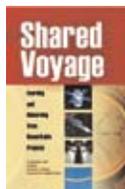FROM THE EDITOR-IN-CHIEF *Dr. Alexander Laufer*

Shared Voyage: Encouraging Unlearning

IN RECENT YEARS, MORE AND MORE LEADERS of private and public organizations alike have realized that knowledge is the chief asset of organizations and the key to maintaining a sustainable and competitive advantage. Organizational learning means the continuous acquisition and testing of experience and the transformation of that experience into knowledge that is made accessible to everyone within the organization.

However, creating a "learning organization" is only half the solution. In addition to the familiar "learning curve," companies should establish a "forgetting curve," which is the rate at which a company can unlearn those habits that hinder future success. Pursuing unlearning, however, is not easy. First, very often people are simply unaware of the need to unlearn (e.g., they are unaware that the old assumptions regarding the world have changed), and, second, it is always difficult to undergo a change.

The following examples, taken from *Shared Voyage*, show just how difficult it can be. *Shared Voyage: Learning and Unlearning from Remarkable Projects* focuses on four projects: the **Advanced Composition Explorer (NASA)**, the **Joint Air-to-Surface Standoff Missile (U.S. Air Force)**, the **Pathfinder Solar-Powered Airplane (NASA)**, and the **Advanced Medium Range Air-to-Air Missile (U.S. Air Force)**. Each project is presented as a case study comprises stories collected from key members of the project teams. The book which was co-authored by A. Laufer, T. Post and E. Hoffman, was recently published by the NASA History Office. One of the main objectives of the book is to encourage unlearning of outdated concepts.

Sometimes it takes another person to help you change your mind-set. During the integration and test phase of the Advanced Composition Explorer (ACE) project, the Applied Physics Laboratory (APL) fell behind. NASA Project Manager Don Margolies thought that the way to deal with it was to order their team to work either weekends or double shifts. But Mary Chiu, APL Project Manager, was steadfastly opposed to telling her people to work overtime. Her people were salaried, and she wasn't going to order them to put in more hours.

They argued about it for a while, finally asking the Chief Engineer at APL to join them for a meeting of minds. Don hoped that meeting would not turn into a very divisive discussion. What happened instead was that Mary pointed out something to Don that he realized should have been a no-brainer. In fact, it was then so obvious to him that he was embarrassed that he hadn't realized it himself. "All we have to do is make it known that we are behind schedule," Mary said. "Professionals don't have to be reminded that they have a job to do… they will rise to the challenge on their own."

Realizing she was right, Don went back and told NASA management what Mary had said. She couldn't put the extra hours on the schedule, but she'd assured him that the work would get done. Ultimately, they recovered the lost time. Don knew that Mary had taught him a lesson in basic psychology: it's always better to let people come up with a good idea and implement it, than for you to force it down their throat.

At times, the role of leaders is to help their team change their mind-set. During source selections for the Joint Air-to-Surface Standoff Missile (JASSM) project, Air Force Program Director Terry Little told the team that he wanted this phase to be completed in six months. Truth be told, he would've been happy with seven, or even eight—but he wanted to set almost unrealistic goals. Why? "I didn't want a schedule that the team felt they could achieve just by working weekends or figuring out a handful of inventive ways to do things," he said. "I wanted something so outrageous that it would cause them to at first, give up—and then, to step back and examine their assumptions, their beliefs, everything they'd learned from past experiences and ask themselves with a clean slate: what do I really need to do to achieve this goal?"

And that's exactly what they did. The team actually completed the source selection in *five* months. "When we talked about it afterwards," Terry said, "the team discovered that they hadn't known how capable they

could be if they just quit thinking about things in the way they had always thought of them."

Of course, sometimes teams are not ready to think of things in new ways. The Advanced Medium Range Air-to-Air Missile program had been around for 20 years, and Program Director Judy Stokley knew it was time for a major reform.

It wasn't easy because of the type of partnership her team had with the contractor. If the contractor needed to change something, he had to submit an Engineering Change Proposal, and the government had to approve it. The contractor documented every change in parts, down to the lowest-level nut, bolt, or screw, and sent change proposals all day long. The government paid him to make those changes, or they didn't get done. Judy used to say, "If I want my contractor to flush the toilet in Tucson, I have to write him a contract letter and pay him to do it."

She wanted very much to change that mindset, and get the contractors to have a "heart and soul" relationship with their products. If they could write a good, simple set of performance specifications that the contractor would control, and the government would pay a fair price for the product, Judy believed it could be a win-win situation for both sides.

But she also didn't want any claims against her. The program had been under litigation for one thing or another since it started. When Judy took over as the Program Director, there were twelve standing requests for equitable adjustment filed by the contractors. She told the contractors straight out that she couldn't team with people who filed claims against her. She told them, "I'm going to help you pay for everything, I'm going to help you make a decent profit, and you are going to make sure that we have a good product out there."

At a meeting, she laid out all her plans for reform to the contractor, and at first she was met with a lot of nodding heads. Then, the contractor's Chief Engineer stood up and addressed his Vice President, "Boss, I've got to make sure that before you agree to this, you understand what she's saying. Because if you do, I don't think there's any way you'll agree to it."

That's when the room became extremely tense. "Right now," the same contractor continued, "if we change something, the government pays. She's telling you that from now on if we change something, we pay." From that moment on, it was clear that the contractors would not embrace any type of change. Judy felt the urge to laugh out loud; the attitude of those in the room was indicative of the same problems plaguing the industry.

Then, as a result of a merger with another company, the Vice President was replaced. The new leader was able to see the opportunities of Judy's reform plans, and together they transformed the mind-set and behavior of their teams.

Even though it may be difficult to convince others to "unlearn" old habits, the hardest thing can be to "unlearn" your own. In this issue of *ASK*, John DelFrate's article mentioned former AeroVironment Project Manager Ray Morgan and his struggle to overcome his tendency to micromanage. After managing a solar-powered flight project on which the young test pilot was nearly killed, Ray says he became "exactly the kind of boss that I said I would never be."

Staying on at AeroVironment, he was working what should have been "the ultimate job." And yet some days he felt so much stress on the drive to work that he almost threw up. He tried to control every aspect of his projects, working up to 100 hours a week himself, and killing the morale of everyone he worked with. He had to control everything; nothing happened without his approval. People who had been so grateful to come to work for him were burned out in two or three years. He knew he'd have to either quit or find a solution.

Around this time, Ray's wife saw a PBS special on Edward Deming, who had a revolutionary approach to management. He talked about incorporating "The Golden Rule" and the Scientific Method into your style. It was the first philosophy that really spoke to Ray, so he decided to take a night class at UCLA on the same topic.

He saw his professor's teaching style that utilized the brains of the classroom, and he began to reflect on how he could do this within his own projects. He began the difficult task of "letting go" and admits that at first it was terrifying. But by the time he joined the ERAST team to develop Pathfinder, he says, "I was not only a different man, but a better manager. I had finally begun to be a leader, and was leading my division in a transformation that enabled me to draw full value from all of the brains of my workforce."

Whether the concepts conveyed through these examples call for **learning** (that is, adding on new concepts), or for **unlearning** (that is, letting go of some old concepts), depends to a great extent on the set of beliefs that the particular project participant (or reader) has developed throughout his/her experience. One thing, however, is clear. Today, in our competitive and dynamic environment, everyone is expected to unlearn, and quite often. New ideas are breaking traditional molds and updating old axioms: "Live and *unlearn*." "Gone *and* forgotten." •