

Chapter 12: The Why, What, Where, and When of Evaluation

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Intro HCI
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Focus



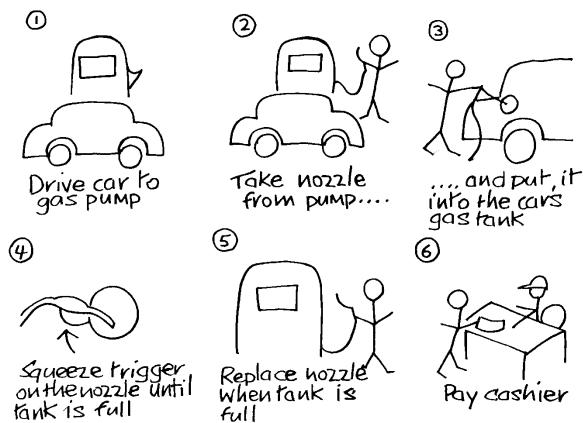
Usability



User Experience

Intro Evaluation

Formative evaluation



www.id-book.com

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Intro Evaluation

Summative evaluation



<http://blog.busbank.com/fuel-surcharges-sweeping-industry/>

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Intro Evaluation

Evaluation Type: Controlled Setting

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Controlled Setting

Usability testing



<http://starwars.wikia.com/wiki/Stormtrooper>

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Controlled Setting

Involves

$2 + 2 = 5$

<http://starwars.wikia.com/wiki/Stormtrooper>

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Controlled Setting

Supplement

<http://starwars.wikia.com/wiki/Stormtrooper>

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Controlled Setting

Isolate variables



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Controlled Setting

Isolate variables – Your turn

<https://en.wikipedia.org/wiki/Mario>

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Controlled Setting

Living lab



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Intro Evaluation

Evaluation Type:
Natural Setting

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Natural Setting

Goals: Opportunities

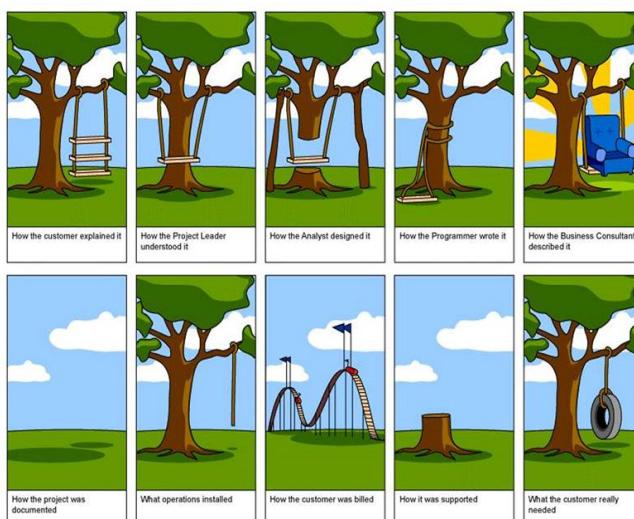


<http://starwars.wikia.com/wiki/Stormtrooper>

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Natural Setting

Goals: Requirements



How the customer explained it	How the Project Leader understood it	How the Analyst designed it	How the Programmer wrote it	How the Business Consultant described it
How the project was documented	What operations installed	How the customer was billed	How it was supported	What the customer really needed

www.id-book.com

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Natural Setting

Goals: Tech deployment



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Natural Setting

Involves

<http://starwars.wikia.com/wiki/Stormtrooper>

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Natural Setting

Virtual

<http://gerberbabyccontest.net/world/world-of-warcraft-the-burning-crusade-cinematic-trailer-wow-tbc.html>

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Natural Setting

The Bad: Foresight

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Natural Setting

The Bad: Recording



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Natural Setting

The Bad: Users



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Intro Evaluation

Evaluation Type: Heuristics

<http://www.nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/>

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Heuristics

Nielson: Visibility

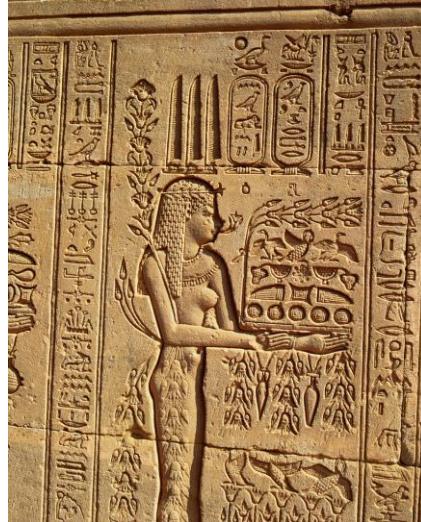


Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: System vs. real world



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Freedom



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Consistency



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Error prevention



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Recognition



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Flexibility/Efficiency



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Minimalist design

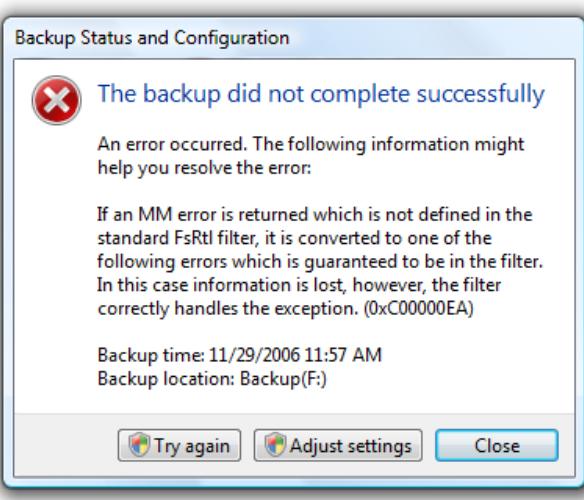


Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Errors



Backup Status and Configuration

The backup did not complete successfully

An error occurred. The following information might help you resolve the error:

If an MM error is returned which is not defined in the standard FsRtl filter, it is converted to one of the following errors which is guaranteed to be in the filter. In this case information is lost, however, the filter correctly handles the exception. (0xC00000EA)

Backup time: 11/29/2006 11:57 AM
Backup location: Backup(F:)

Try again Adjust settings Close

<http://msdn.microsoft.com/en-us/library/windows/desktop/aa511267.aspx>,
Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Nielson: Help



Heuristics from <http://www.nngroup.com/articles/ten-usability-heuristics/>

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Heuristics

Multiple evaluators



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Heuristics

Observer



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Heuristics

Categories of heuristics



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Heuristics

Paper prototypes

Travel Organizer 23 August

WELCOME HELEN

Where do you want to go? YORK
What date do you want to travel? 16 Sept
Which form of transport do you want? TRAIN
Do you need accommodation? YES

Train timetable from Milton Keynes Central to York on 16 Sept

Depart	Arrive	Accommodation
09:09	12:30	Hotel B&B £40 to £150
10:09	13:30	B&B £20 to £60
11:09		
22:09	01:30	

www.id-book.com

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Heuristics

Multiple runs



http://cdn2.bigcommerce.com/server1100/xu4li/products/430/images/572/DSC_0064_93623.1355509682.1280.1280.jpg

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Heuristics

Your turn

- Visibility of system status
- Match between system and real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover from errors
- Help and documentation

<https://en.wikipedia.org/wiki/Mario>

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Intro Evaluation

Evaluation Type: Cognitive Walkthrough

http://www.sigchi.org/chi95/proceedings/tutors/jr_bdy.htm

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Cognitive walkthrough

Prerequisites



Users



Task(s)



Actions

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Cognitive walkthrough

Consider



Goal



Accessibility

Label
vs. goal

Feedback

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Controlled Setting

Your turn

- Goals
- Accessibility
- Label vs. goal
- Feedback



<https://en.wikipedia.org/wiki/Mario>

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Intro Evaluation

Evaluation Type: Analytics

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Analytics

Web analytics

Home Standard Reporting Custom Reporting

My Dashboard

Daily Visits

Date	Visitors
Jan 1	~15,000
Jan 8	~12,000
Jan 15	~18,000
Jan 22	~15,000

Traffic Types

Traffic Type	Percentage
feed	25.70%
organic	24.90%
referral	23.05%
direct	14.85%
email	7.35%

Time on Site by Country

Country/Territory	Visits	Avg. Time on Site
United States	67,445	00:01:54
United Kingdom	18,948	00:01:37
India	8,882	00:00:58
Canada	6,371	00:01:02
Germany	5,645	00:00:32
France	5,243	00:00:38

<http://www.google.com/analytics/> 43

Analytics

Keystroke level model

Code	Operation	Time
K	Best Typist (135 wpm)	0.08 seconds
	Good Typist (90 wpm)	0.12 seconds
	Poor Typist (40 wpm)	0.28 seconds
	Average Skilled Typist (55 wpm)	0.20 seconds
	Average Non-secretary Typist (40 wpm)	0.28 seconds
	Typing Random Letters	0.50 seconds
	Typing Complex Codes	0.75 seconds
	Worst Typist (unfamiliar with keyboard)	1.20 seconds
P	Point the mouse to an object on screen	1.10 seconds
B	Button press or release (mouse)	0.10 seconds
H	Hand from keyboard to mouse or vice versa	0.40 seconds
M	Mental preparation	1.20 seconds
T(n)	Type string of characters	$n \times K$ seconds
W(t)	User waiting for the system to respond	
D(n0, l0)	Draw n0 straight line segment with mouse of total length l0 centimeters	

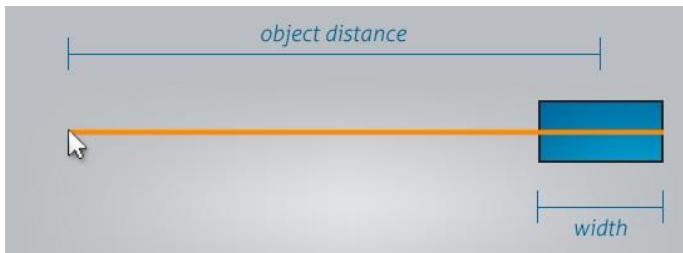
https://en.wikipedia.org/wiki/Keystroke-level_model,
Info from: <http://www.pitt.edu/~cmlewis/KSM.pdf> 44

Analytics

Fitts' law

$$Time = a + b \log_2 \left(2 \frac{D}{W} \right)$$

↓ ↓
Distance *Width*
↓ ↑
Time *Coefficients*



Info and pics from: <http://sixrevisions.com/usabilityaccessibility/improving-usability-with-fitts-law/>

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Intro Evaluation

Evaluation Type:
Opportunistic

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