It probably won a prize

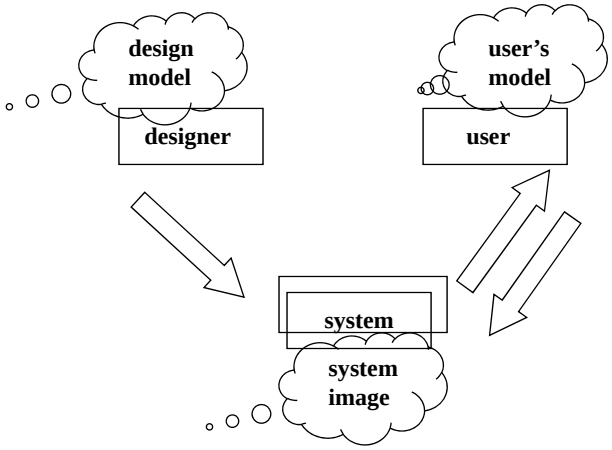
- Aim
  - To be able to analyse and compare the designer and the user models of devices

Technological aspects of
Donald Norman:
The Design of Everyday Things
by
Jens Kaasbøll

Qualities of devices

- Aesthetic
  - Pleasing to look at and sense in general
- Technologic
  - Adhering to accepted principles of good technical solutions
  - Simple manufacturing
- Learnability
  - Promotes quick learning Steikeovn
- Usability
  - Causing desirable effects Hvitløkspresse
- Durability
  - Tolerates long term intended use
- Robustness
  - Tolerates improper use
- Safety
  - Not causing undesireable effects Bilradio

Conceptual models

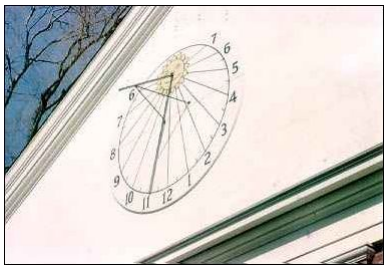


When simple things need instruction, it is a certain sign of poor design

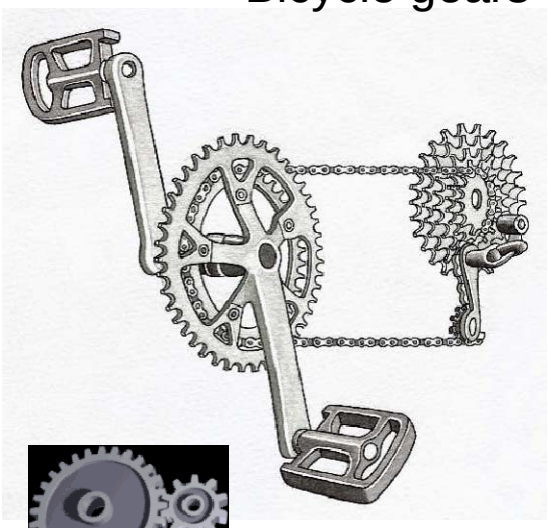
- Visibility
  - The shape of the device signals its proper use
  - What about blind people?
- Mapping
  - Immediately understandable relation between symbols and operation Kokeplater
  - Iconic symbols
    - Visual similarity
  - Conventional symbols
    - Learned system of representation
    - Arbitrary letters and shapes
- Feedback
  - The device signals the result of the operation

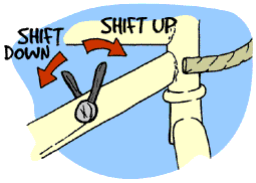
Mappings should be unambiguous

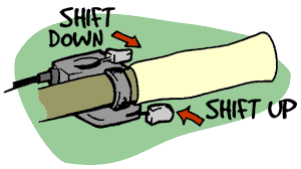
Mappings (clockwise)

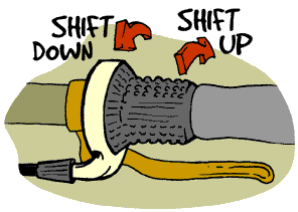


Bicycle gears









Changing gears

Design model 1950

- Slower rotation – Larger cogwheel – pulling the wire (hard)
- Faster rotation – Smaller cogwheel – pushing the wire (easy)

Design model 1990

- Slower bicycle speed – smaller gear number
- Faster bicycle speed – higher gear number
- Slower rotation – Larger cogwheel – pulling the wire (hard)
  - Rear wheel 7 → 1
  - Crank pedals 1 → 3
- Faster rotation – Smaller cogwheel – pushing the wire (easy)
  - Rear wheel 1 → 7
  - Crank pedals 3 → 1

User model

- Slower bicycle speed
  - Left hand up
  - Right hand down (hard)
- Faster bicycle speed
  - Left hand down (hard)
  - Right hand up

How the designers might believe that users see

or

Material

- What is the gadget made of?
- What is the
  - Aesthetic
  - Learnability
  - Usability
  - Durability
  - Robustness
  - Safety

of this material?

- Wood
  - Pine
  - Teak
  - …
- Metal
  - Iron
  - Silver
  - …
- Ceramics
  - Porcelain
  - Stoneware
  - …
- Plastics
  - Bakelite
  - PolyVinylCloride
  - …
- Rubber

What are the consequences of the choice of

	Material	Structure	Mechanics
Aesthetic			
Learnability			
Usability			
Durability			
Robustness			
Safety			

Preventing the user from making mistakes

- Lockin
  - Keeping a process going
  - Preventing prematurely closure
- Lockout
  - Prevents an event from occurring

Interlock
Forcing a sequence

- Open cover
- Unscrew lid
- Insert nozzle in tank opening
- Hang up nozzle
- Insert lid
- Close cover
- Start engine and drive away

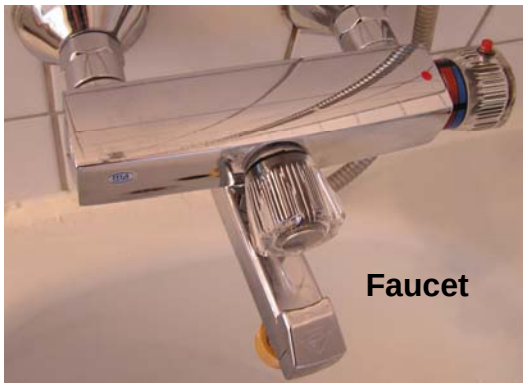
No interlock

- Open cover
- Unscrew lid
- Put tank lid on car roof
- Insert nozzle in tank opening
- Hang up nozzle
- Close cover
- Start engine and drive away

How does an ATM guard against user errors?

Controlling temperature

- Designer and user models
- Mappings
  - Type of symbols
- Lockins – lockouts
- Interlock



Washing machine