

Mensch-Maschine-Interaktion 1

**(May 20th, 2010, 11am-12pm):
Usability & Heuristic Evaluation**

Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal.

EXIT TICKET
WITH YOU

Thank You!

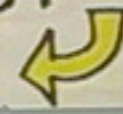


PRESS HERE TO
START

COINS



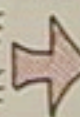
PRESS
GREY BOX
FIRST



BILLS



CHANGE
MACHINE



CREDIT
CARDS



NO COINS IN
HERE



2

PAY AMOUNT
ON SCREEN

Ticket Machine in Arkansas (US)

photo credits © wikimedia



Car Wash Kiosk in Scandinavia

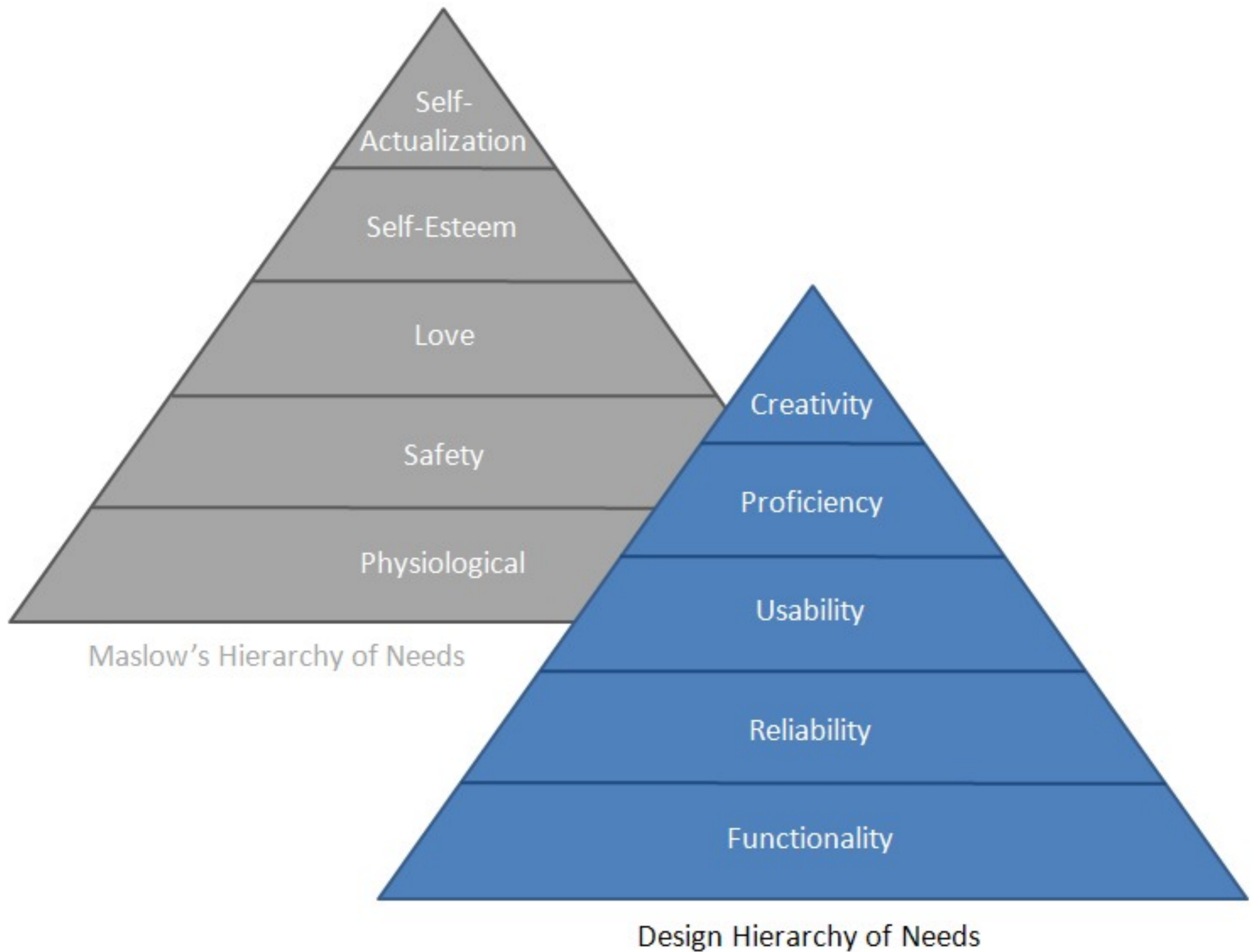
photo credits © wikimedia

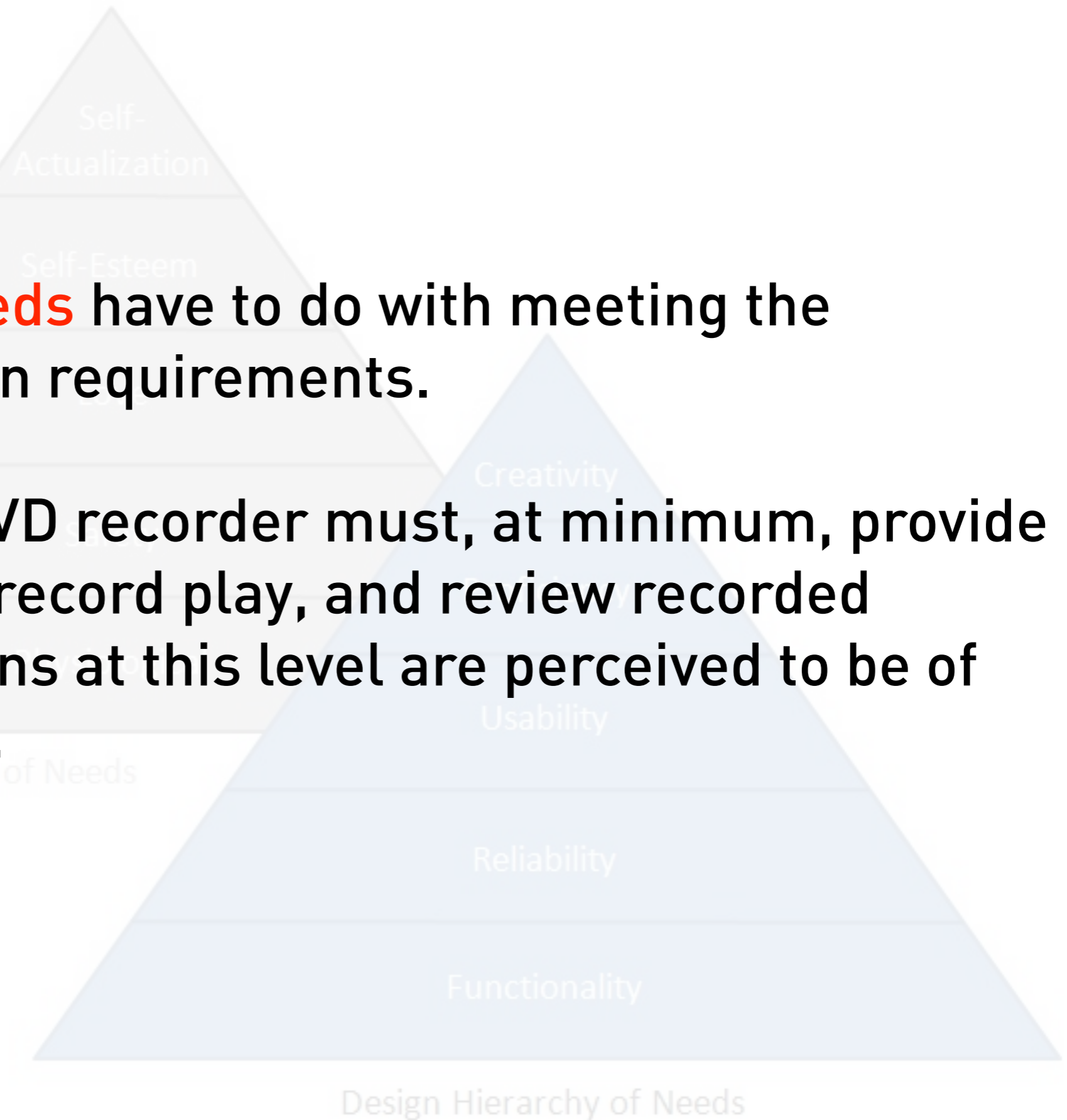


Cellphone User

photo credits © wikimedia media

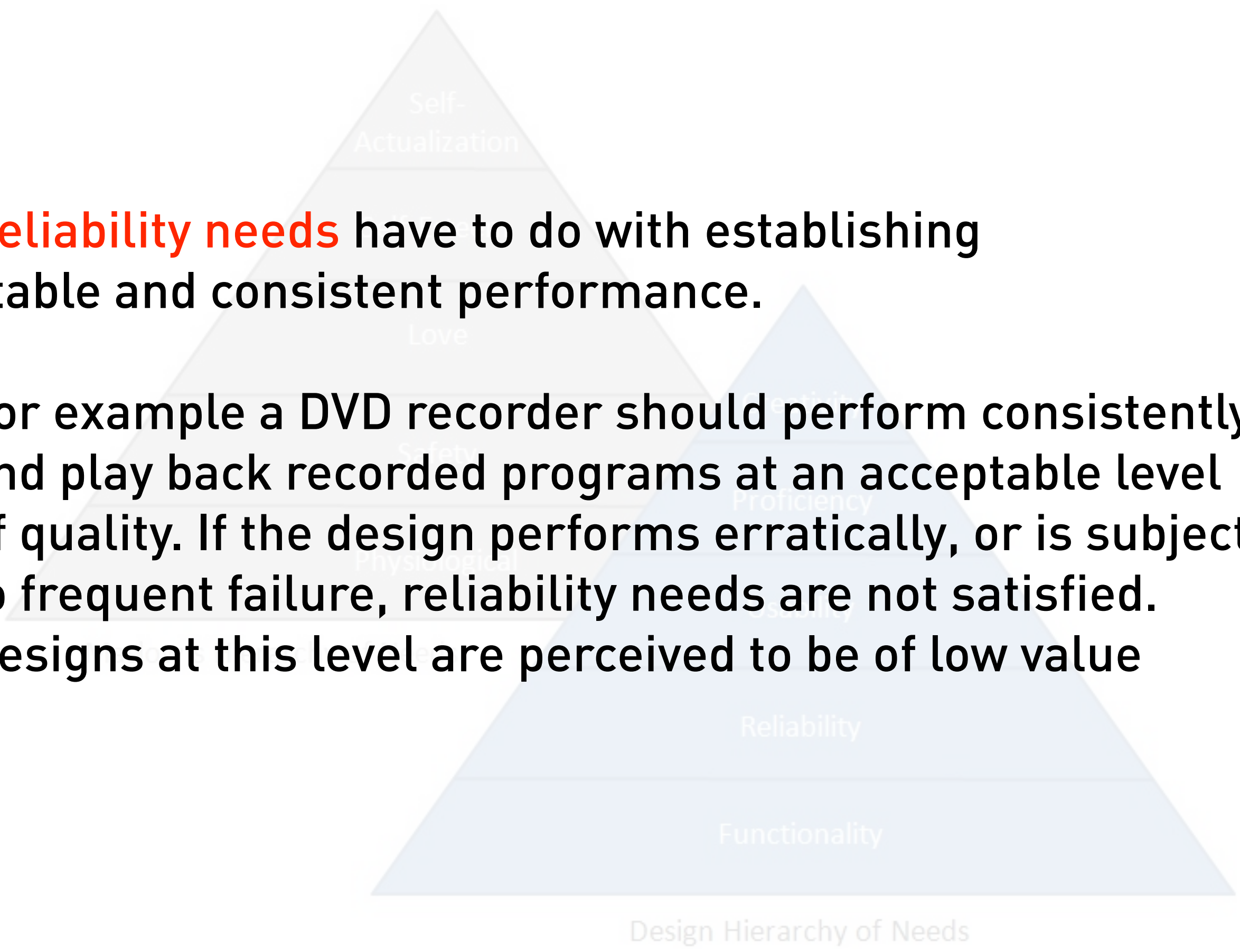
Hierarchy of Design Needs





Functionality needs have to do with meeting the most basic design requirements.

For example a DVD recorder must, at minimum, provide the capability to record play, and review recorded programs. Designs at this level are perceived to be of little or no value.



Reliability needs have to do with establishing stable and consistent performance.

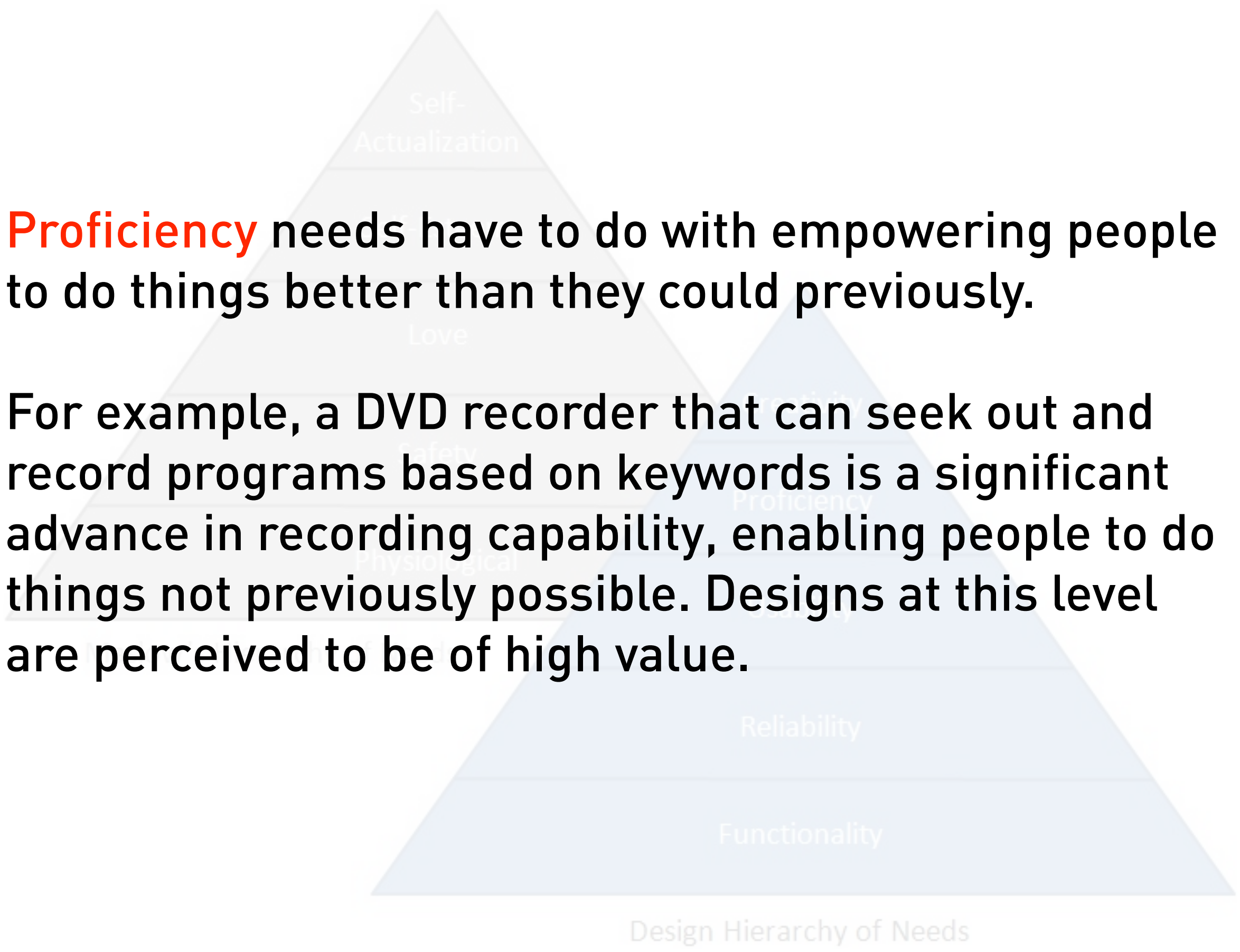
For example a DVD recorder should perform consistently and play back recorded programs at an acceptable level of quality. If the design performs erratically, or is subject to frequent failure, reliability needs are not satisfied. Designs at this level are perceived to be of low value



Usability needs have to do with how easy and forgiving a design is to use.

For example, configuring a DVD recorder to record programs at a later time should be easily accomplished, and the recorder should be tolerant of mistakes. If the difficulty is too great, or the consequences of simple errors too severe, usability needs are not satisfied. Designs at this level are perceived of moderate value.


Design Hierarchy of Needs



Proficiency needs have to do with empowering people to do things better than they could previously.

For example, a DVD recorder that can seek out and record programs based on keywords is a significant advance in recording capability, enabling people to do things not previously possible. Designs at this level are perceived to be of high value.

Design Hierarchy of Needs



Creativity is the level in the hierarchy where all needs have been satisfied and people begin interacting with the design in innovative ways. The design, having satisfied all other needs, is now used to create and explore areas that extend both the design and the person using the design. Designs at this level are perceived to be of the highest value, and often achieve cult-like loyalty among users.



Aesthetic-Usability Effect

Aesthetic designs are perceived as easier to use than less-aesthetic designs.

Aesthetic designs look easier to use and have a higher probability of being used, whether or not they actually are easier to use.



Flexibility-Usability Tradeoff

The **flexibility-usability tradeoff** is exemplified in the well known maxim “jack of all trades, master of none”. Flexible designs can perform more functions than specialized designs, but they perform the functions less efficiently.

Flexibility



Usability



Navigation

photo credits © wikimedia

SANITÄRKERAMIK u. ZUBEHÖR

WC-SITZE / ARMATUREN

4

HANDWERKZEUG / DRAHT

FAHRRAD-u. AUTOZUBEHÖR / ÖLE

LÜFTUNG / SANITÄR

BAD - u. HEIZUNGSZUBEHÖR

5

DÜBEL / SCHRAUBEN / NÄGEL

REGALZUBEHÖR

FLIESENKLEBER / FUGENMÖRTEL

SILIKONE / REINIGUNG

6

LÖTEN / SCHWEISSEN

BESCHLÄGE / KETTEN / SEILE

MÖRTEL / BEDACHUNG

7

ELEKTRO / TAPETEN

DACHRINNE / PANEELE

LAMINAT

8

LEUCHTMITTEL / KLEBFOLIEN

LAMPEN

9

KLEBSTOFFE

10

REINIGUNGSMITTEL

Navigation

photo credits © wikimedia

Navigation gives us something “to hold on”
It tells us what we´ll find
It establishes a level of trust between the user
and the people who build the system

neglected goals of navigation



Usability Inspection Methods....

- **Heuristic evaluation**
- **Heuristic estimation**
- **Cognitive walkthrough**
- **Pluralistic walkthrough**
- **Feature inspection**
- **Consistency inspection**
- **Standards inspection**
- **Formal usability**



Jakob Nielsen / worked at Sun Microsystems



Usability Lab Sun Microsystems

Specifically constructed testing room
-instrumented with data collection devices

Separate observation room
-Usually connected to the testing room by one-way mirror and audio system
-data recording and analysis

Test users perform prepared scenarios
-"Think aloud" technique

Problem
-very artificial setting
> bias in test results

Heuristic (hyu -'ris-tik) is a method to help solve a problem, commonly an informal method. It is particularly used to rapidly come to a solution that is reasonably close to the best possible answer, or 'optimal solution'.

Visibility of system status

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



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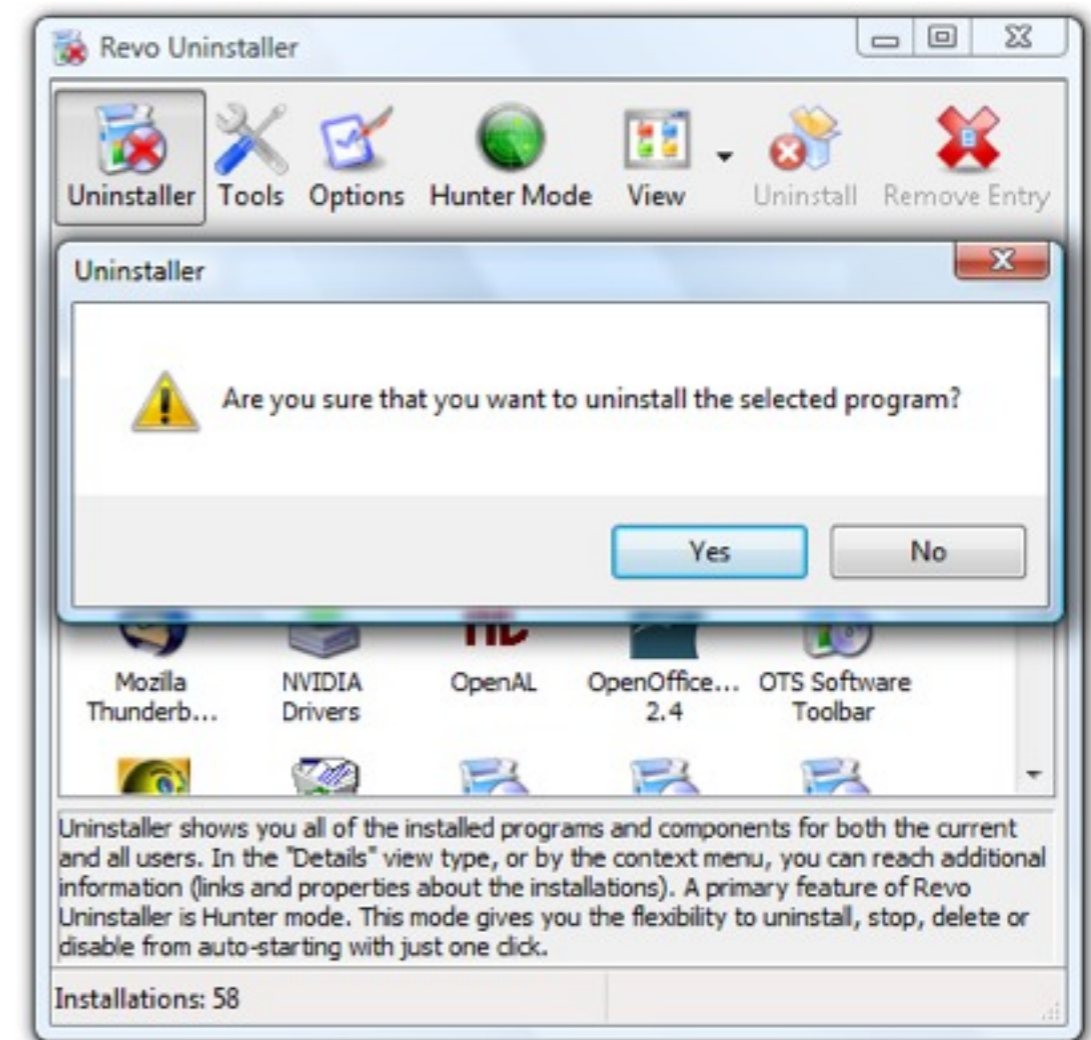
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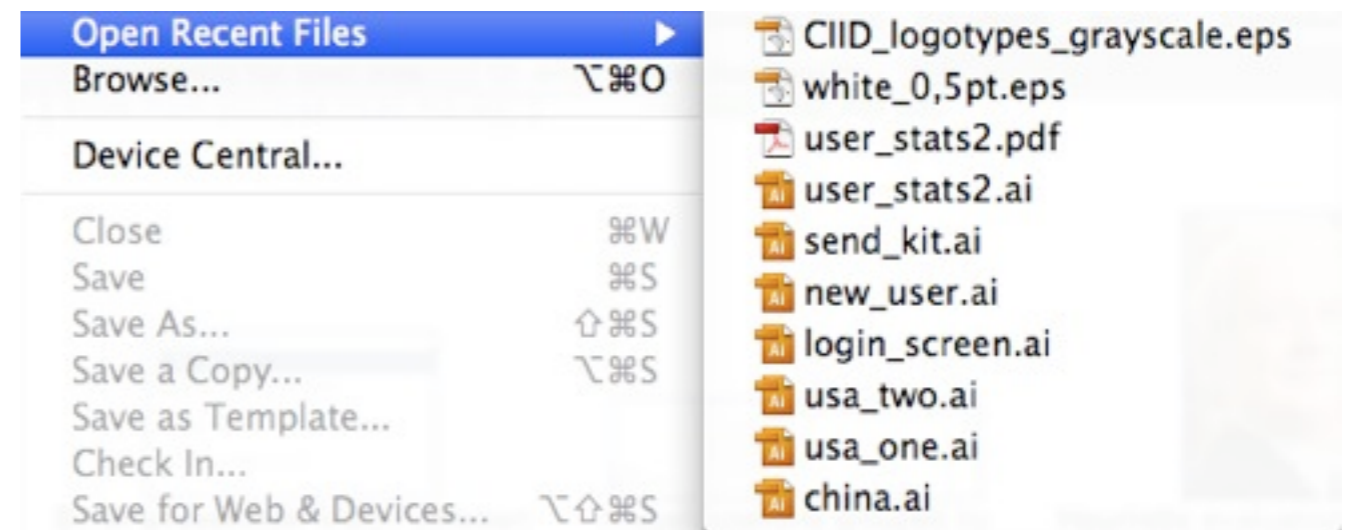


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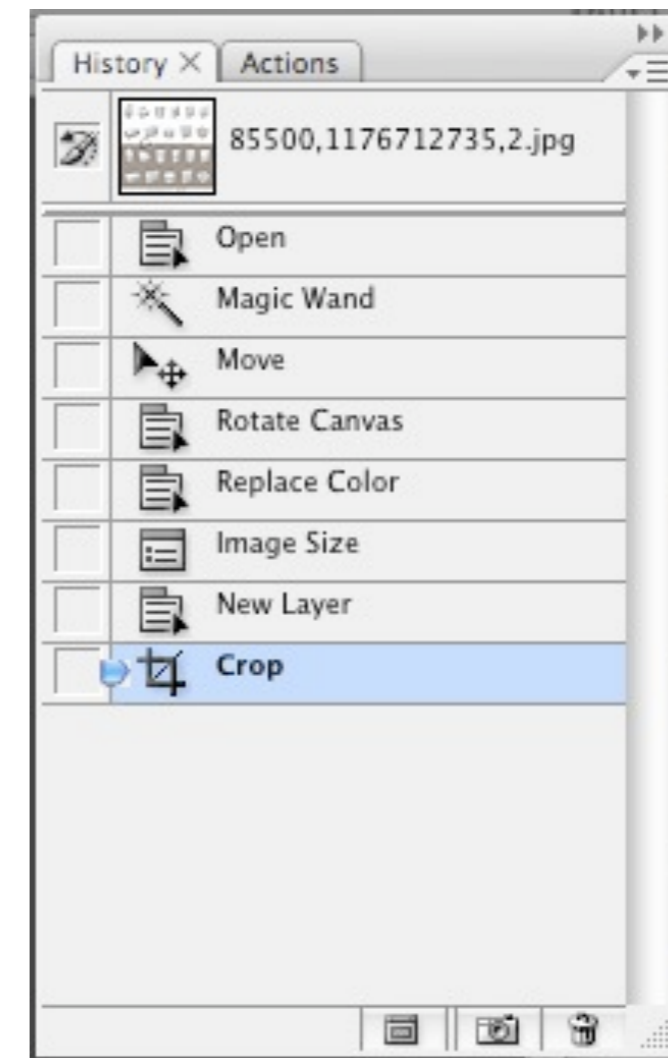
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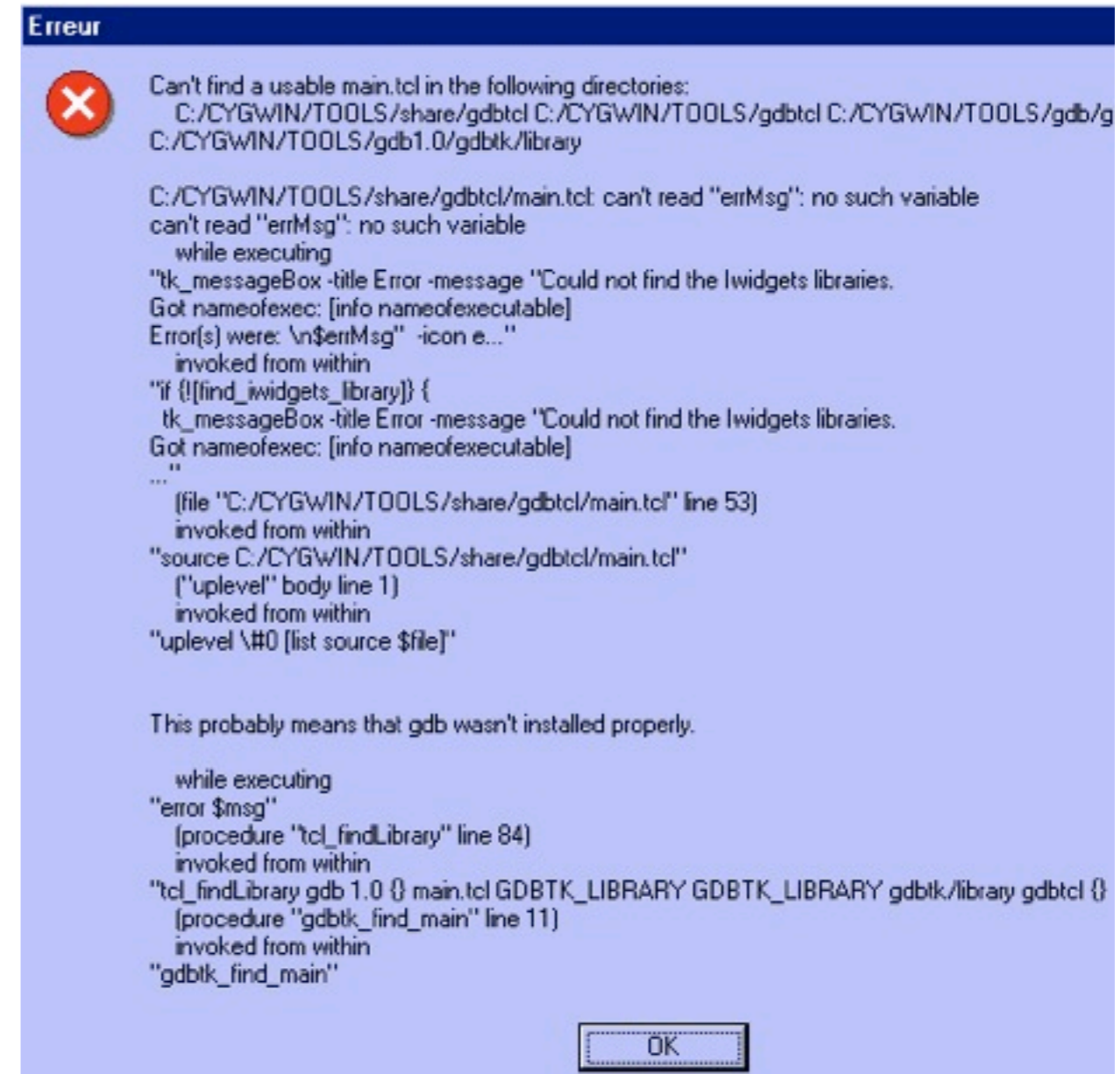
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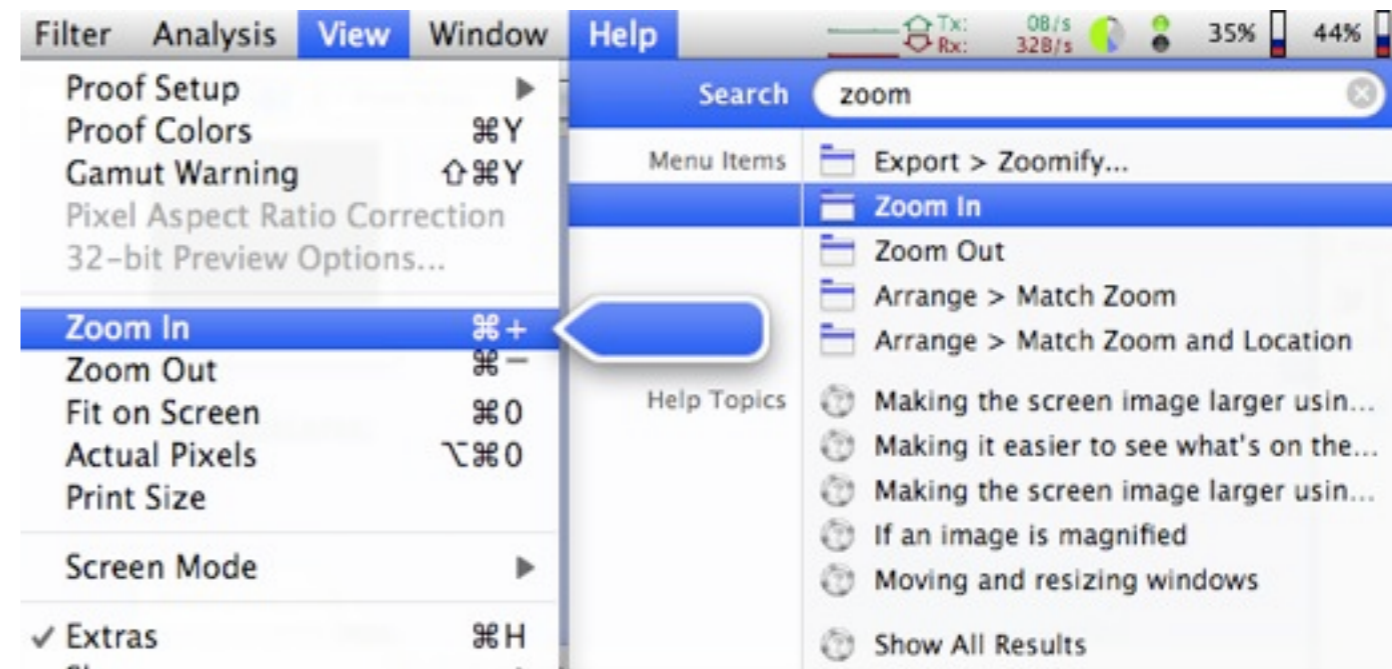
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**Last but not least:
Shortcuts !
(Accelerators)**

Example: Paper Usability Testing



Daum *[faded text]* *[faded text]*



[Faded menu items]

[Faded menu items]

[Faded menu item]

<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>
<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>
<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>
<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>
<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>
<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>	<i>[Faded]</i>

Example: Speed Testing

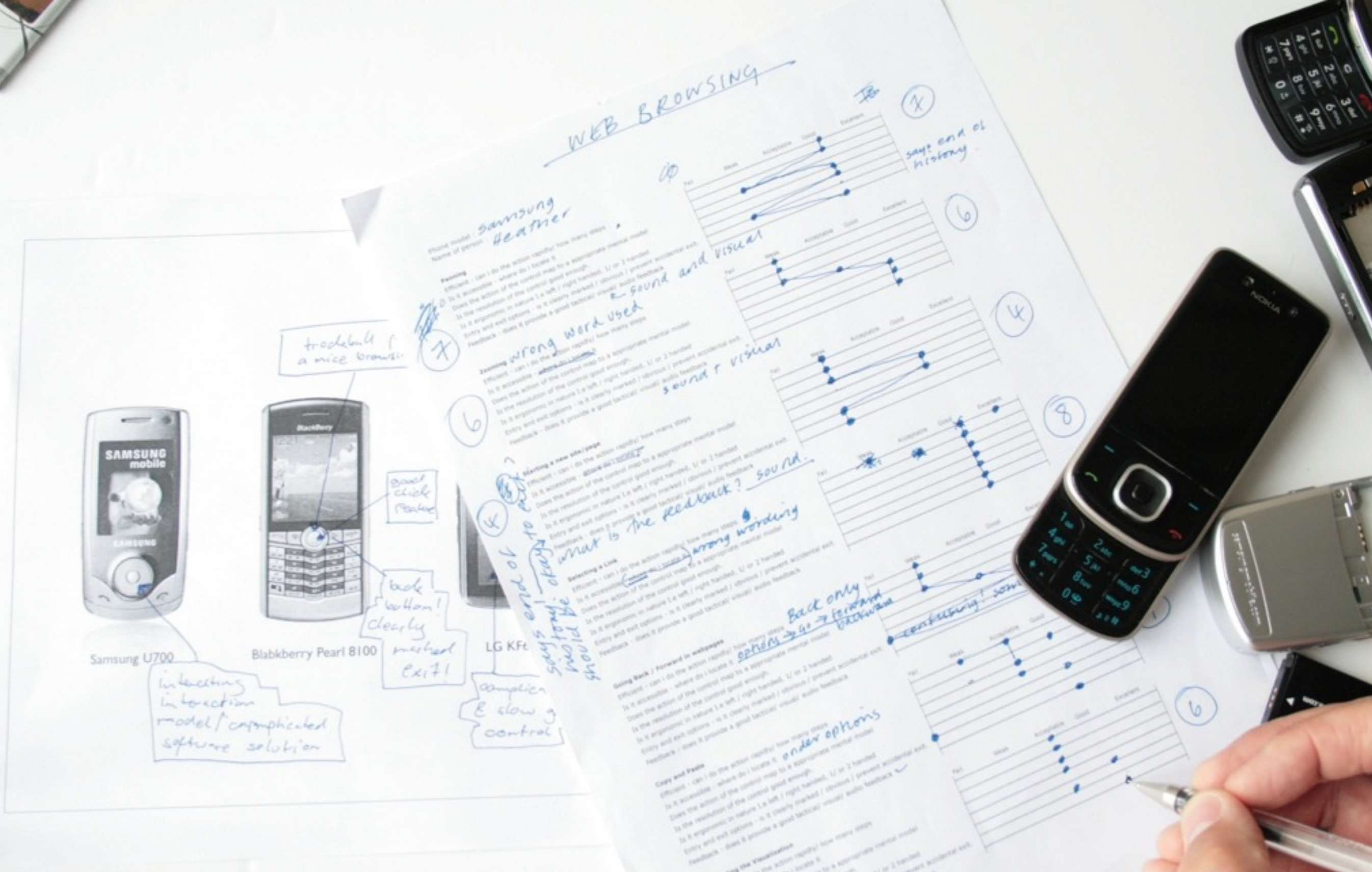


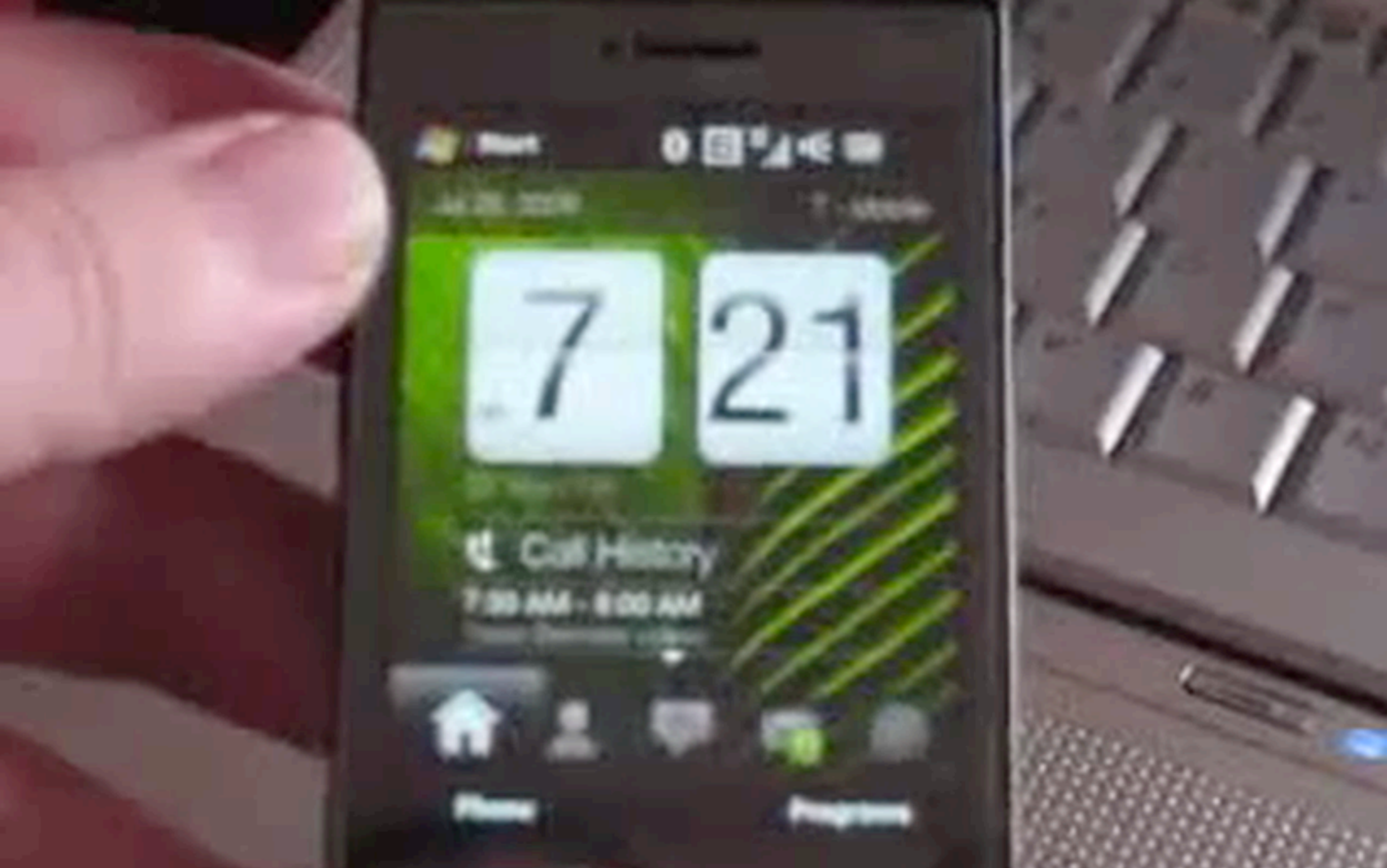
Speed Usability Testing



Speed Usability Testing

Evaluation Usability Testing





pocketnow.com Self Test

video credits © pocketnow.com

Example: Eye tracking



Eye-tracker / Kent State University (US)

video credits © kent state university

resources (books):

- Norman, D.,: The Design of Everyday Things
- Snyder, C.: Paper prototyping: The fast and easy way to design and refine user interfaces
- Nielsen, J.,: Web Usability
- Lidwell, W.,: Universal Principles of Design

resources (papers):

- Greenberg, S. & Buxton, W. : Usability Evaluation Considered Harmful
- Nielsen, J.: Using Discount Usability Engineering to Penetrate the Intimidation Barrier

resources (web):

- www.useit.com/papers/heuristic
- usability.gov