

Mental Models

By Richard Neves

WHAT IS IT?

A mental model is essentially the way in which a person views and understands the world, in our case, the way they understand our product and how they would expect to interact with it. Yes, this is part of the psychology that is important to know and appreciate when creating user experiences that people enjoy.

WHY DO YOU NEED IT?

Appreciating user mental models is valuable because as is said over and over, you are not the user. In many cases you, as the designer of a system have a much greater level of experience and understanding of what's going on between the interface and the backend of a system. You cannot expect the user to know this, nor should they need to. Let the user get on with the task and not worry about how it is being processed by the system (see Figure 1).

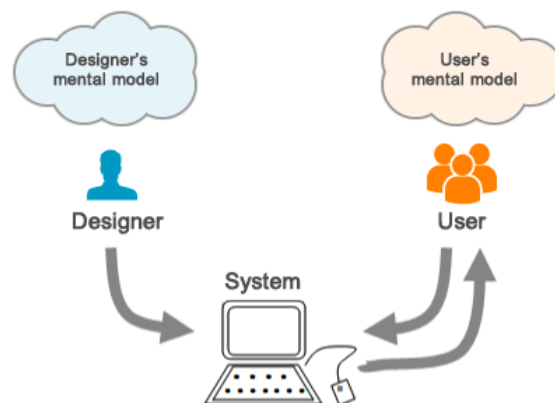


Figure 1. By learning the user's mental model, interaction designers can create systems that feel intuitive (Norman, 1988)

- As mentioned above, a mental model is based on what users know (or think they know) about a product. The basis for this knowledge is previous interactions with a similar product or website or what the individual has been told about the way something works. Individuals have their own mental model. It's also important to be aware that an individual's mental model changes as they interact with similar products over time. What they may not have readily understood a few weeks ago becomes familiar, almost second nature. So as design patterns become more common and familiar, the less likely it is that users won't understand what to do – a primary reason for sticking to familiar UX patterns unless your new alternative is exceptional and offers users a better experience.
- It's a prime goal for designers to make the user interface communicate the system's basic nature well enough that users form reasonably accurate mental models, making the system intuitive to use.

WHEN DO YOU NEED IT?

It's important to consider mental models throughout the development lifecycle of a product. In particular a UX designer needs to think about it when designing interfaces and interactions. Misjudgement of the user mental model

becomes very apparent in user testing. During the observation, while you may expect the user to interact in a certain way, you could find that they don't. The user may not have realised, based on other websites they use regularly that they have to click something else to invoke an action or, for example, could not submit a form because they didn't realise that your site is asking them to save the form first.

HOW DO YOU DO IT?

There are UX manuals devoted to mental models; however, it really is important that you appreciate the target users' mental models as part of the design process as finding time to do more exploratory modelling takes time. As designers are too familiar with UI design, they can foolishly believe that each feature is easy to understand by all. Users' mental models of the UI are likely to fall short of yours, making it more likely for them to make mistakes and find the design much more difficult to use.

Observation studies, journey mapping, task analysis and user testing help designers fully grasp how the user thinks, the knowledge they have and how they expect to interact with products. Following user testing which has shown that the user didn't get what they were expected to do, you have two options:

- Redesign the feature to meet the user mental model, assuming that it will be beneficial to all users. For example if you see that users were looking for a particular action in the wrong place, ask where and why they were looking for it elsewhere. When it comes to content and navigation, a card sort will help match the user expectation and can be fixed reasonably quickly.
- Improve the feature by adding better labelling (nothing too technical), providing hints, clear instructions etc.

As with all design changes, don't assume that the change will eliminate the problem, you may have made it worse. Always retest modified designs, especially where the interaction is important in preventing errors and completing a task.

EXAMPLE

A common mistaken understanding of a system working is that of the thermostat. Many think the thermostat works like a tap: the more you open it, the faster it gets warmer, when in actual fact you are allowing the temperature to reach a certain level before it cuts out. So the mental model could be improved if thought of as an on/off switch.

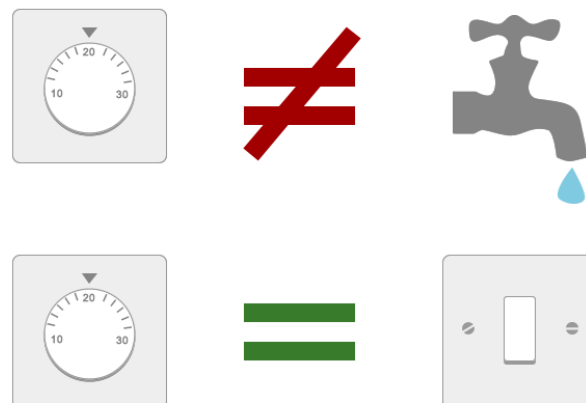


Figure 2. Mental models are the images in a user's mind that inform their expectation of a certain interaction or system

REFERENCES

<https://www.nngroup.com/articles/mental-models/>

The Design of Everyday Things – Don Norman

Mental Models – Aligning Design Strategy with Human Behaviour – Indi Young