

CHAPTER 1



What and Why? The Advantages of a Mental Model

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What is a Mental Model?

You might be thinking, “What does she mean by ‘mental models?’” Since the phrase “mental model” is somewhat commonly used—at least in the realm of research—I want to set out what I mean by the term and then outline why you would ever want to make one.

What is a Mental Model?

“The deepest form of understanding another person is empathy...[which] involves a shift from...observing how you seem on the outside, to...imagining what it feels like to be you on the inside.”¹

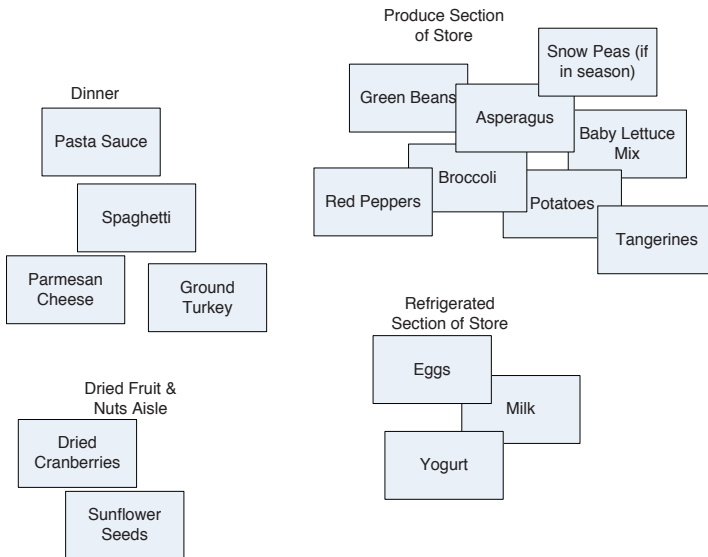
Designing something requires that you completely understand what a person wants to get done. Empathy with a person is distinct from studying how a person *uses* something. Empathy extends to knowing what the person wants to accomplish regardless of whether she has or is aware of the thing you are designing. You need to know the person’s goals and what procedure and philosophy she follows to accomplish them. *Mental models give you a deep understanding of people’s motivations and thought-processes, along with the emotional and philosophical landscape in which they are operating.*

Mental models embrace anything from looking up a part number online to asking the guy at the hardware store how to mix epoxy. A mental model consists of several sections, with groups within each section. Mental models are simply *affinity diagrams* of behaviors made from ethnographic data gathered from audience representatives.

¹ From the book *Difficult Conversations* by Douglas Stone, Bruce Patton, and Sheila Heen of the Harvard Negotiation Project, Chapter 9, “Empathy is a Journey, Not a Destination,” p. 183.

What is an Affinity Diagram?

Affinity diagrams, in the simplest interpretation, show groups of related things. You can make an affinity diagram out of your grocery list. Some items, like milk and eggs, might be found near each other in your store. Other items, like pasta sauce and spaghetti, are elements of a single meal you're planning. The diagram below shows an example.



A mental model for a particular topic is, in essence, an affinity diagram of user behaviors. The towers in the diagrams represent group names for the behaviors within. The sets of towers represent a higher-level group of the behaviors.

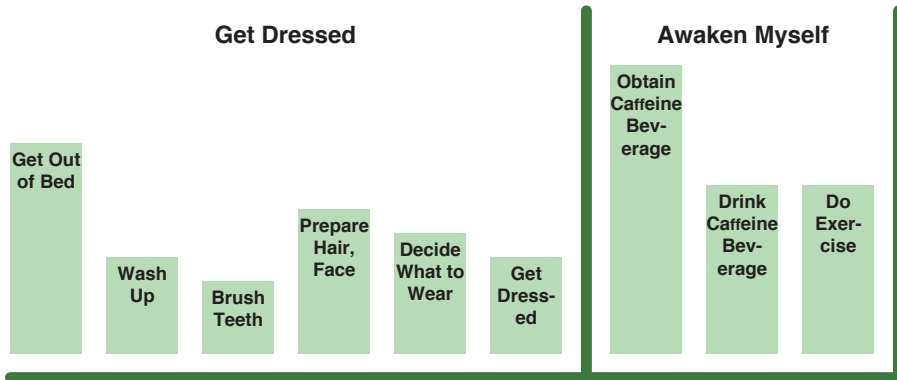
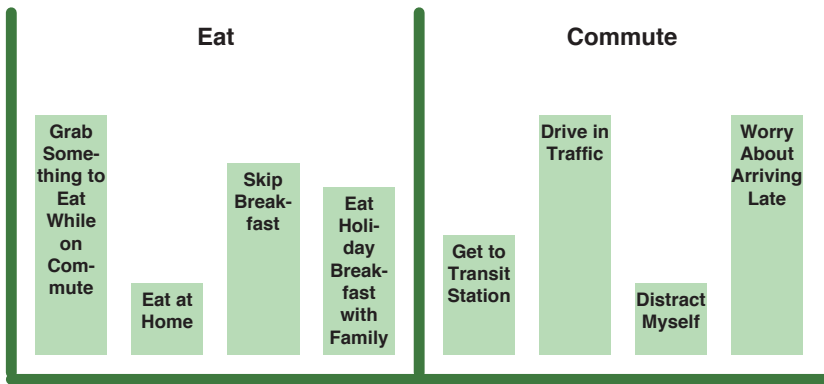


FIGURE 1.1. Mental model of a typical morning for people who commute to work or school. There are additional examples on the book site under Cases: www.rosenfeldmedia.com/books/mental-models

For example, when you wake up in the morning you get dressed, you eat, and you get on the train. These can be considered “mental spaces” in a diagram of your morning (Figure 1.1). On holidays you skip the “get on a train” mental space and instead you “eat a big breakfast with the family.” On mornings when you are tired, maybe you add a mental space about “become awakened” by perhaps drinking coffee or tea or doing some exercise. So the full mental model about your morning has several parts. The “Eat” section would have various divisions within it depending on whether you were heading to work or joining the family for Sunday brunch.

To create a mental model, you talk to people about what they’re doing, look for patterns, and organize those patterns from the bottom up into a model. From the field research, you will glean maybe 60 or 120 behaviors per person. Over time you see the same behaviors and you group them together. You line them up in towers; then line up the towers into groups that represent different cognitive spaces. The diagram looks a lot like a city skyline.



Once you have created the top half of the diagram, you focus on the lower half. Take the product features that you intend to create and align them beneath all the towers they support. In other words, you align the features that your business values beneath concepts that people mentioned. When you have finished, you will see areas of the mental model that are less supported than others, and you may have leftover functions that don't support anything in the mental model. The resulting diagram tells a story about the viability of your business strategy for a particular solution. In Figure 1.2, dark green indicates a primary match for the feature. Light green indicates additional secondary matches for the feature. In other words, for every light green feature there is one dark green feature aligned beneath the best match. Excess features that do not map to the mental model appear in the lower right corner.

Use the name "mental model" whether the diagram shows just the towers above the horizontal line or it shows the features aligned beneath the towers. It is this entire picture that becomes the heart of your strategy.

What is a Mental Model?

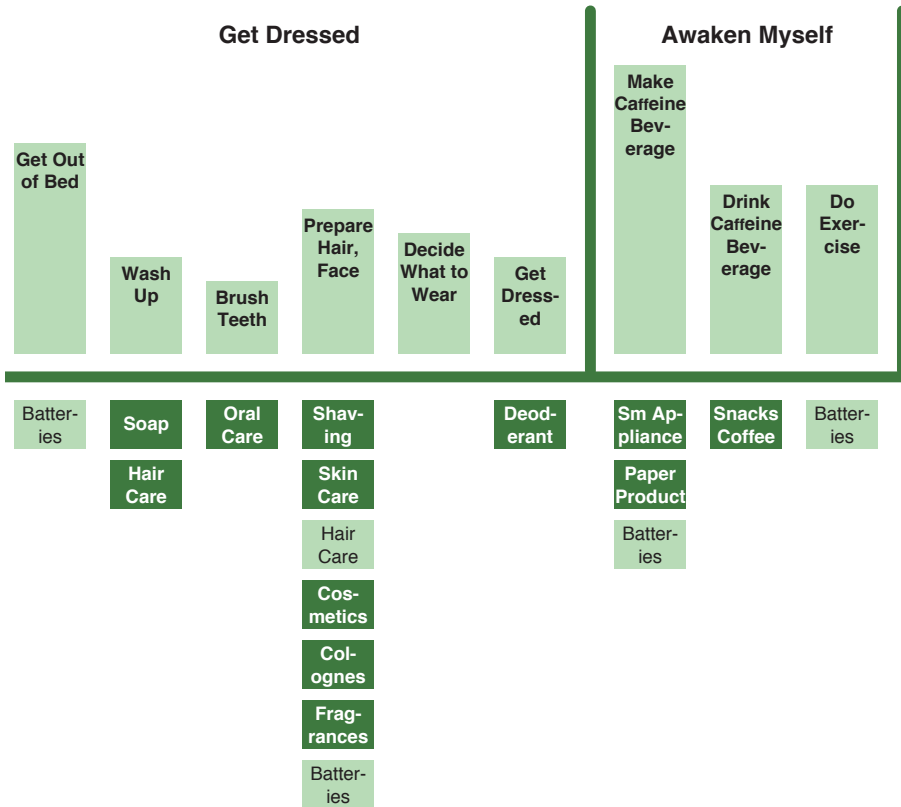
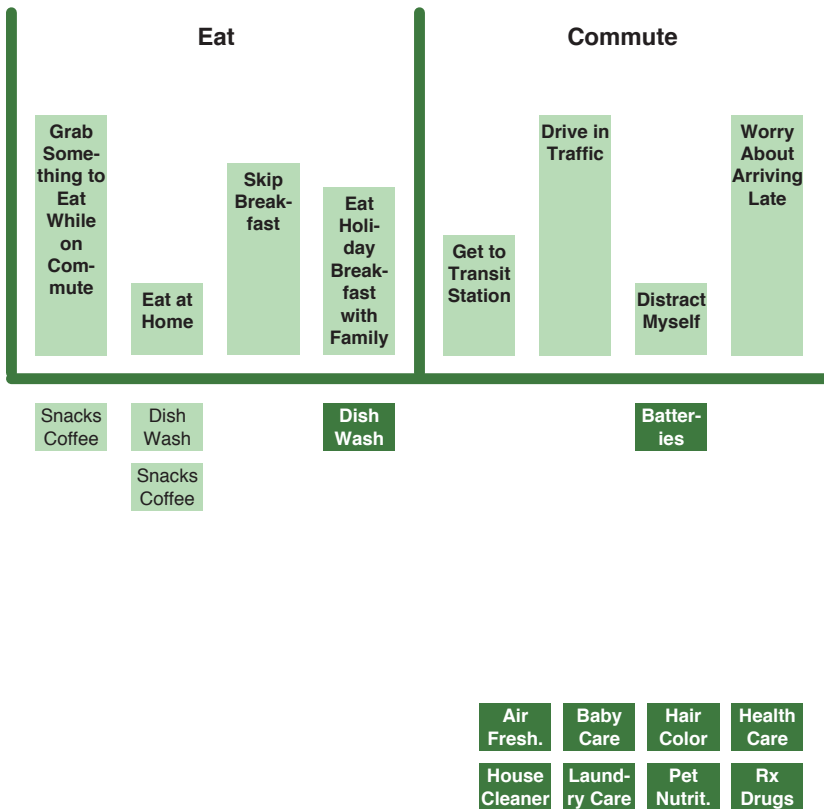


FIGURE 1.2. Mental model with features aligned beneath it. (Features borrowed from the product category list from Procter & Gamble’s site www.pg.com)

Taking the top and bottom half together, the resulting mental model is a diagram of how a certain segment of people tend to accomplish something, with the things you are making aligned to the depicted concepts. *You use the model to understand how your current offerings do and do not support people and devise your strategy going forward. You do*

What is a Mental Model?



this through multiple workshops with team members and stakeholders in your organization, which develops understanding and innovation. The model has a long lifespan, so you can use it to direct your progress with deep awareness of user-centered design for 10 or more years.

The Mental Model Process

First, reach out to actual users and have a conversation with them, collecting their perspective and vocabulary. Analyze all of those conversations and composite them into a diagram called “the mental model diagram.” Then compare all of the things your solution is supposed to do with the different parts of that mental model diagram. Align them with the concepts that they support. You can do this with functionality just as it exists, or functionality being planned, or you can play around with brainstorming new ideas. When you step back and look at the whole picture with teammates and stakeholders in the organization, you can develop a design strategy—a vision—to follow over the next decade. Then you can start devising tactical solutions for high priority areas of the mental model.

The mental models defined in this book are models of a person’s somewhat stable behaviors, rather than ephemeral models that are temporary representations of one situation. I want to acknowledge this distinction because those in the field of cognitive research have explored mental representation in great detail in the past decade, and I want to indicate where these mental models might fall within the currently defined parameters. “Mental model” has become a more generic term for mental representation. Cognitive research is now so specialized that article abstracts begin with verbose strings of qualifiers to narrow down the type of mental representation they mean.”² Because the mental models in this book are collections of the root reasons why a person is doing something, they belong to the set of mental representations that are built over a long period of experience and are thus resilient. These mental models represent what a person is trying to accomplish in a larger context, no matter which tools are used.

² Jay Morgan, Applied Cognitive Scientist, MS in Applied Cognition and Neuroscience, University of Texas at Dallas, 2004.