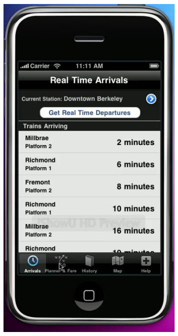
CS160: User Interface Design

Qualitative Evaluation 03/08/10

Berkeley
UNIVERSITY OF CALIFORNIA

BART Application Examples

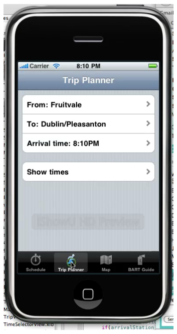


Current Station: Downtown Berkeley

Trains Arriving

Millbrae Platform 2	2 minutes
Richmond Platform 1	6 minutes
Fremont Platform 2	8 minutes
Richmond Platform 1	10 minutes
Millbrae Platform 2	16 minutes
Richmond	19 minutes

Kathryn Skorpil

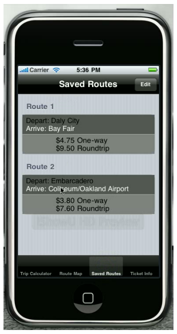


From: Fruitvale

To: Dublin/Pleasanton

Arrival time: 8:10PM

Wei Wu



Route 1

Depart: Daly City
Arrive: Bay Fair
$4.75 One-way
$9.50 Roundtrip

Route 2

Depart: Embarcadero
Arrive: Coliseum/Oakland Airport
$3.80 One-way
$7.60 Roundtrip

Joe Cadena

New Assignment

Perform Heuristic Evaluation of another student's Programming Assignment #4

Due: 1 week from today

10 points, no extra credit

Section this week

1. Bring your paper prototype if you need practice being the "computer"
2. Work on the heuristic evaluation assignment

Midterm on 3/17

If you are registered with the DSP office and have special needs, we need to see your letter by **this Wednesday,** 3/10, 6pm to make accommodations!

Today

1. Keystroke Level Model (KLM) Example
2. Qualitative Evaluation: Cognitive Walkthrough and Heuristic Evaluation

Keystroke Level Model (KLM)

Describe the task using the following operators:

K: pressing a key or a pressing (or releasing) a button

t_K = 0.08 - 1.2s (0.2 good rule of thumb)

P: pointing

t_P = 1.1s (without button press)

H: Homing (switching device)

t_H = 0.4s

D(*n*,*l*): Drawing segmented lines

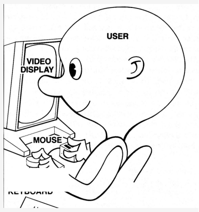
t_D = 0.9*n + .16*l

M: Mentally prepare

t_M = 1.35s

R(*t*): system response time

t_R = t



KLM Heuristic Rules (Raskin's)

0: Insert M

In front of all K

In front of all P's selecting a command (not in front of P's ending command)

1: Remove M between *fully anticipated* operators

PMK → PK

2: if a string of MKs belong to *cognitive unit* delete all M but first

4564.23: MKMKMKMKMKMKMK → MKKKKKKK

3: if K is a *redundant terminator* then delete M in front of it

↲↲: MKMK → MKK

4a: if K terminates a constant length string (command name) delete the M in front of it

cd↲: MKKMK → MKKK

4b: if K terminates a variable length string (parameter) keep the M in front of it

cd class↲: MKKKMKKKKKMK → MKKKMKKKKKMK

Using KLM

Encode using all physical operators (K, P, H, D(*n*,*l*), R(*t*))

Apply Raskin's KLM rules [0-4]

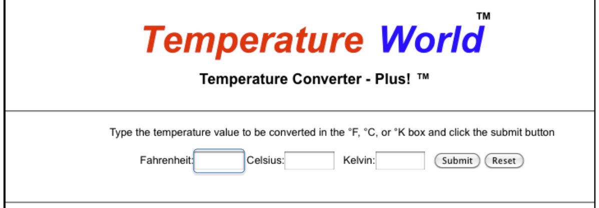
Transform R followed by an M

If $t \le t_M$: R(t) → R(0)

If $t_M < t$: R(t) → R($t - t_M$)

Compute the total time by adding all individual times

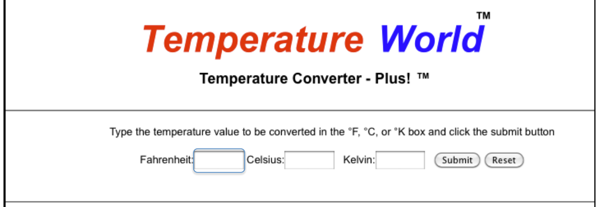
Converting Temperatures I



Type the temperature value to be converted in the °F, °C, or °K box and click the submit button

Assume: Focus is on the Fahrenheit box, so typing on the keyboard will enter text directly into that box.

Converting Temperatures I



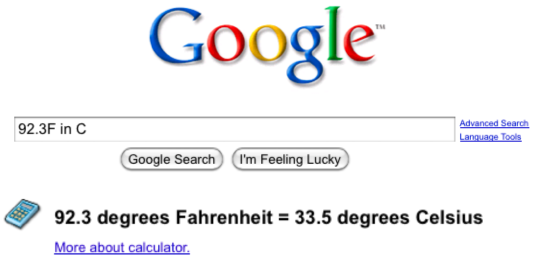
Type the temperature value to be converted in the °F, °C, or °K box and click the submit button

Case1 (F->C): MKKKK HMPK = 5.2s

Case2 (C->F): H MPK H MKKKK HMPK = 8.65s

Average: 6.925s

Converting Temperatures 2

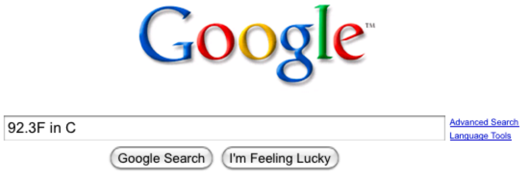


92.3F in C

92.3 degrees Fahrenheit = 33.5 degrees Celsius

Assume: Focus is on the search box, so typing on the keyboard will enter text directly into that box.

Converting Temperatures 2


92.3F in C

MKKKKK MK MKK MK MK MK = 10.3s

Limits of our KLM Analysis

Is TemperatureWorld always preferable?

We looked at one isolated task – do you need to "reset" UI for next conversion? What about interleaving with other tasks?

We assumed desktop input devices (Mouse + Keyboard). What about mobile input?

What about errors?

What GOMS Can Model

Task must be goal-directed

Some activities are more goal-directed

Creative activities may not be as goal-directed

Task must be a routine cognitive skill

As opposed to problem solving

Good for things like machine operators

Serial & parallel tasks (CPM-GOMS)

Advantages of GOMS

Gives qualitative & quantitative measures

Model explains the results

Less work than user study – no users!

Easy to modify when UI is revised

Research: Need tools to aid modeling process since it can still be tedious

Disadvantages of GOMS

Not as easy as other evaluation methods

Heuristic evaluation, guidelines, etc.

Takes lots of time, skill, & effort

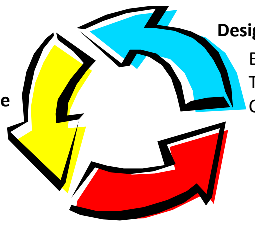
Only works for goal-directed tasks

Assumes tasks **expert** performance without **error**

Does not address other important UI issues, e.g., readability, memorizability of icons, commands

Usability Inspection Methods

Iterative Design



Design

Brainstorming

Task analysis

Contextual inquiry

Prototype

Low-fi, paper

Evaluate

Low-fi testing,

Qualitative eval

Quantitative eval

Genres of assessment

Automated Usability measures computed by software

Empirical Usability assessed by testing with real users

Formal Models and formulas to calculate measures

Inspection Based on heuristics, skills, and experience of evaluators

Quantitative Testing is Costly

User studies are very expensive – you need to schedule (and normally pay) many subjects.

User studies may take many hours of the evaluation team's time.

A user test can easily cost $10k's

"Discount Usability" Techniques

Cheap

No special labs or equipment needed

The more careful you are, the better it gets

Fast

On order of 1 day to apply

(Standard usability testing may take a week)

Easy to use

Can be taught in 2-4 hours

"Discount Usability" Techniques

Cognitive Walkthroughs

Put yourself in the shoes of a user

Like a code walkthrough

Heuristic Evaluation

Assess interface based on a predetermined list of criteria

Other, non-inspection techniques are on the rise

e.g., online remote experiments with Mechanical Turk

Cognitive Walkthrough

Cognitive Walkthrough

Formalized technique for imagining user's thoughts and actions when using an interface:

"*Cognitive walkthroughs involve simulating a user's problem-solving process at each step in the human-computer dialog, checking to see if the user's goals and memory for actions can be assumed to lead to the next correct action.*" (Nielsen, 1992)

Cognitive Walkthrough

Given an interface prototype or specification, need:

- A detailed task with a concrete goal, ideally motivated by a scenario
- Action sequences for user to complete the task

Ask the following questions for each step:

- Will the users know what to do?
- Will the user notice that the correct action is available?
- Will the user interpret the application feedback correctly?

Record: what would cause problems, and why?

From: Preece, Rogers, Sharp – Interaction Design

Cognitive Walkthrough Example

Task: Find the call number and location of the latest edition of the book "Interaction Design" by Preece, Rogers & Sharp in the Berkeley library

Typical users: Students who are familiar with the web, but not necessarily with the library or its website

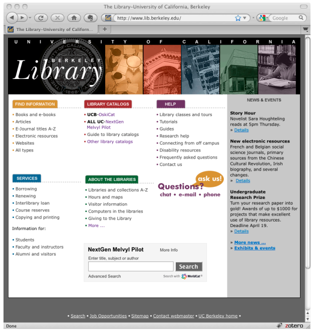
Cognitive Walkthrough Example

Step1: Select library catalog.

Will the user know what to do?

Will user notice that action is available?

Will user interpret feedback correctly?



Story Hour
Novelist Sara Houghteling reads at 5pm Thursday.

New electronic resources
French and Belgian social science journals, primary sources from the Chinese Cultural Revolution, Irish biography, and several changes.

Undergraduate Research Prize
Turn your research paper into gold! Awards of up to $1000 for projects that make excellent use of library resources. Deadline April 19.

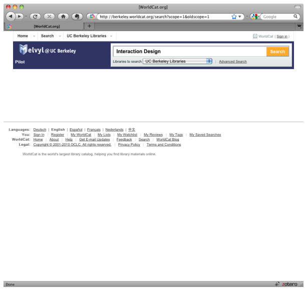
Cognitive Walkthrough Example

Step 2: Complete the search form

Will the user know what to do?

Will user notice that action is available?

Will user interpret feedback correctly?



Interaction Design

Libraries to search: UC Berkeley Libraries

Languages: Deutsch | English | Español | Français | Nederlands | 中文
You: Sign In | Register | My WorldCat | My Lists | My Watchlist | My Reviews | My Tags | My Saved Searches
WorldCat: Home | About | Help | Get E-mail Updates | Feedback | Search | WorldCat Blog
Legal: Copyright © 2001-2010 OCLC. All rights reserved. | Privacy Policy | Terms and Conditions

WorldCat is the world's largest library catalog, helping you find library materials online.

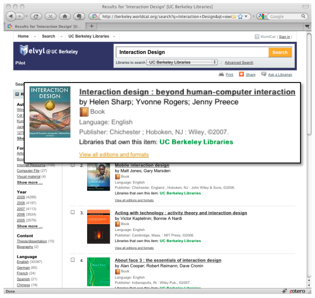
Cognitive Walkthrough Example

Step 3: Locate the right edition, click to detail screen

Will the user know what to do?

Will user notice that action is available?

Will user interpret feedback correctly?



Interaction Design

Libraries to search: UC Berkeley Libraries

Internet Resource (139)
Computer File (27)
Visual material (4)
Show more ...

Year
2009 (4289)
2008 (4197)
2007 (4113)
2006 (3024)
2005 (2579)
Show more ...

Content
Thesis/dissertation (10)
Biography (2)

Language
English (30387)
German (65)
French (24)
Spanish (21)
Chinese (18)

Interaction design : beyond human-computer interaction
by Helen Sharp; Yvonne Rogers; Jenny Preece
Book
Language: English
Publisher: Chichester ; Hoboken, NJ : Wiley, ©2007.
Libraries that own this item: UC Berkeley Libraries
View all editions and formats

2. Mobile interaction design
by Matt Jones; Gary Marsden
Book
Language: English
Publisher: Chichester, England ; Hoboken, NJ : John Wiley & Sons, ©2006.
Libraries that own this item: UC Berkeley Libraries
View all editions and formats

3. Acting with technology : activity theory and interaction design
by Victor Kaptelinin; Bonnie A Nardi
Book
Language: English
Publisher: Cambridge, Mass. : MIT Press, ©2006.
Libraries that own this item: UC Berkeley Libraries
View all editions and formats

4. About face 3 : the essentials of interaction design
by Alan Cooper; Robert Reimann; Dave Cronin
Book
Language: English
Publisher: Indianapolis, IN : Wiley Pub., ©2007.

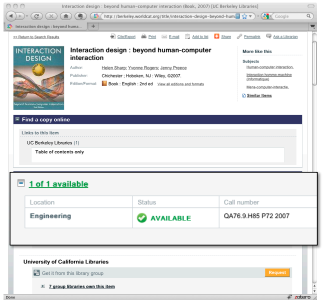
Cognitive Walkthrough Example

Step 4: Locate call number and library location

Will the user know what to do?

Will user notice that action is available?

Will user interpret feedback correctly?


Interaction design : beyond human-computer interaction (Book, 2007) [UC Berkeley Libraries]
http://berkeley.worldcat.org/title/interaction-design-beyond-hum
Google
Interaction design : beyond huma...
<< Return to Search Results
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Interaction design : beyond human-computer interaction

Author: Helen Sharp; Yvonne Rogers; Jenny Preece
Publisher: Chichester ; Hoboken, NJ : Wiley, ©2007.
Edition/Format: Book : English : 2nd ed View all editions and formats

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Subjects
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Interaction homme-machine (Informatique)
Mens-computer-interactie.

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Table of contents only

1 of 1 available

Location	Status	Call number
Engineering	AVAILABLE	QA76.9.H85 P72 2007

University of California Libraries
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7 group libraries own this item

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

Pros and cons

- Easy and inexpensive
  - Performed by experts
  - No users required
  - Catch many design flaws
- More difficult than it seems
  - Not a simple checklist
  - Cannot assess how well the interface will address user goals

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

H2-1: Visibility of system status

H2-2: Match system and real world

H2-3: User control and freedom

H2-4: Consistency and standards

H2-5: Error prevention

H2-6: Recognition rather than recall

H2-7: Flexibility and efficiency of use

H2-8: Aesthetic and minimalist design

H2-9: Help users recognize, diagnose, recover from errors

H2-10: Help and documentation

Original Heuristics

H1-1: Simple and natural dialog

H1-2: Speak the users' language

H1-3: Minimize users' memory load

H1-4: Consistency

H1-5: Feedback

H1-6: Clearly marked exits

H1-7: Shortcuts

H1-8: Precise & constructive error messages

H1-9: Prevent errors

H1-10: Help and documentation

H2-1: Visibility of system status

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

0.1 sec: no special indicators needed

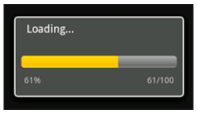
1.0 sec: user tends to lose track of data

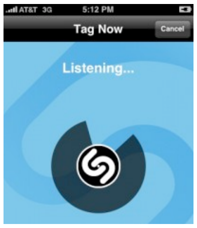
10 sec: max. duration if user to stay focused on action

Short delays: Hourglass

Long delays: Use percent-done progress bars

Overestimate usually better



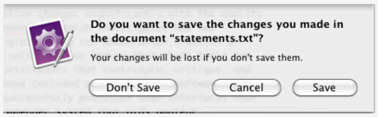


H2-1: Visibility of system status

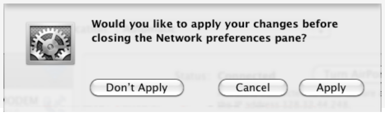
Users should always be aware of what is going on

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.


Would you like to apply your changes before closing the Network preferences pane?

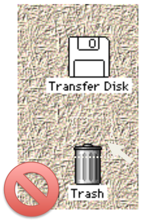
H2-2: Match System & World

Speak the users' language

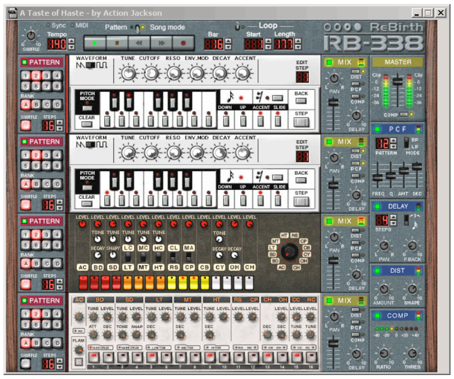
Follow real world conventions

Pay attention to metaphors

Bad example: Mac desktop

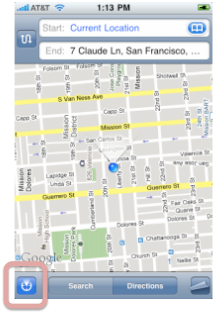


http://www.synthmania.com/Famous%20Sounds/Images/tb-303.jpg
http://upload.wikimedia.org/wikipedia/commons/b/be/Roland_TR-808_drum_machine.jpg
http://upload.wikimedia.org/wikipedia/en/b/b7/909.jpg



http://upload.wikimedia.org/wikipedia/en/d/da/Rebirth_rb-338_screenshot.png

H2-2: Match System & World



Start: Current Location

End: 7 Claude Ln, San Francisco, ...

H2-3: User control & freedom

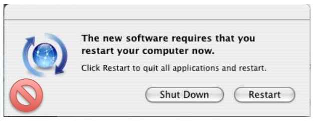
Users don't like to be trapped!

Strategies

Cancel button
(or Esc key) for dialog

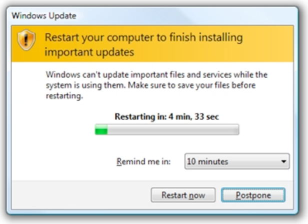
Make the cancel button responsive!

Universal undo



The new software requires that you restart your computer now.

Click Restart to quit all applications and restart.



Windows Update

Restart your computer to finish installing important updates

Windows can't update important files and services while the system is using them. Make sure to save your files before restarting.

Restarting in: 4 min, 33 sec

Remind me in: 10 minutes

H2-3: User control & freedom

Offer "Exits" for mistaken choices, undo, redo

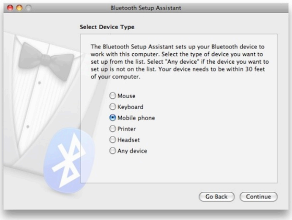
Don't force the user down fixed paths

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)



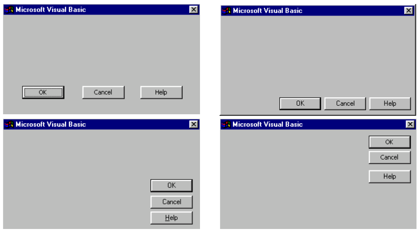
Bluetooth Setup Assistant

Select Device Type

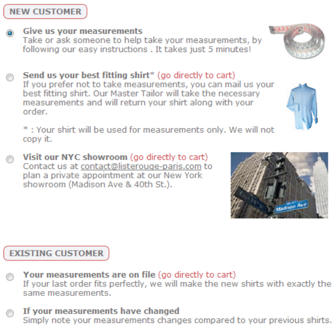
The Bluetooth Setup Assistant sets up your Bluetooth device to work with this computer. Select the type of device you want to set up from the list. Select "Any device" if the device you want to set up is not on the list. Your device needs to be within 30 feet of your computer.

○ Mouse
○ Keyboard
● Mobile phone
○ Printer
○ Headset
○ Any device

H2-4: Consistency and standards



H2-4: 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 contact@listerouge-paris.com to plan a private appointment at our New York showroom (Madison Ave & 40th St.).

EXISTING CUSTOMER

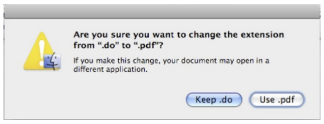
○ **Your measurements are on file** (go directly to cart)
If your last order fits perfectly, we will make the new shirts with exactly the same measurements.

○ **If your measurements have changed**
Simply note your measurements changes compared to your previous shirts.

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

H2-5: Error Prevention

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

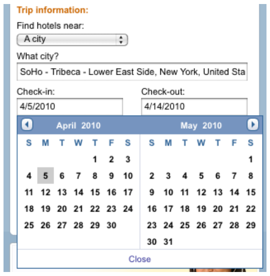


Are you sure you want to change the extension from ".do" to ".pdf"?

If you make this change, your document may open in a different application.

H2-5: 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-in:
4/5/2010

Check-out:
4/14/2010

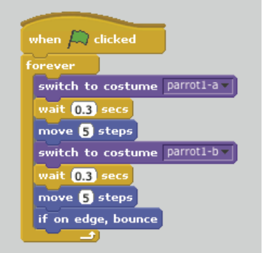
April 2010

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

May 2010

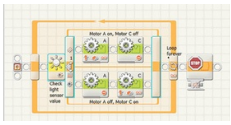
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

H2-5: Error Prevention



```
when [flag] clicked
forever
  switch to costume [parrot1-a]
  wait 0.3 secs
  move 5 steps
  switch to costume [parrot1-b]
  wait 0.3 secs
  move 5 steps
  if on edge, bounce
```

MIT Scratch



Lego Mindstorms

Don't allow incorrect input

Preventing Errors

Error types

Slips

User commits error during the execution of a correct plan.

Typos

Habitually answer "no" to a dialog box

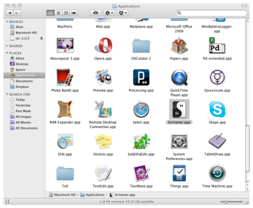
Forget the mode the application is in

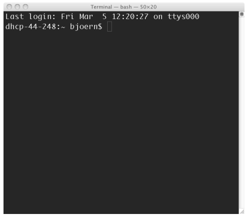
Mistakes

User correctly executes flawed mental plan

Ususally the result of a flawed mental model – harder to guard against

H2-6: Recognition over Recall

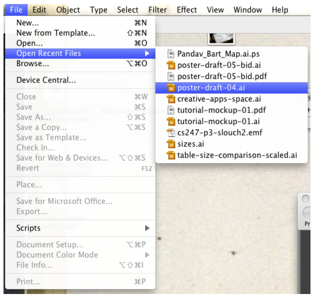




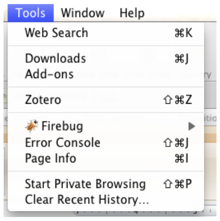
```
Last login: Fri Mar  5 12:20:27 on ttys000
dhcp-44-248:~ bjoern$ 
```

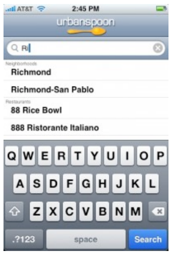
H2-6: Recognition over Recall

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



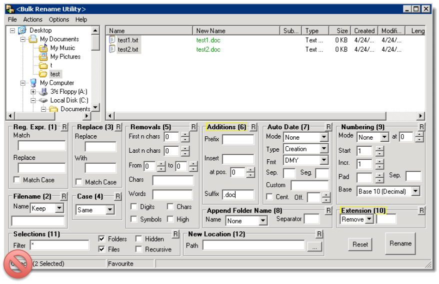
H2-7: Flexibility and efficiency of use





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

H2-8: Aesthetic and minimalist design

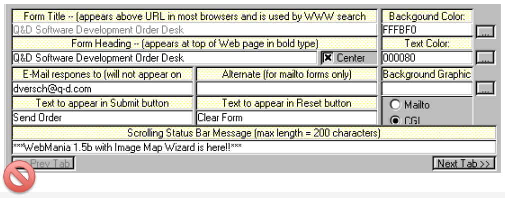


Name	New Name	Sub...	Type	Size	Created	Modifi...	Leng
test1.txt	test1.doc		Text ...	0 KB	4/24/...	4/24/...	
test2.txt	test2.doc		Text ...	0 KB	4/24/...	4/24/...	

Suffix: .doc · Auto Date Mode: None · Type: Creation · Fmt: DMY · Numbering Mode: None · at: 0 · Start: 1 · Incr.: 1 · Base: Base 10 (Decimal) · Filename Name: Keep · Case: Same · Append Folder Name: None · Extension: Remove · Filter: * · ☑ Folders · ☑ Files · (2 Selected)

http://4sysops.com/wp-content/uploads/2006/04/Bulk_Rename_Utility.gif

H2-8: Aesthetic and minimalist design

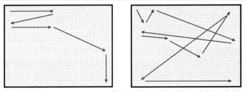


Form Title -- (appears above URL in most browsers and is used by WWW search		Backgound Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk ☒ Center		000080
E-Mail respones to (will not appear on	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	○ Mailto
Send Order	Clear Form	● CGI
Scrolling Status Bar Message (max length = 200 characters)		
WebMania 1.5b with Image Map Wizard is here!!		

No irrelevant information in dialogues

H2-8: Aesthetic and minimalist design

Present information in natural order



From Cooper's "About face 2.0"

Occam's razor

Remove or hide irrelevant or rarely needed information – They compete with important information on screen

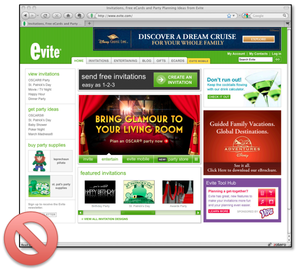
Pro: Palm Pilot

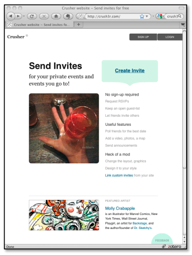
Against: Dynamic menus

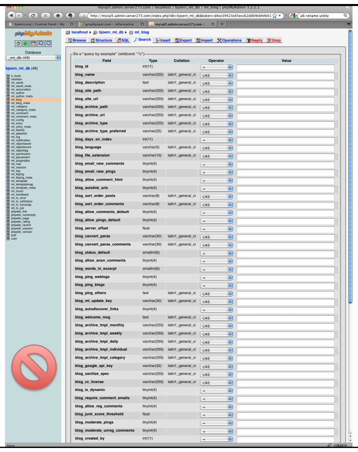
Use windows frugally

Avoid complex window management

H2-8: Aesthetic and minimalist design



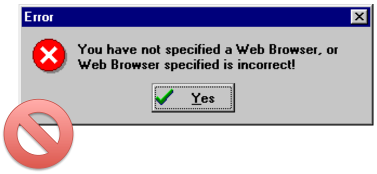

Crusher website ~ Send invites for free
http://crush3r.com/
Crusher
SIGN UP
LOGIN
Send Invites
for your private events and events you go to!
Create Invite
No sign-up required
Request RSVPs
Keep an open guest-list
Let friends invite others
Useful features
Poll friends for the best date
Add a video, photos, a map
Send announcements
Heck of a mod
Change the layout, graphics
Design it to your style
Link custom invites from your site
FEATURED ARTIST
Molly Crabapple
is an illustrator for Marvel Comics, New York Times, Wall Street Journal, Playgirl, an artist for Backstage, and the author/founder of Dr. Sketchy's.
FEEDBACK


mysql5.admin.server273.com / localhost / bjoern_mt_db / mt_blog | phpMyAdmin 3.2.2.1
http://mysql5.admin.server273.com/index.php?db=bjoern_mt_db&token=d4ce39423c65ecc62d0b9cbfefe01
localhost
bjoern_mt_db
mt_blog
Browse
Structure
SQL
Search
Insert
Export
Import
Operations
Empty
Drop

Do a "query by example" (wildcard: "%")

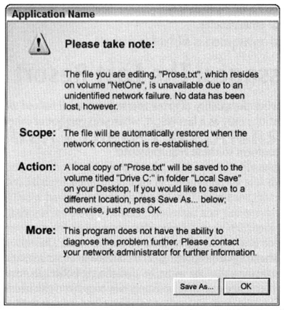
Field	Type	Collation	Operator	Value
blog_id	int(11)		=	
blog_name	varchar(255)	latin1_general_ci	LIKE	
blog_description	text	latin1_general_ci	LIKE	
blog_site_path	varchar(255)	latin1_general_ci	LIKE	
blog_site_url	varchar(255)	latin1_general_ci	LIKE	
blog_archive_path	varchar(255)	latin1_general_ci	LIKE	
blog_archive_url	varchar(255)	latin1_general_ci	LIKE	
blog_archive_type	varchar(255)	latin1_general_ci	LIKE	
blog_archive_type_preferred	varchar(25)	latin1_general_ci	LIKE	
blog_days_on_index	int(11)		=	
blog_language	varchar(5)	latin1_general_ci	LIKE	
blog_file_extension	varchar(10)	latin1_general_ci	LIKE	
blog_email_new_comments	tinyint(4)		=	
blog_email_new_pings	tinyint(4)		=	
blog_allow_comment_html	tinyint(4)		=	
blog_autolink_urls	tinyint(4)		=	
blog_sort_order_posts	varchar(8)	latin1_general_ci	LIKE	
blog_sort_order_comments	varchar(8)	latin1_general_ci	LIKE	
blog_allow_comments_default	tinyint(4)		=	
blog_allow_pings_default	tinyint(4)		=	
blog_server_offset	float		=	
blog_convert_paras	varchar(30)	latin1_general_ci	LIKE	
blog_convert_paras_comments	varchar(30)	latin1_general_ci	LIKE	
blog_status_default	smallint(6)		=	
blog_allow_anon_comments	tinyint(4)		=	
blog_words_in_excerpt	smallint(6)		=	
blog_ping_weblogs	tinyint(4)		=	
blog_ping_blogs	tinyint(4)		=	
blog_ping_others	text	latin1_general_ci	LIKE	
blog_mt_update_key	varchar(30)	latin1_general_ci	LIKE	
blog_autodiscover_links	tinyint(4)		=	
blog_welcome_msg	text	latin1_general_ci	LIKE	
blog_archive_tmpl_monthly	varchar(255)	latin1_general_ci	LIKE	
blog_archive_tmpl_weekly	varchar(255)	latin1_general_ci	LIKE	
blog_archive_tmpl_daily	varchar(255)	latin1_general_ci	LIKE	
blog_archive_tmpl_individual	varchar(255)	latin1_general_ci	LIKE	
blog_archive_tmpl_category	varchar(255)	latin1_general_ci	LIKE	
blog_google_api_key	varchar(32)	latin1_general_ci	LIKE	
blog_sanitize_spec	varchar(255)	latin1_general_ci	LIKE	
blog_cc_license	varchar(255)	latin1_general_ci	LIKE	
blog_is_dynamic	tinyint(4)		=	
blog_require_comment_emails	tinyint(4)		=	
blog_allow_reg_comments	tinyint(4)		=	
blog_junk_score_threshold	float		=	
blog_moderate_pings	tinyint(4)		=	
blog_moderate_unreg_comments	tinyint(4)		=	
blog_created_by	int(11)		=	

H2-9: Help users recognize, diagnose, and recover from errors



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

Good Error Messages



Please take note:

The file you are editing, "Prose.txt", which resides on volume "NetOne", is unavailable due to an unidentified network failure. No data has been lost, however.

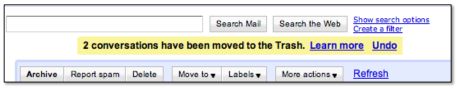
Scope: The file will be automatically restored when the network connection is re-established.

Action: A local copy of "Prose.txt" will be saved to the volume titled "Drive C:" in folder "Local Save" on your Desktop. If you would like to save to a different location, press Save As... below; otherwise, just press OK.

More: This program does not have the ability to diagnose the problem further. Please contact your network administrator for further information.

From Cooper's "About Face 2.0"

H2-9: Help users recognize, diagnose, and recover from errors

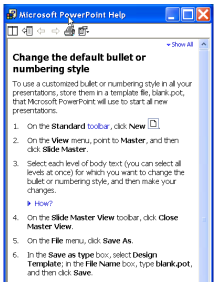


2 conversations have been moved to the Trash. Learn more Undo

H2-10: Help and documentation

Help should be:

- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too long



Change the default bullet or numbering style

To use a customized bullet or numbering style in all your presentations, store them in a template file, blank.pot, that Microsoft PowerPoint will use to start all new presentations.

1. On the **Standard** toolbar, click **New**.
2. On the **View** menu, point to **Master**, and then click **Slide Master**.
3. Select each level of body text (you can select all levels at once) for which you want to change the bullet or numbering style, and then make your changes.
4. On the **Slide Master View** toolbar, click **Close Master View**.
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

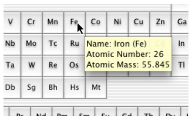
Demonstrates basic features

Reference manuals

Designed with experts in mind

Reminders

Short reference cards, keyboard templates, tooltips…

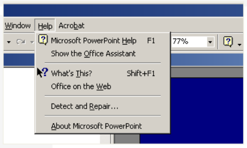


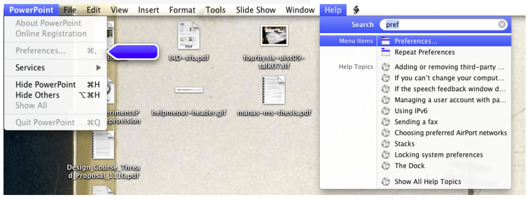
Name: Iron (Fe)
Atomic Number: 26
Atomic Mass: 55.845

Types of Help

Context sensitive help

Search


Window
Help
Acrobat
Microsoft PowerPoint Help F1
Show the Office Assistant
What's This? Shift+F1
Office on the Web
Detect and Repair…
About Microsoft PowerPoint
77%



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

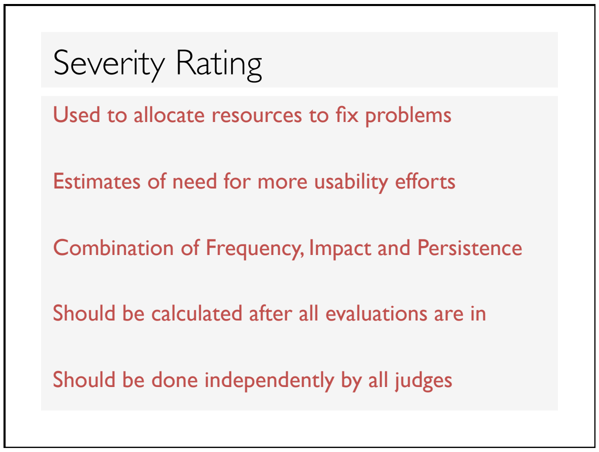
Typography uses mix of upper/lower case formats and fonts

Violates "Consistency and standards" (H2-4)

Slows users down

Fix: pick a single format for entire interface

Probably wouldn't be found by user testing



Severity Rating

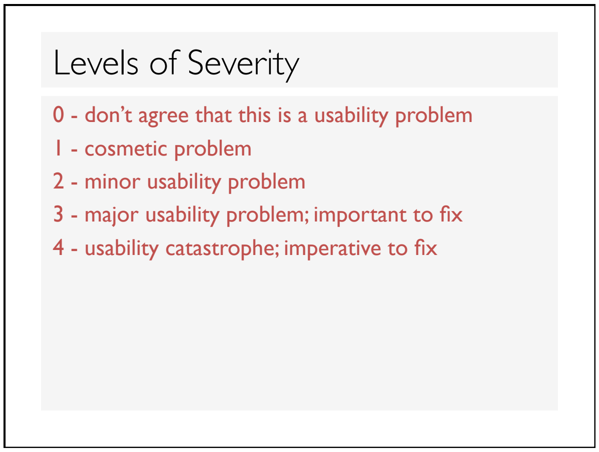
Used to allocate resources to fix problems

Estimates of need for more usability efforts

Combination of Frequency, Impact and Persistence

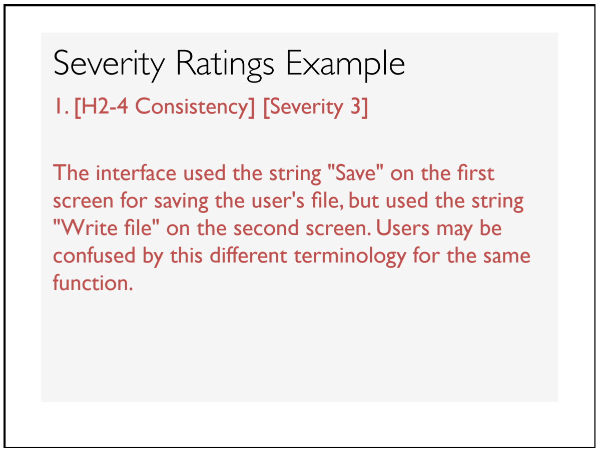
Should be calculated after all evaluations are in

Should be done independently by all judges



Levels of Severity

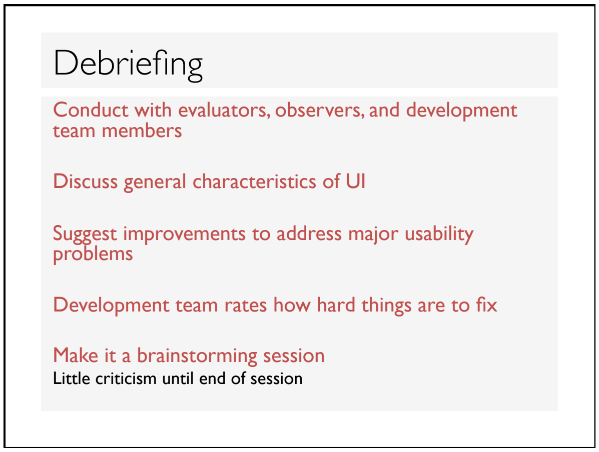
0 - don't agree that this is a usability problem
1 - cosmetic problem
2 - minor usability problem
3 - major usability problem; important to fix
4 - usability catastrophe; imperative to fix



Severity Ratings Example

1. [H2-4 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
Little criticism until end of 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

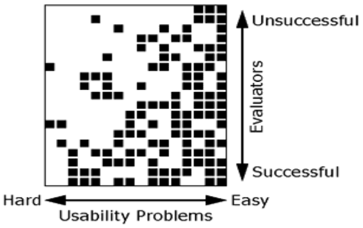
Find different problems

Don't waste participants

Why Multiple Evaluators?

Every evaluator doesn't find every problem

Good evaluators find both easy & hard ones



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?

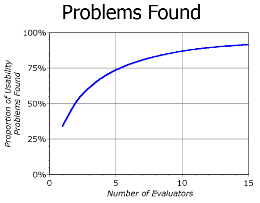
Adding evaluators costs more

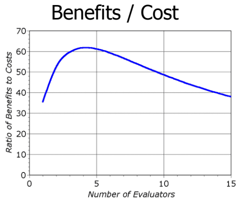
Many evaluators won't find many more problems

But always depends on market for product:

popular products → high support cost for small bugs

Decreasing Returns


Problems Found


Benefits / Cost

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

Next Time

Quantitative Evaluation

1. *Doing Psychology Experiments.* Chap 2,7,12. Marin.