

I think, therefore I am resistant to change

What we know--or think we know--is our biggest roadblock to learning.

By Francis M. Duffy

Journal of Staff Development, Winter 2003 (Vol. 24, No. 1)

Copyright, National Staff Development Council, 2003. All rights reserved.

Just underneath the surface of what we do lies a motivating force that shapes us. It's the unspoken, unacknowledged, and most times unrecognized assumptions that guide our actions in ways that can be productive--or destructive.

Hallie Preskill and Rosalie Torres (1999) describe mental models as a set of personal opinions, perceptions, and views of the world. "These values, beliefs, assumptions, and knowledge have been developed over time, are thought of as 'truths,' and are what guide people in their everyday lives. They are manifested in the taken-for-granted behaviors by which we function and often are manifested in opinions we hold" (p. 66).

Mental models are powerful because they frame and influence the way educators and school districts perceive, understand, interpret, and act upon their world. However, not all mental models are functional or correct. Change requires that we unlearn negative mental models and learn new ones, and staff developers play a critical role in designing and delivering the kind of professional learning that can help educators do so.

Mental models block

Mental models resist change. People don't like to change what they think they know. Given new information to consider, individuals will search their existing mental models to ensure that the new information is consistent with what they know. If the new information fits an existing mental model, the person accepts the information. Perhaps the information even expands or improves the person's existing mental model. If the individual cannot link the new information to an existing mental model, he or she may construct a mental model to understand the new information or discard the information as irrelevant, unimportant, or wrong.

Because existing mental models resist new information, they can be a major obstacle to creating and supporting systemic school improvement. To support systemic school improvement, educators need to unlearn existing mental models that are dysfunctional or just plain wrong before learning new ones or, at a minimum, they must work to make their mental models malleable and open to change. People, however, will not cast aside their current mental models as long as these models seem to produce reasonable results (Kuhn, 1962). As Henry Petroski (1992) puts it, people ".... tend to hold onto their theories until incontrovertible evidence, usually in the form of failures, convinces them to accept new paradigms" (pp. 180-181). In fact, people are notorious for sticking with their

current mental models despite poor and even disastrous results. Even after abject failure, some will attribute their failures to an external event or person instead of recognizing the inadequacies of their personal and organizational mental models. For educators to unlearn dysfunctional or wrong mental models, they must see that:

- **They can no longer rely on their current knowledge, beliefs, and methods.** What educators think they know can prevent them from seeing what they need to learn. Before they can learn a new mental model, educators have to unlearn what they think they already know, or their mental models have to become pliable. Staff developers must help educators bring to conscious thought, examine, and evaluate their personal and organizational mental models (see chart on page 34).
- **A school district's social "architecture" can block unlearning.** Educators collectively hold certain beliefs, values, and shared methods that help create and then justify an organization's culture, policies, procedures, decisions, and actions. This organizational mental model - what people think their school district stands for and how they think it should function - then makes it difficult for people to think and act in ways that don't fit the model, so educators find it difficult to accommodate new and innovative ideas.
- **"Political" pressure can affect unlearning.** People and groups with power and political influence affect what people think and how they act (Hedberg, 1981). The political influence of school administrators and teacher union leaders is especially potent because these leaders can either block or support actions faculty and staff propose. Having their political support is absolutely crucial to helping educators unlearn and learn mental models for teaching, learning, managing, training, and improving.

Strategies for Unlearning

Because mental models are essentially invisible to people until a deliberate effort is made to bring them to the foreground, the initial task for changing them is bringing them to the surface, exploring their structure, and talking about them with minimal defensiveness (Senge, et al., 1994, p. 236).

Staff developers can use doubt to stimulate the discussion and bring about unlearning. William Starbuck (1996) discusses several ways to raise doubt. The following strategies for raising doubt can be effective in small group settings such as dialogue groups and communities of practice.

Discuss dissatisfaction. Often, when people fail or something doesn't work right for them, they come up with reasons to explain their failures, including blaming external events or other people. But, as many of us know from personal experience, none of the explanations focus on a person's mental models. Encouraging educators to examine their failures is not an easy task, especially if there is distrust and fear within the school system. If educators believe that a discussion of their failures will be used against them, they will not enter into these discussions.

Staff developers might begin by opening reflection on how districtwide mental models are not working before asking educators to examine their personal mental models. Then, as staff developers encourage dialogue around what's not working with the district's mental model, discussions around personal challenges can be "teased out" and discussed.

Say it's only an experiment. If people believe that the new method they are trying or the new idea they are considering is just an experiment, they are more likely to allow themselves to act outside the box of their current mental model. Because these new ways of acting and thinking are just experiments, the risks associated with failure are substantially reduced, people become more willing to consider feedback with an open mind, and they are more likely to evaluate results objectively. Experimentation allows them to modify their mental models for new ways of seeing, understanding, and doing.

By using this "it's only an experiment" strategy, staff developers can create an atmosphere that supports action research within classrooms in which educators try the experimental method, observe what happens, and evaluate the method's effectiveness.

Turn surprises into question marks. Unexpected events or results, both positive and negative, can stimulate unlearning. The results of people's experiments can be surprising, causing them then to question what happened and why it happened. Answers to these questions can help them unlearn their old mental models as their answers point to new ways of thinking and doing.

To help educators use this strategy effectively, staff developers should describe a few examples of personal surprises that helped them learn (and unlearn) their own mental models, then encourage educators to be on the lookout for surprises during training activities and discussions.

Recognize that all dissents and warnings have some validity. Many sensible, well-intentioned people who see things going wrong try to alert others. Educators should take seriously bad news or warnings about impending failure of a newly adopted instructional method, program, or curriculum, or outside-the-box ideas for change.

Believe that collaborators who disagree are both right. When two qualified people have different beliefs about the same issue, both sets of beliefs nearly always have some degree of truth. The challenge for staff developers is to reconcile the differences and show commonalities and identify what they have in common. These efforts help people see that their current mental model can expand to accommodate different ways of thinking and doing.

It is important for staff developers to reinforce this principle within workshops or training sessions where people openly disagree. Staff developers can encourage participants to identify the common features of what appear to be conflicting points of view.

Ask "What does the 'outsider' think?" Many people do not respect outsiders' views because outsiders supposedly do not know us or understand our situation. Yet outsiders

often see things without the bias of insiders and free from the dominant organizational mental models that shape behavior in organizations. Thus, the outsider may see opportunities and possibilities insiders cannot see and may be able to offer breakthrough ideas or methodologies.

Encouraging educators to be open-minded about the outsider's view is especially important when external trainers or consultants are invited into a school district. Staff developers can help by reminding staff that new ideas and points of view are important and valued by the district.

Remember that all problems have multidirectional causes and effects. Staff developers can use a structured analysis of the causes and effects of problems, such as a systems dynamics model (Meadows, 1991) that illustrates multidirectional cause-and-effect relationships. This field of study tells us about what a system is, how it functions, and how it can be improved. This kind of analysis can help people challenge their tacit mental models and begin to see multiple reasons for the problems they are experiencing and the multiple effects of those problems. Identifying and then examining these multidirectional relationships can lead to some breakthrough thinking about how to change personal and organizational mental models as people see the multiple connections the arrows suggest.

Understand that what you know is not optimal. Educators can count on the fact that if their mental models seem valid, others have valid mental models that are very different. For example, if educators' mental models for school district improvement seem excellent, other equally excellent mental models exist. To help educators break free of the constraints of their current mental models, staff developers should help them become skeptical about the effectiveness of their personal and organizational mental models.

Learning New Mental Models

Staff developers have to help educators develop positive attitudes toward new mental models and help them use those attitudes. Some staff developers believe educators can keep their negative attitudes and learn new behavior. The price of this approach is the difference between compliance and commitment. If educators have a negative attitude toward a new mental model, but they behave as expected, school districts get compliance. The expected behavior is present when the individual is being observed but may disappear when no one is watching. If educators have a positive attitude about the same mental model and also behave as expected, the school district gets commitment and long-lasting change. The desired behavior manifests itself consistently.

Once educators' existing mental models start to become malleable and, therefore, changeable, it is time to help them learn new mental models. Peter Senge (online document, date unknown) says in order to help people improve their mental models:

- Direct people's attention to a specific aspect of their work;
- Do not tell people exactly what to do;

- Do not limit conversations about mental models to a few people; instead get people who need to work together to collaboratively learn new models for effective action; and,
- Focus on the evolution (not revolutionary change) of individual and organizational mental models in the minds and behavior of the people.

Senge's advice is just the start for helping educators learn new mental models. Staff developers can use a number of strategies.

Metacognition. Metacognition is thinking about thinking. Staff developers help educators engage in metacognition through dialogue that helps them become aware of their mental models and how these models affect their work. Engage participants in conversations about unstated assumptions, untested attributions (e.g., making an untested statement about why someone did or did not do something), and their perceptions.

Double-loop and deuterio-learning. With single-loop learning, people learn about what happened and change in response, but they do not uncover and examine underlying mental models. In double-loop learning, they examine why something happened, surfacing and examining underlying mental models. This is particularly useful for solving complex problems that change over time. Deuterio-learning focuses on learning how to learn (Argyris & Schön, 1978). Staff developers can encourage deuterio-learning by helping participants identify their preferred learning styles, examine the effects of those learning styles, and learn effective strategies for enhancing their learning styles.

Conversation theory. The fundamental idea of conversation theory is that learning occurs through conversations about a subject that make knowledge explicit. According to Gordon Pask (1975), these conversations can be general discussion, focus on a subject, or talk about learning itself. Staff developers can design special sessions for educators to come together to have a conversation about a new teaching method, an instructional strategy, the district's grand vision for the future, or any other topic that would require changes in educators' mental models.

Dialogue. Dialogue (e.g., Bohm, Factor & Garrett, 1991; Donnellon, 1996) is a popular way to learn. "In dialogue, a group of people can explore the individual and collective presuppositions, ideas, beliefs, and feelings that subtly control their interactions" (Bohm, Factor & Garrett, 1991, online document, page unknown). Dialogue is not a discussion or a debate in which people struggle to have their ideas prevail, forming a win-lose dynamic. Dialogue also is not a means to focus on removing participants' emotional blocks or provide feedback about the impact of their behavior on others, although this kind of learning sometimes occurs. Dialogue is not a problem-solving or conflict resolution tool, although problems sometimes are resolved. Staff development specialists can use dialogue to explore mental models and develop shared understanding by helping educators surface, explore, and learn mental models. The dialogue method is at the core of the evaluative inquiry.

Evaluative inquiry. Hallie Preskill and Rosalie Torres (1999) outline an evaluative inquiry model that helps educators question and debate the value of what they do, a useful inquiry in helping educators unlearn and learn mental models. Evaluative inquiry has three phases and incorporates four key learning processes. The phases are focusing the evaluative inquiry, carrying out the inquiry, and applying learning. During each phase, organization members and external stakeholders come together to engage in a learning process that incorporates dialogue, reflection, asking questions, and identifying and clarifying values, beliefs, assumptions, and knowledge.

Principles of feedback and reinforcement. Feedback provides educators with information about their behavior. It can be positive, negative, or neutral. Reinforcement can increase or decrease behavior. Feedback is almost always extrinsic, while reinforcement can be extrinsic or intrinsic. Feedback and reinforcement are important to help educators learn new mental models. Staff developers can provide educators with feedback and reinforcement during workshops that focus on skill development. As participants practice new skills in the workshop, they receive timely feedback. Staff developers also should train supervisors on providing effective feedback and reinforcement during supervisory observations.

Social learning theory. Although educators construct personal, idiosyncratic mental models, their school district needs a shared or common mental model so everyone can communicate with each other about what they know and do. In other words, all educators in a district have to be connected to an organizational mental model. Staff developers can design dialogue or conversation sessions to create social learning opportunities. Within these sessions, educators share their personal knowledge, insights, and perspectives to create shared mental models. The need to reach consensus about the meaning and value of a school district's mental model requires educators to consider others' perspectives. Important side effects of this dialogue are the ability to communicate within the group about new knowledge, to cooperatively create a context for the new knowledge, and to apply that knowledge to benefit the district. Methods for developing this kind of common professional intellect include seminars, formal discussions, and informal interactions among teachers and others.

Situated learning. Lave (1988) argues that learning as it normally occurs is a function of the activity, context, and culture in which it occurs. Social interaction is a critical component. One effective way to create opportunities for social interaction to support learning mental models is through a "community of practice" (Lave & Wenger, 1991). A community of practice is a small group of practitioners who share a common practice or have a common learning interest. They engage in learning activities that can help members learn new mental models. The staff developer can help educators connect their learning by facilitating the creation of communities of practice. These special interest groups are a powerful tool for supporting personal and organizational learning.

Conclusion

People often are unaware of their mental models and their effects, yet these models determine what people pay attention to and therefore influence what people do and how they do it. Left unexamined and unchallenged, mental models influence people to see what they have always seen, do what they have always done, be what they have always been, and therefore produce the same results.

Mental models can be roadblocks to systemic school improvement or extraordinary supports for systemic, districtwide change. Helping educators and school systems surface, examine, evaluate, and change their personal and organizational mental models is a key step in creating and sustaining systemic school improvement.

References

Argyris, C. & Schön, D. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Bohm, D., Factor, D., & Garrett, P. (1991). Dialogue--A proposal. Retrieved July 18, 2002, at http://www.muc.de/~heuvel/dialogue/dialogue_proposal.html.

Donnellon, A. (1996). *Team talk--The power of language in team dynamics*. Boston: Harvard Business School Press.

Hedberg, B. (1981). How organizations learn and unlearn. In P.C. Nystrom & W.H. Starbuck (Eds.), *Handbook of organizational design, Volume 1: Adapting organizations to their environments*. New York: Oxford University Press.

Kuhn, T.S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Lave, J. (1988). *Cognition in practice: Mind, mathematics, and culture in everyday life*. New York: Cambridge University Press.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Meadows, D. (1991). System dynamics meets the press. *The Global Citizen*. Washington, DC: Island Press, 1-12. Retrieved September 22, 2002, from <http://sysdyn.mit.edu/sdep/Roadmaps/RM1/D-4143-1.pdf>.

Pask, G. (1975). *Conversation, cognition, and learning*. New York: Elsevier.

Petroski, H. (1992). *To engineer is human*. New York: Vintage.

Preskill, H. & Torres, R.T. (1999). *Evaluative inquiry for learning in organizations*. Thousand Oaks, CA: Sage Publications.

Senge, P., Kleiner, A., Roberts, C., Ross, R., & Smith, B. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organization.* New York: Currency/Doubleday.

Senge, P.M. (n.d.). Learning to alter mental models. Retrieved July 11, 2002, from <http://www.sol-ne.org/res/kr/mentmodel.html>.

Starbuck, W.H. (1996). Unlearning ineffective or obsolete technologies. *International Journal of Technology Management*, 11, 725-737.

Mental models

Staff developers should be concerned with two kinds of mental models: individual and organizational. For each, there are functional, dysfunctional, incomplete, and just plain wrong models.

Individual Mental Models

Functional individual mental models provide relatively effective guidance to a practitioner. For example, a principal attends a training workshop on clinical supervision. At school she says to herself, "OK, I know the stages of clinical supervision, I know what to do in each stage, and I know what to expect during the entire process." Her expectation that she knows the process may not be 100% accurate, but is sufficient for her to provide clinical supervision in a relatively effective way.

Dysfunctional individual mental models produce unintended negative outcomes. For example, a teacher says, "Developing lesson plans is just an empty ritual with no real meaning. I have the big picture, and I know where I'm going." This dysfunctional mental model unintentionally results in inferior instructional planning, which in turn flows into the classroom learning experience for students.

Incomplete individual mental models are partially correct, but lack information to be more effective. For example, a curriculum specialist might think, "A blend of phonics and whole-language reading instruction is a wonderful way for children to learn how to read and understand language." But the specialist may not know how to blend the two approaches effectively, and may not know this knowledge is lacking.

Wrong individual mental models are not incomplete and not dysfunctional. They simply are wrong. For example, a teacher thinks, "When I see a student misbehave, I'll ignore it. It will pass, and the children will like me." This would result in serious negative consequences in that teacher's ability to manage classroom behavior.

Organizational Mental Models

Functional organizational mental models are accurate enough to help an organization function effectively. An example would be a school district's management philosophy

stating, "Our district is a system. In a system, the various parts interact to produce outcomes. Some outcomes will be desirable and others will be undesirable. Undesirable outcomes should not be examined in isolation. Instead, we must examine the total system to identify multiple cause-and-effect relationships that contribute to the undesirable outcomes."

Dysfunctional organizational mental models produce unintentional negative consequences. An example of a dysfunctional organizational mental model in a school district would be an organizational culture built upon the belief that "teachers are employees and need to be treated as such. They need to be closely supervised and monitored. And they need to be minimally involved in the district's decision-making processes." This mental model is intended to put managerial control into the hands of a few and thereby increase organizational effectiveness and efficiency, but unintentionally creates a climate of distrust, dissatisfaction, and demotivation among teachers, decreasing organizational effectiveness and efficiency.

Incomplete organizational mental models have some correct information, but important details are missing. An example would be a school district's vision statement that "our district is a learning community." This mental model may be correct, but it lacks details.

Wrong organizational mental models would include a school board philosophy stating, "There is only one way to manage a school district." Obviously there are many different ways to manage a school district.

Francis (Frank) M. Duffy is a professor of education administration and supervision at Gallaudet University in Washington, D.C., a 2002-03 Education Policy Fellow in the Educational Policy Fellowship Program sponsored by the Institute for Educational Leadership, and series editor for Scarecrow Education's series on Leading Systemic School Improvement. You can contact him at Gallaudet University, 800 Florida Ave., NE, Washington, D.C. 20002, (202) 651-5525, fax (202) 651-5749, e-mail: francis.duffy@gallaudet.edu.