Mental Models, Personas & Scenarios

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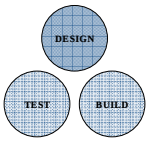
Overview

- Mental Models
- Personas
- Scenarios



Mental Models

- Cooper presents three types of models:
  - Implementation Model:
    How it works
  - Mental Model:
    How the user thinks it works
  - Manifest Model:
    How the machine presents itself to the user

Mental Models : Implementation Model

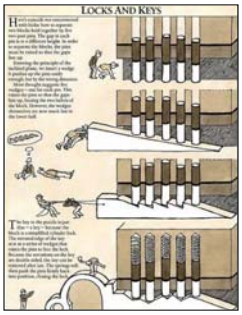
The way the engineer must build the machine or software.

For example:

Keys are fabricated to be unique, but also need to function correctly with respect to the locking mechanism.

The physics behind the lock (specifically, the various pins being activated by serrated edges of a key) illustrate the **implementation model** – technically, how things are really working.

(illustration taken from The New Way Things Work by David Macaulay)



Mental Models : Implementation Model

The way the engineer must build the machine or software.

For example:

Software is written in code; the engineer spends many years learning how to write "good code".

What is happening behind the scenes, in that code, is the **implementation model** – technically, how things are really working.

Mental Models : Mental Model

The way the user **thinks** the machine or software works.

For example:

"*I put my key in the lock and there is a big shape of the key inside; if the two match up, then it lets the knob turn*"

Mental Models : Mental Model

The way the user **thinks** the machine or software works.

For example:

"*I enter my username and password, and my computer talks to another computer which knows about my username and password, and if they match up, then it lets me continue*"

Mental Models : Manifest Model

The way the machine **presents itself** to the user.

For example:

"*Put your key here and turn*"

or

"*Go get various shaped really small wedges, and, one by one, stick them into the key hole; make sure to line up the wedges with the pins, so each pin contracts just enough; once you have all the pins contracted equally, turn all the wedges simultaneously until you can turn the knob; then, slowly remove the wedges one by one, letting the pins drop back into their expanded positions*"

Mental Models : Manifest Model

The way the machine **presents itself** to the user.

For example:

"*Enter your name and password and press go*"

or

"*Enter your username and password; then, take your password and compare it to this existing algorithm to encrypt it. Transfer the encrypted version of your password via JDBC drivers to another server; if that server is busy, keep trying servers 1-100; when you find one that is free, log into the Oracle database and perform a query to determine which user is accessing the system. Compare the encrypted password with the query results . . .*"

Mental Models: The Designers Challenge

- User Interfaces that conform to the implementation model are bad.
- As a designer, you have no control over the implementation model, and very little control over the mental model.

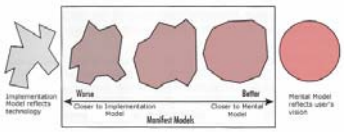
  However, you have almost complete control over the Manifest Model!

- **Your Challenge: Determine the user's Mental Model** *(but remember – The User Is Not Like Me)*

Mental Models: An Activity

Take five minutes and write down:

- 3 examples of Manifest Models that are good (closely approximate the user's Mental Model)
- 3 examples of Manifest Models that are bad (closely approximate the engineer's Implementation Model).



(illustration taken from About Face by Alan Cooper)

Mental Models: An Example

When we ignore mental models, we often get stuck in a rut of "what's been done before".

An example of rejecting "what's been done before"

Personas

- An easy method to help us approximate the Mental Model is to create Personas of our users:

  "*Develop a precise description of our user and what he wishes to accomplish*" (Cooper).

  precise : Specific, detailed, verbose, in-depth

  user : A hypothetical individual, with concrete feelings, desires, skill levels and needs.

  wishes to accomplish : their work, goals, tasks

Personas : Why Use Them?

- Personas become "**real**" – people can visualize and hypothesize about John Smith better than The User.
- Personas help us understand varying skill levels.
- Personas create a shared understanding of the end users – for the entire design team (including designers, marketing folk, engineers, executives, etc).
- Personas emphasize that The User Is Not Like Me.

Personas : Aspects of a Successful Persona

- Specific
- Hypothetical
- Precise rather than Accurate
- One per character (a project can have many Personas)
- Use pictures!

Personas : An Activity

- Let's come up with a Persona to help us design a new sketchbook for a Computer Art major.

  Where do they live?
  What do they wear?
  What kinds of music do they like? .. Films? .. Food?
  Do they drive a car? .. A bike? .. A scooter?
  What do they do on the weekend?
  Do they have any computers in their house? .. How many?

Scenarios

- After we have developed our Personas, and we understand their Mental Models, we can create Scenarios:

  "*A scenario is a concise description of a persona using a product to achieve a goal*" (Cooper).

  concise : short but complete; breadth instead of depth

  product : assume the product (software or physical device) exists, even if it doesn't

  goal : the reason why we perform a task

Scenarios : Why Use Them?

- Scenarios help us validate our design
- Scenarios help us check our assumptions
- Successful Scenarios help us transfer theoretical/conceptual design to "wire frame" design
- Like Personas, Scenarios create a shared understanding of the end users –for the entire design team (including designers, marketing folk, engineers, executives, etc).
- Like Personas, Scenarios emphasize that The User Is Not Like Me.

Scenarios : Writing Good Scenarios

- Brainstorm, within the context of our problem domain, the goals our Personas will have
- Write the Scenarios for a specific Persona
- Go for breadth rather than depth – it is more important to describe things from start to finish rather than in exhaustive detail

Scenarios : An Activity

- Taking our computer art Persona from before, what are the Scenarios they would go through while using the sketchbook?

  What are their goals?

  What level of technology prowess can we expect, based on their persona?

  What steps would they go through to achieve their goals?

  Can you start to imagine life *without* this sketchbook for this Persona?

Scenarios : Good For Presentations

8:30

Wrap-up

- Mental Models
- Personas
- Scenarios