Usability Design

1 The design of everyday thing

How can we use knowledge of human psychology and physiology to help us design better products

1. Accordances
2. Mappings
3. Constraints
4. Conventions

2 Knowledge in the Head and in the World

Not all the knowledge required for accurate behaviour has to be in the head. It can be distributed

- Partly in the head
- Partly in the world

Placing knowledge in the world (as part of the design of objects)

- Having knowledge in the world reduced the load on human memory
- An example of the input format can be provided in the interface ”Please enter the date (yyyy/mm/dd)

3 Embedded Knowledge

Good design should ”embed” knowledge of how it is used in the design itself

If a user has to remember ”how to use” they will forget

The design of these things ”suggest” how you use them as part of their design

4 Perceived Affordance

The perceived properties of the object that suggest how one could use it
When simple things need pictures, labels or instructions, the design has failed

5 GUI Affordances

For screen-based interfaces, the computer already has built in physical affordances

- Screen affords touching
- Mouse affords pointing
- Mouse buttons afford clicking
- Keyboard affords typing

Computer software/web pages can suggest on screen affordances by using raised buttons, icons in the shape of sliders or knobs

6 Mappings

Mappings are the relationships between controls and their effects on a system
Natural mapping take advantage of physical analogies and cultural standards
Examples:

- Turn steering wheel clockwise to turn a car right

7 Constraints

Constraints are physical, cultural or logical limits on the number of possibilities for an object's use

- Physical constraints such as pegs and holes limit possible operations
- Cultural constraints rely upon accepted cultural conventions

Where affordances suggest the range of possibilities, constraints limit the number of alternatives

8 Conventions

Conventions are cultural constraints . They are initially arbitrary, but evolve and become accepted over time. They can however still vary enormously across different cultures

9 Conceptual Models

Conceptual models are formed from:

- Affordances
- Mapping
- Constraints
- Familiarity with similar devices (transfer of previous experience)
- Instructions
- Interactions (trial and error)