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### Introduction to MENTAL MODELS

*"To the man with only a hammer, every problem looks like a nail"*

Charlie Munger

#### Notes and Remarks

Hammer syndrome is a subconscious process. And we do it every-single-day without any hesitation...

#### What is a Mental Model?

*„Education is what remains after one has forgotten what one has learned in school“*

A.Einstein

Think back on your school years. Have you ever been challenged to find your own way of solving problems ? Anyone encouraged you to think creatively, analyze, go deeper into the topic, find alternative solution ? If yes, you are lucky, because normally what we learn in school is to follow the rules and accept given knowledge (if this approach sounds familiar, it should, as we are talking about the P.Freire „banking model of education“). We have been trained to think in a limited way and our mental models reflect that– Mans in a hammer syndrome.

Mental models are frameworks that give us a representation of how the world works. Not only do they shape what we think and how we understand, but they shape the connections and opportunities that we see. Mental models are how we simplify complexity, why we consider some things more relevant than others and how we reason.

They range from simple generalizations ("No one is born evil", „all politicians are corrupt“ etc.)<sup>1</sup> through to complex theories (for example Occams Razor - Check in References).

It is worth to remember that there are no right or wrong mental models. Models, in general, simplify reality , they are „wrong“ because they represent only a part of it - two people with a different mental model can observe and describe this same event differently, both being right about what they have seen <sup>2</sup>. On the other hand mental models can be useful because we can learn from them.

#### How are they formed and sustained?

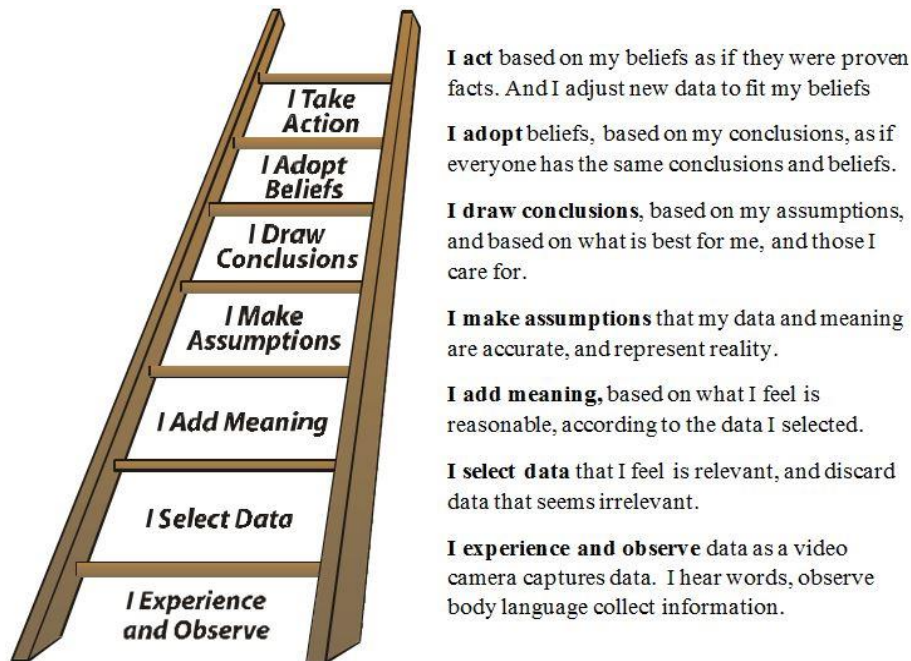
According to the organizational psychologist, Chris Argyris, who developed so called *Ladder of Inference* (please check below), we all make assumptions in our daily lives. We need them. Nevertheless, we must acknowledge that our assumptions could be wrong, especially when it comes to those related to the intentions or beliefs of others. Mental Models, by some authors, are defined exactly as „deeply ingrained assumptions“<sup>3</sup>.

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<sup>1</sup> Today any generalisation may be accused of perpetuating stereotypes nevertheless many of them constitute a basis for hate speech („All Jews are greedy“ etc.).

<sup>2</sup> This is known as Rashomon Effect.

<sup>3</sup> Please check for example in P.M.Senge (1990) *The Fifth discipline, The Art & Practice of The Learning Organization*, Currency Doubleday.



Source: <https://artofleadershipconsulting.com/>

### Why are mental models useful?

Mental models contributes to our personal growth. They allow us to ask right questions.and help us in good decision making - both within our personal and professional life.

How are they related to the decision making process? Nobel laureate, Herbert A. Simon, in his autobiography *Models of my life* explains the difference between experienced decision makers and novice. He argues that the main difference lies exactly in experience, which positively influences the abilities of decision makers.

*„One can train a man so that he has at his disposal a list or repertoire of the possible actions that could be taken under the circumstances...A person who is new at the game does not have immediately at his disposal a set of possible actions to consider, but has to construct them on the spot – a time- consuming and difficult mental task” H.A. Simon*

In his book *Thinking Fast and slow*, another Nobel laureate, Daniel Kahneman explains the two systems that drive the way we think: System 1 (quick, instinctive) and System 2 (slow, rational, deliberate). While first system uses simple mental shortcuts (heuristics), what can lead to oversimplification, second one, is triggered when people are faced with complex problems, taking advantage of mental models - more in References!

Have you ever heard about Charlie Munger? He is one of the great minds of the 20th century, best known as the Vice Chairman of the world's greatest compound interest machine, Warren Buffett-led Berkshire Hathaway Inc. He shows how psychological models are extremely important in the financial world. In 1994, Munger gave a famous speech at USC Business School. While talking about investments he gave general framework for thinking about making wise decisions in the world – Check in References!

Summarising, what Herbert Simon, Daniel Kahneman and Charlie Munger agree on, is that a brain equipped with mental models, not only is able to make complex decisions quicker, but also understands them more deeply and in context to the greater world as a whole.

### **The Latticework of mental model**

The phrase 'Latticework of Mental Models' comes from Charlies Munger. The word Latticework is a metaphor to describe an interlocking structure of big ideas (Mental Models) from different disciplines. And the first step to effective learning is to develop the habit of discovering the connections that exist between different bodies of knowledge.

According to Charlies Munger, his philosophy to learning and becoming a „learning machine” is the reason of his and Buffett's success. The „essential worldly wisdom.” is the one thing that we should never stop pursuing.

*"What is elementary, worldly wisdom? Well, the first rule is that you can't really know anything if you just remember isolated facts and try and bang 'em back. If the facts don't hang together on a latticework of theory, you don't have them in a usable form.*

*You've got to have models in your head. And you've got to array your experience—both vicarious and direct—on this latticework of models. You may have noticed students who just try to remember and pound back what is remembered. Well, they fail in school and in life. You've got to hang experience on a latticework of models in your head.*

*What are the models? Well, the first rule is that you've got to have multiple models—because if you just have one or two that you're using, the nature of human psychology is such that you'll torture reality so that it fits your models, or at least you'll think it does. You become the equivalent of a chiropractor who, of course, is the great boob in medicine.*

*It's like the old saying, "To the man with only a hammer, every problem looks like a nail." And of course, that's the way the chiropractor goes about practicing medicine. But that's a perfectly disastrous way to think and a perfectly disastrous way to operate in the world. So you've got to have multiple models." Charlie Munger*

### **Mental Models and Problem Solving**

We easily jump from problem to causes and effects. We „assume” that we know roots of problems and its implications. Do you remember *Rashomon Effect* ? Do you think it may apply to the way we design our „problem tree”?

We look on the problem from our individual perspective, through our „mental models”. It is not wrong, but again it is limiting. We all have our biases and using mental models to make ourself aware of such biases, we can be better.

One thing that Munger repeatedly advocates is the idea that it's better to limit downside by avoiding mistakes than it is to be brilliant. His reasoning is that, if we are doing stuff that exposes us to harm, we will eventually run out of luck no matter how great we are. The truth is that given that humans have natural blind-spots, we are always exposing ourselves to harm.

Another thing he pays attention to is to have our models in a usable form. The key to this is application to real problems. You may read and learn a lot but effective latticework of mental models is build on application , experience. Again, sounds familiar? You need to actually apply the models to real world problems, constantly trying new things and tackling new and more difficult problems.

*Last but not least ...*

I will not provide you with a list of mental models to remember. Try to create your own Latticework of mental models. Nevertheless, there are few golden rules I want to share with you:

#### **NEVER STOP QUESTIONING**

*“The important thing is not to stop questioning. Curiosity has its own reason for existence. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvelous structure of reality. It is enough if one tries merely to comprehend a little of this mystery each day”* Albert Einstein

#### **NEVER STOP LEARNING**

*„Wisdom acquisition is a moral duty. It's not something you do just to advance in life. As a corollary to that proposition which is very important, it means that you are hooked for lifetime learning. And without lifetime learning, you people are not going to do very well. You are not going to get very far in life based on what you already know. You're going to advance in life by what you learn after you leave here”* Charlie Munger

#### **BE PREPARE TO CHALLENGE YOUR OPINION AND CHANGE IT EACH TIME NEEDED**

*„Only the wisest and stupidest of men never change”* Confucius

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*„We're not aware of changing our minds even when we do change our minds. And most people, after they change their minds, reconstruct their past opinion - they believe they always thought that”* Daniel Kahneman

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Check ScienceDirect articles on mental models on [ScienceDirect.com](#)

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