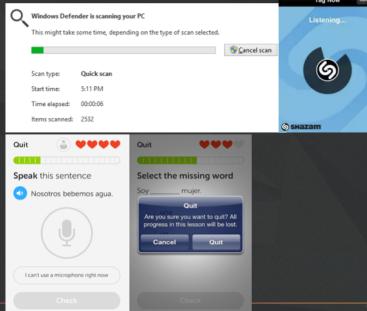
H1: Visibility of system status



H2: Match between system & real world

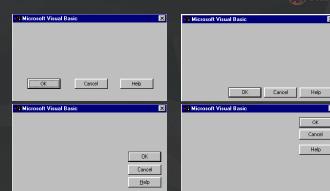


H3: User control & freedom



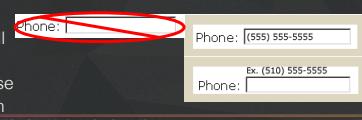
Heuristics (cont.)

H4: Consistency & standards



H5: Error prevention

H6: Recognition rather than recall



H7: Flexibility and efficiency of use

H8: Aesthetic & minimalist design

Heuristics (cont.)

bad

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



Heuristics (cont.)

good

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

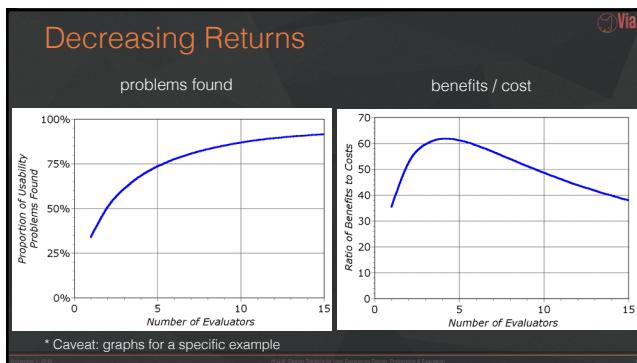
0 - don't agree that this is a usability problem
 1 - cosmetic problem
 2 - minor usability problem
 3 - major usability problem; important to fix
 4 - usability catastrophe; imperative to fix

Severity Ratings Example

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

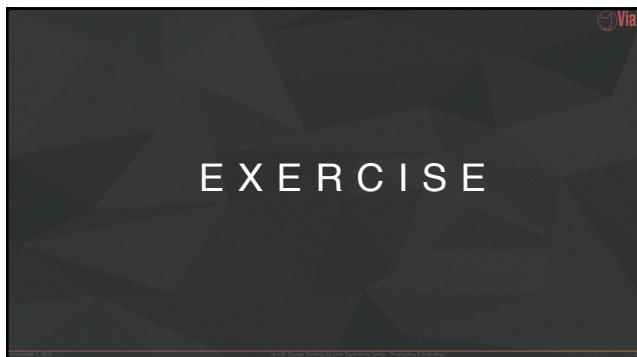
The interface used the string “Save” on the first screen for saving the user’s settings, but used the string “Store” on the second screen. Users may be confused by this different terminology for the same function.

Fix: Use “Save” everywhere in the application.



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



what fits my car? [Logout](#) [Continue Shopping](#)

Your vehicle: 1989 Toyota Tercel

To select a different vehicle, click "What Fits My Car" above.

PLEASE NOTE

Item #	Message
2048L570	This component is NOT recommended for your vehicle. We suggest removing this item (bolded in red below) from your cart. Please call us toll-free at 1-888-955-4000 and we'll be glad to provide further assistance.

Cart

Quantity	Item #	Remove?	Item Description	Price	Total
x	#033DVDM4800	<input checked="" type="checkbox"/>	Denon DVD-4800 DVD Video Changer	\$1,199.95	\$1,199.95
x	#2048L570	<input type="checkbox"/>	Banzooka EL-570 5.1x7.2-wc speakers	\$79.95	\$79.95
x	#150DSCP90	<input type="checkbox"/>	Sony DSC-P90 Digital Still Camera, 2.1 Mega Pixel	\$299.95	\$299.95
x	#133DVDLA95	<input checked="" type="checkbox"/>	Panasonic DVD-LA55 Portable DVD A/V Player with 5" Screen Special Sony MDR-Wax 3.0W IR, New, D200-95	\$999.95	\$999.95
x	#170GAT100	<input type="checkbox"/>	Maxell UX-Silver 7.180 VHS Video Tape	\$2.49	\$2.49

Total

Merchandise Total: \$2,802.29
 Standard Shipping Shipping Charge: \$13.95
 Alternative shipping options available before final checkout
 Order Total: \$2,896.24

[Update Cart](#) [Close Cart](#)

• To change an item's quantity, enter the correct number in the **Quantity** column, then press **Update Cart**.
 • To remove an item, check the box in the **Remove?** column, then press **Update Cart**.
 • To add an item that appears in your printed Checklist reading, enter the item number into the Cart and click **Update Cart**.

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#133DVDLA95	Panasonic DVD-LA55 Portable DVD A/V Player with 5" Screen	\$999.95	\$999.95
#170GAT100	Maxell UX-Silver 7.180 VHS Video Tape	\$2.49	\$2.49

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Find 12-15 Heuristic Violations

Problems Found

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]

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Problems Found Last Year



- 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
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. 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 Two 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]