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

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Intro HCI
03/19/2013

Focus

Usability
User Experience

http://starwars.wikia.com/wiki/Stormtrooper
Formative evaluation

1. Drive car to gas pump
2. Take nozzle from pump
3. ... and put it into the car's gas tank
4. Squeeze trigger on the nozzle until tank is full
5. Replace nozzle when tank is full
6. Pay cashier

Summative evaluation

http://blog.busbank.com/fuel-surcharges-sweeping-industry/
Evaluation Type: Controlled Setting

Usability testing

http://starwars.wikia.com/wiki/Stormtrooper
Involves

2 + 2 = 5

Supplement
Isolate variables

Isolate variables – Your turn

https://en.wikipedia.org/wiki/Mario
Living lab

Evaluation Type: Natural Setting
Goals: Opportunities

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

Goals: Requirements

www.id-book.com
Goals: Tech deployment

Involves

http://starwars.wikia.com/wiki/Stormtrooper
Virtual


The Bad: Foresight
The Bad: Recording

The Bad: Users
Evaluation Type: Heuristics

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

Nielson: Visibility

Heuristics from http://www.nngroup.com/articles/ten-usability-heuristics/
Nielson: System vs. real world

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

Nielson: Freedom

undo

Heuristics from http://www.nngroup.com/articles/ten-usability-heuristics/
Nielson: Consistency

Nielson: Error prevention

Heuristics from http://www.nngroup.com/articles/ten-usability-heuristics/
Nielson: Recognition

Nielson: Flexibility/Efficiency
Nielson: Minimalist design

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

Nielson: Errors

Heuristics from http://www.nngroup.com/articles/ten-usability-heuristics/
Nielson: Help

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

Multiple evaluators
Observer

Categories of heuristics
Paper prototypes

Multiple runs

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

Evaluation Type: Cognitive Walkthrough

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

Users  Task(s)  Actions

Consider

Goal  Accessibility  Label vs. goal  Feedback
Your turn

- Goals
- Accessibility
- Label vs. goal
- Feedback

Evaluation Type: Analytics

https://en.wikipedia.org/wiki/Mario
Web analytics

[Graph and pie chart showing daily visits and traffic types]

http://www.google.com/analytics/

Keystroke level model

<table>
<thead>
<tr>
<th>Code</th>
<th>Operation</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Key press and release (keyboard)</td>
<td>0.08 secs</td>
</tr>
<tr>
<td></td>
<td>Best Typist (135 wpm)</td>
<td>0.08 secs</td>
</tr>
<tr>
<td></td>
<td>Good Typist (90 wpm)</td>
<td>0.12 secs</td>
</tr>
<tr>
<td></td>
<td>Poor Typist (40 wpm)</td>
<td>0.28 secs</td>
</tr>
<tr>
<td></td>
<td>Average Skilled Typist (55 wpm)</td>
<td>0.20 secs</td>
</tr>
<tr>
<td></td>
<td>Average Non-secretary Typist (40 wpm)</td>
<td>0.28 secs</td>
</tr>
<tr>
<td></td>
<td>Typing Random Letters</td>
<td>0.50 secs</td>
</tr>
<tr>
<td></td>
<td>Typing Complex Codes</td>
<td>0.75 secs</td>
</tr>
<tr>
<td></td>
<td>Worst Typist (unfamiliar with keyboard)</td>
<td>1.20 secs</td>
</tr>
<tr>
<td>P</td>
<td>Point the mouse to an object on screen</td>
<td>1.10 secs</td>
</tr>
<tr>
<td>B</td>
<td>Button press or release (mouse)</td>
<td>0.10 secs</td>
</tr>
<tr>
<td>H</td>
<td>Hand from keyboard to mouse or vice versa</td>
<td>0.40 secs</td>
</tr>
<tr>
<td>M</td>
<td>Mental preparation</td>
<td>1.20 secs</td>
</tr>
<tr>
<td>T(n)</td>
<td>Type string of characters</td>
<td>n x K secs</td>
</tr>
<tr>
<td>W(t)</td>
<td>User waiting for the system to respond</td>
<td></td>
</tr>
<tr>
<td>D(n0, I0)</td>
<td>Draw n0 straight line segment with mouse of total length I0 centimeters</td>
<td></td>
</tr>
</tbody>
</table>

https://en.wikipedia.org/wiki/Keystroke-level_model,
Info from: http://www.pitt.edu/~cmlewis/KSM.pdf
Fitts’ law

\[ T = a + b \log_2 \left( 2 \frac{D}{W} \right) \]

Evaluation Type: Opportunistic