

HEURISTIC EVALUATION

17 SEPT 2015



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UNIVERSITY OF CALIFORNIA



ANNOUNCEMENTS

FILL OUT GOOGLE CLASS GROUP PETITION STUDIO NEXT WEEK (MANDITORY ATTENDENCE) SECTION: ANDROID WEAR, SENSORS, APIs + HEURISTIC EVAL TEAM LAUNCH



HEURISTIC EVALUATION

USABILITY HEURISTICS

"Rules of thumb" describing features of usable systems Can be used as design principles Can be used to evaluate a design

Example: Minimize users' memory load

HEURISTIC EVALUATION

Developed by Jakob Nielsen (1994)

Can be performed on working UI or on sketches



Small set (3-5) of evaluators (experts) examine UI Evaluators check compliance with usability heuristics Different evaluators will find different problems Evaluators only communicate afterwards to aggregate findings Designers use violations to redesign/fix problems

NIELSEN'S TEN HEURISTICS

- H1: Visibility of system status
- H2: Match system and real world
- H3: User control and freedom
- H4: Consistency and standards
- H5: Error prevention
- H6: Recognition rather than recall
- H7: Flexibility and efficiency of use
- H8: Aesthetic and minimalist design
- H9: Help users recognize, diagnose, recover from errors
- H10: Help and documentation

H-1: VISIBILITY OF SYSTEM STATUS

Keep users informed about what is going on. Example: response time

0.1 sec: no special indicators needed

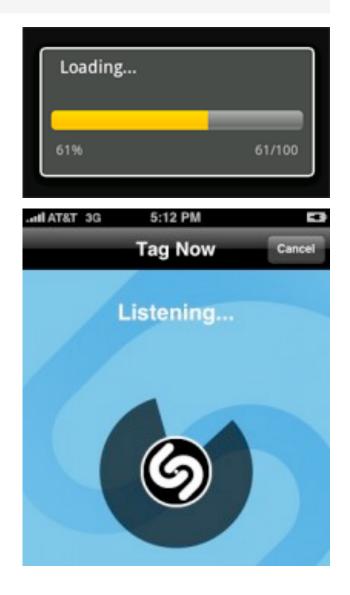
1.0 sec: user tends to lose track of data

10 sec: max. duration if user to stay focused on action

Short delays: Hourglass

Long delays: Use percent-done progress bars

Overestimate usually better



H-1: VISIBILITY OF SYSTEM STATUS

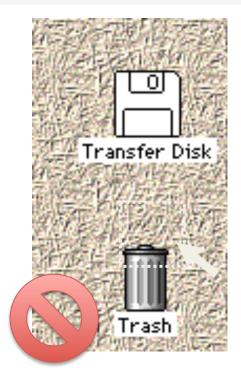
Users should always be aware of what is going on So that they can make informed decision Provide redundant information

	Do you want to save the changes you made in the document "statements.txt"?Your changes will be lost if you don't save them.Don't SaveCancelSave
	Would you like to apply your changes before closing the Network preferences pane?
000EM (0.2	Don't Apply Cancel Apply

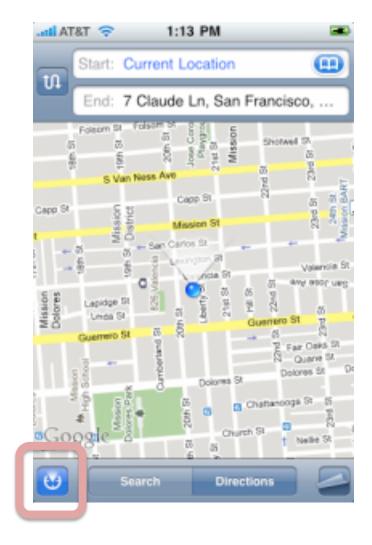
H-2: MATCH SYSTEM & WORLD

Speak the users' language Follow real world conventions Pay attention to metaphors

Bad example: Mac desktop



H2-2: MATCH SYSTEM & WORLD



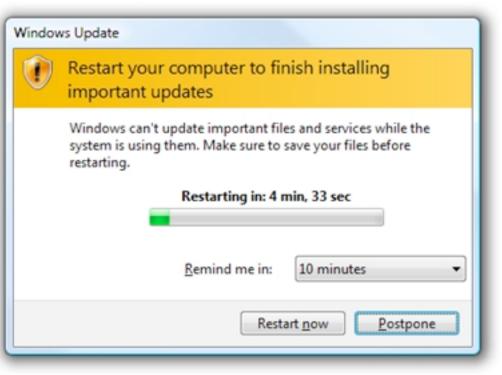
H-3: USER CONTROL & FREEDOM

Users don't like to be trapped!

Strategies

Cancel button (or Esc key) for dialog Make the cancel button responsive! Universal undo





H-3: USER CONTROL & FREEDOM

Offer "Exits" for mistaken choices, undo, redo Don't force the user down fixed paths

Wizards

Must respond to Q before going to next step Good for infrequent tasks (e.g., network setup) & beginners Not good for common tasks (zip/unzip)

00	Bluetooth Setup Assistant
	Select Device Type
	The Bluetooth Setup Assistant sets up your Bluetooth device to work with this computer. Select the type of device you want to set up from the list. Select "Any device" if the device you want to set up is not on the list. Your device needs to be within 30 feet of your computer.
	() Mouse
	() Keyboard
	Mobile phone
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	O Headset
	O Any device
	Go Back Continue

H-4: CONSISTENCY AND STANDARDS

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H-4: CONSISTENCY AND STANDARDS

NEW CUSTOMER

Give us your measurements

Take or ask someone to help take your measurements, by following our easy instructions . It takes just 5 minutes!



Send us your best fitting shirt* (go directly to cart) If you prefer not to take measurements, you can mail us your best fitting shirt. Our Master Tailor will take the necessary measurements and will return your shirt along with your order.

* : Your shirt will be used for measurements only. We will not copy it.

Visit our NYC showroom (go directly to cart) Contact us at <u>contact@listerouge-paris.com</u> to plan a private appointment at our New York showroom (Madison Ave & 40th St.).



EXISTING CUSTOMER

- Your measurements are on file (go directly to cart) If your last order fits perfectly, we will make the new shirts with exactly the same measurements.
- If your measurements have changed Simply note your measurements changes compared to your previous shirts.

http://www.useit.com/alertbox/application-mistakes.html

H-5: ERROR PREVENTION

Eliminate error-prone conditions or check for them and ask for confirmation

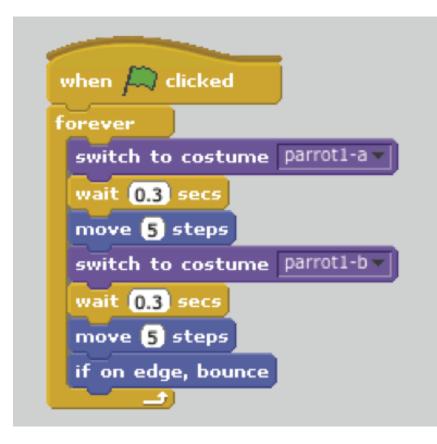


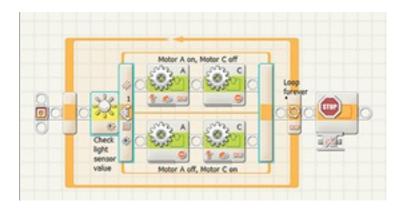
H-5: ERROR PREVENTION

Aid users with specifying correct input

Trip information: Find hotels near: A city + What city? SoHo - Tribeca - Lower East Side, New York, United Sta Check-out: Check-in: 4/5/2010 4/14/2010 April 2010 May 2010 s TWTF S м w s S M т т 2 3 1 1 10 7 9 17 9 10 11 11 12 13 15 16 12 14 15 18 19 20 21 22 23 24 16 17 18 19 21 22 20 25 26 27 28 29 30 23 24 25 26 27 28 29 30 31 Close

H2-5: ERROR PREVENTION



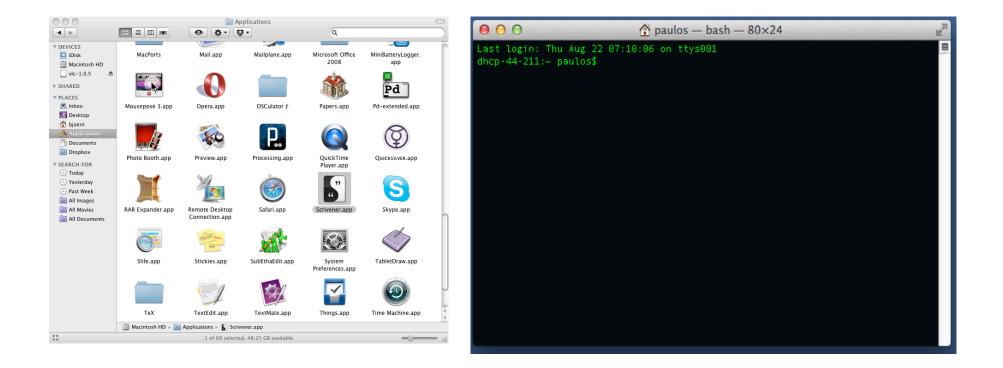


Lego Mindstorms

Don't allow incorrect input

MIT Scratch

H-6: RECOGNITION OVER RECALL



H-6: RECOGNITION OVER RECALL

Minimize the user's memory load by making objects, actions, and options visible.

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H2-7: FLEXIBILITY AND EFFICIENCY OF USE

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http://www.iphoneuxreviews.com/?p=114|

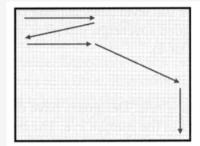
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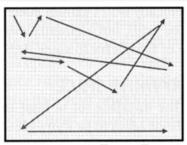
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No irrelevant information in dialogues

Present information in natural order

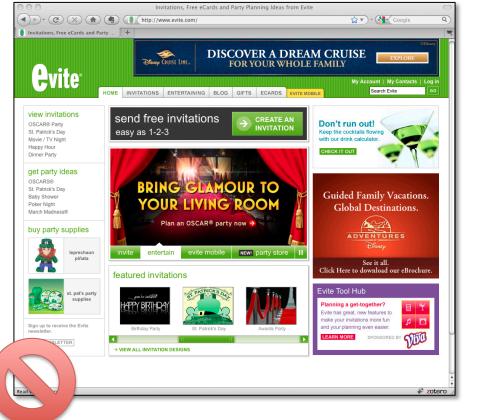


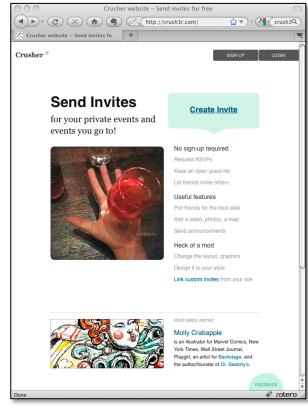




Occam's razor

Remove or hide irrelevant or rarely needed information – They compete with important information on screen Pro: Palm Pilot Against: Dynamic menus Use windows frugally Avoid complex window management



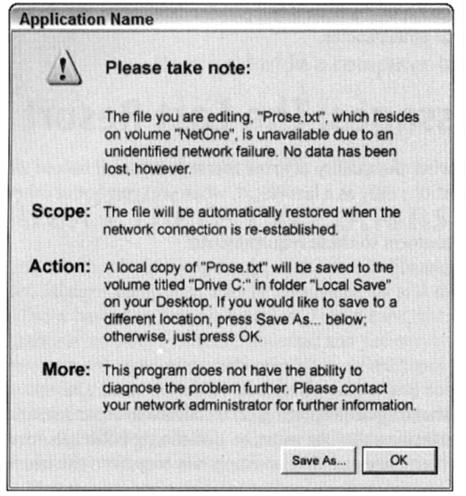


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	blog_words_in_excerpt	smallint(6)		=	
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	blog_cc_license	varchar(255)	latin1_general_ci	LIKE	
	blog_is_dynamic	tinyint(4)		=	
	blog_require_comment_emails	tinyint(4)		=	
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H-9: HELP USERS RECOGNIZE, DIAGNOSE, AND RECOVER FROM ERRORS



GOOD ERROR MESSAGES



From Cooper's "About Face 2.0"

H2-9: HELP USERS RECOGNIZE, DIAGNOSE, AND RECOVER FROM ERRORS

Search Mail Search the Web Show search options Create a filter
2 conversations have been moved to the Trash. Learn more Undo
Archive Report spam Delete Move to V Labels More actions Refresh

H-10: HELP AND DOCUMENTATION

- Help should be:
- •Easy to search
- •Focused on the user's task
- •List concrete steps to carry out
- •Not too long

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	nange the default bullet or Imbering style	
pre tha	use a customized bullet or numbering style in all your sentations, store them in a template file, blank.pot, It Microsoft PowerPoint will use to start all new sentations.	
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5.	On the File menu, click Save As.	
6.	In the Save as type box, select Design Template ; in the File Name box, type blank.pot , and then click Save .	

TYPES OF HELP

Tutorial and/or getting started manuals

Presents the system conceptual model

Basis for successful explorations

Provides on-line tours and demos

Demonstrates basic features

Reference manuals

Designed with experts in mind

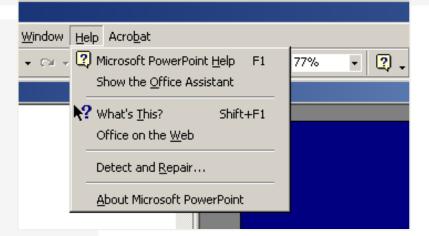
Reminders

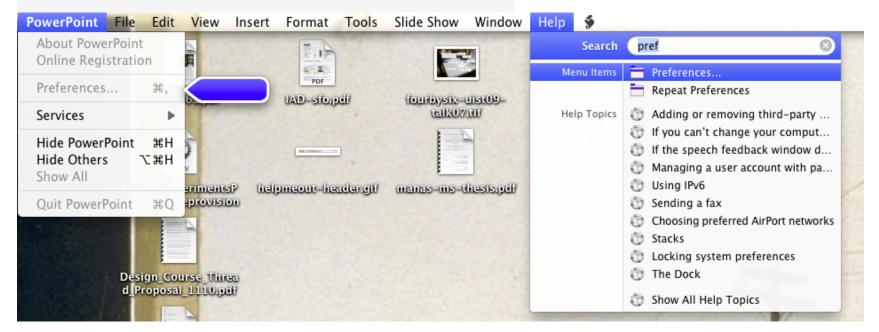
Short reference cards, keyboard templates, tooltips...

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TYPES OF HELP

Context sensitive help Search





NEW USER GUIDES





THE PROCESS OF HEURISTIC EVALUATION

PHASES OF HEURISTIC EVAL. (1-2)

1) Pre-evaluation training

Provide the evaluator with domain knowledge if needed

2) Evaluation

Individuals evaluate interface then aggregate results Compare interface elements with heuristics

Work in 2 passes First pass: get a feel for flow and scope Second pass: focus on specific elements

Each evaluator produces list of problems Explain why with reference to heuristic or other information Be specific and list each problem separately

PHASES OF HEURISTIC EVAL. (3-4)

3) Severity rating

Establishes a ranking between problems Cosmetic, minor, major and catastrophic First rate individually, then as a group

4) Debriefing

Discuss outcome with design team Suggest potential solutions Assess how hard things are to fix

EXAMPLES

Typography uses mix of upper/lower case formats and fonts

Violates "Consistency and standards" (H-4)

Slows users down

Fix: pick a single format for entire interface

Probably wouldn't be found by user testing

LEVELS OF SEVERITY

- 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. [H-4 Consistency] [Severity 3]

The interface used the string "Save" on the first screen for saving the user's file, but used the string "Write file" on the second screen. Users may be confused by this different terminology for the same function.

DEBRIEFING

Conduct with evaluators, observers, and development team members

Discuss general characteristics of UI

Suggest improvements to address major usability problems

Development team rates how hard things are to fix

Make it a brainstorming session



PROS AND CONS OF HEURISTIC EVALUATION

HE VS. USER TESTING

HE is much faster

1-2 hours each evaluator vs. days-weeks

HE doesn't require interpreting user's actions

User testing is far more accurate Takes into account actual users and tasks HE may miss problems & find "false positives"

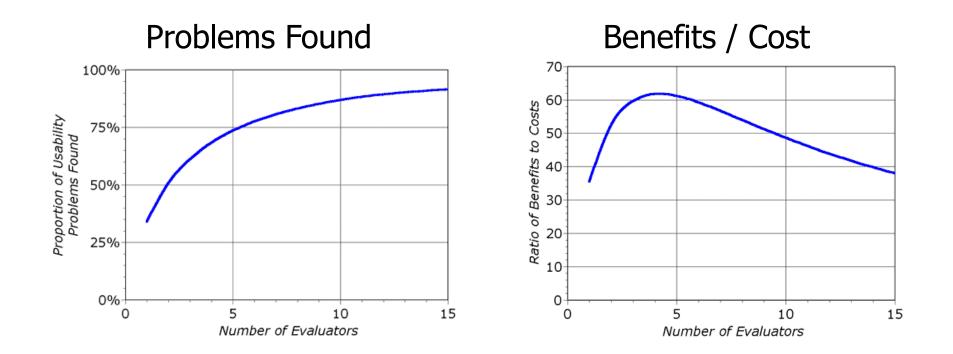
Good to alternate between HE & user-based testing Find different problems Don't waste participants

NUMBER OF EVALUATORS

Single evaluator achieves poor results Only finds 35% of usability problems 5 evaluators find ~ 75% of usability problems Why not more evaluators???? 10? 20? Adding evaluators costs more Many evaluators won't find many more problems

But always depends on market for product: popular products \rightarrow high support cost for small bugs

DECREASING RETURNS



Caveat: graphs are for one specific example!

SUMMARY

Heuristic evaluation is a discount method

Have evaluators go through the UI twice Ask them to see if it complies with heuristics Note where it doesn't and say why

Have evaluators independently rate severity

Combine the findings from 3 to 5 evaluators Discuss problems with design team

Cheaper alternative to user testing Finds different problems, so good to alternate