Mental Models Worksheet

This week's reading introduces the five disciplines required for the learning organization: systems thinking, personal mastery, mental models, shared vision and team learning. Peter Senge stresses the point that leaders need a shift of mind or "metanoia" in order to make the transformation necessary for their organization to become a learning organization.

The content and exercises in this worksheet are based on the discussion of mental models from The Fifth Discipline Fieldbook: Strategies and Tools for Building the Learning Organization (Senge, et. al, 1994). Cognitive psychologists use the term *mental* models to refer to the *tacit* (existing below the level of awareness) "maps" of the world, perceptions, assumptions, beliefs that are built up from reasoning processes and experiences. Because these maps are tacit, they are often unexamined and untested, yet they influence not only what we "see" in a given situation, they also affected how we interpret or act on our experiences often without our recognition of their influence.

Try the following with some of your friends and to see what differences you get in what people hear and do.

> A common workshop exercise involves asking people to arm wrestle with a neighbor. We tell them that "wining" means brining their opponent's arm to the table, and we ask them to "win" as many times as they can in 15 seconds. Most people pit themselves against their opponent, struggling to push the other person's arm down. But a few partners look at each others, and then spend the 15 seconds flipping their arms back and forth, without any resistance, a dozen or more times. They are not held back by the mental model that only one person can "win" (Senge, p. 236).

Similarly, think about the times that we are held back from even attempting an action because in the past, success has always been met with resistance. Animal trainers recognize that by restraining a baby elephant with a very heavy chain attached to its leg, that an adult elephant may be restrained by the same chain even though, as an adult, it would be able to easily break the chain. The adult elephant will not even try to break free based on its earlier experiences.

"Two types of skills are central to this work: they are reflection (slowing down our thinking processes to become more aware of how we form our mental models) and inquiry (holding

conversations where we openly share views and development knowledge about each other's assumptions)" … The value of these skills is perhaps most apparent in their absence. Individuals who are undisciplined in reflective thinking have difficulty hearing what others actually say. Instead, they hear what they expect others to say. They have little tolerance for multiple interpretations of events because they often "see" only their own interpretation. In teams and groups, people who have not mastered a threshold level of inquiry skills will spend hours arguing their ideas. Eventually, in frustration and exhaustion, they end up with some kind of compromise, in which no one wins – or they defer to the most senior person in the room, who wins through authority. (Senge, p. 237-238).

The beer game described in Chapter 3 of The Fifth Discipline illustrates what can happen when one operates on mental models without testing them. The structure of the system which did not allow communication made it more likely that people could not see how their actions affect others. Testing our mental models begins by "unearthing" and understanding our own mental models and evaluating their truthfulness and usefulness. One tool which can be helpful in this process in known as "the ladder of inference"

> We adopt …beliefs because they are based on conclusions, which are inferred from what we observe, plus our past experience. Our ability to achieve the results we truly desire is eroded by our feelings that: Our beliefs are *the* truth, the truth is obvious, our beliefs are based on real data, and the data we select are the real data.
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> For example: I am standing before the executive team, making a presentation. They all seem engaged and alert, expect for Larry, at the end of the table, who seems bored out of his mind. He turns his dark, morose eyes away from me and puts his hand to his mouth. He do3esn't ask any questions until I'm almost done, when he breaks in: 'I think we should ask for a full report.' In this culture, that typically means, 'Let's move on.' Everyone starts to shuffle their papers and put their notes away. Larry obviously thinks that I'm incompetent – which is a shame, because these ideas are exactly what his department needs. Now that I think of it, he's never like my ideas. Clearly, Larry is a power-hungry jerk. By the time I've returned to my seat, I've made a decision: I'm not going to include anything in my report that Larry can use. He wouldn't read it, or worse still, he'd just use it against me. It's too bad I have an enemy who's so prominent in the company.
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> In those few seconds before I take my seat, I have climbed what Chris Argyris calls a 'ladder of inference,' – a common mental pathway of increasing abstraction, often leading to misguided beliefs:
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> - I started with the **observable data**: Larry's comment, which is so self-evident that it would show up on a videotape recorder…
> - … I **selected some details** about Larry's behavior: his glance away from me and apparent yawn. (I didn't notice him listening intently one moment before)…
> - … I **added some meaning** of my own, based on the culture around me (that Larry wanted me to finish up)…

- … I moved rapidly up to **assumptions** about Larry's current state (he's bored)…
- … and I **concluded** that Larry, in general, thinks I'm incompetent. In fact, I now **believe** that Larry (and probably everyone whom I associate with Larry) is dangerously opposed to me…
- … thus, as I reach the top of the ladder, I'm plotting **(action)** against him. (Senge, p. 242-244)

The following are some examples of "ladders of inference" as they move from observable data to beliefs which affect our actions.

The meeting was called for 9am and john came in at 9:30. He didn't say why.
John knew exactly when the meeting was to start. He deliberately came in late.
John always comes in late
We can't count on John. He's unreliable.

"Jane, your performance is not up to standard", says the boss.
The boss is chewing Jane out.
The boss thinks Jane's work is unacceptable.
He picks on Jane because she's a woman.
This boss shouldn't be supervising women.

A politician just made a statement which seems to contradict a campaign promise.
It's another political sell-out.
Once again, he shows he has no integrity.
Every politician lies and cheats.
I'm not going to bother to vote anymore.

We learn from our experiences and the process of adding meaning and drawing conclusions from those experiences is an important part of our being effective in the world, however, we can improve our knowledge by using the ladder of inference as a tool for

Becoming more aware of our own thinking and reasoning (reflection)
Making our own thinking and reasoning more visible to others (advocacy)
Inquiring into others' thinking and reasoning (inquiry)
The following questions based on the ladder's steps can clarify understanding. .

- What is the observable data behind that statement?
- Does everyone agree on what the data is?
- Can you run me through your reasoning?
- How did we get from that data to these abstract assumptions?
- When you said "[your inference]," did you mean "[my interpretation of it]"?

To begin practicing using the ladder of inference, team members will be assigned, by the week's team leader, a "stakeholder role" for the following problem.

The County Board of Health is proposing a ban on cigarette smoking in any public establishments. Stakeholders: Restaurant Owner, Mother of 3 Children, Vietnam Veteran, County Commissioner, Physician.

To prepare for the team discussion, identify your stakeholder's perspective on the problem and be prepared to represent that position to the group. Preparation should include not only identifying the stakeholder's perspective, but also the mental models that might lie under that beliefs and suggested actions. Some questions you might consider for developing perspectives include –

Time – What timeframe is important to me? When did this become a problem for me? How long can I tolerate the current status?

Expectation – What do I expect will happen if nothing is done? What am I demanding (hoping) will happened? What expectations do others have of me?

Examination – How close or how far am I from the problem? How closely am I willing to examine the problem? What else is related to the problem?

Understanding – What do I understand that no one else understanding about the problem? What is my understanding focused on? What data is my understanding based on?

During your weekly team discussion (either asynchronously on the discussion board or synchronously in a chat session), team members should "discuss" the problem by each stakeholder presenting his/her perspective, and then seeking to develop a deeper understanding of the problem through drawing our stakeholders's mental models in relation to the problem using the Ladder of Inference and the questions suggested earlier in this reading. Team Leaders should facilitate the dialog, but everyone should seek to add to the understanding of others' perspectives. The objective here is not to find a solution to the problem, but to deepen understanding of the problem.

The Executive Summary to be posted in the Discussion Room by the team leader should include reflection on:

1. How did understanding of the problem change as a result of understanding different stakeholders' perspectives?
2. How did the way stakeholders were thinking and seeing the problem, limit capacity for dealing with the issue?