

# Preserving the Dinosaurs

or At Least Their Knowledge!

Steven Jones



Illustration by Jim Elmore

When I was studying Chemical Engineering at the University of Pennsylvania, I struggled with all the homework and lab work; not with the technical challenge but with the amount of time required to actually do the labor-intensive table look-ups for each trigonometric function used. And, it was taking away from my practice time on the soccer field. Penn's freshman soccer team was one of the best in the country, requiring extensive practice to stay on the team. So what did I do? I switched to the Wharton School of Business, which had a less time-consuming curriculum.

Seven years later, as a lieutenant junior grade in the Navy, I was at the Naval Post Graduate School (NPGS) working on a technical master's degree. I got that technical master's degree in 30 months—with a very high grade

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point average, I might add. How was that possible? Technology brought us the scientific calculator that streamlined the labor-intensive mathematical calculations, thus enabling real learning. Additionally, NPGS had a very low student-to-faculty ratio. One of my math classes had five students studying under a Ph.D. professor. This was a much different learning environment than having 200 students, like some of my chemistry classes at Penn. At NPGS, a professor could stop his lecture and make sure important concepts were understood. You never got stuck. If you never get stuck, you never get frustrated. Wow, what a positive learning environment.

After graduation from the NPGS, I became a naval Engineering Duty (ED) Officer. Then-CAPT George Meinig, the tech-

room. I recently taught a class at the Defense Acquisition University about technology transition. One of my students (a 20-something engineer) asked, "How do we get to gain the experience of the dinosaurs before they retire?" I thought that was a compliment because she was certainly not referring to me. DAU Mission Assistance (consulting) is available to help practitioners like this student was inquiring about. But that process has limitations. Could more domain specific tailored team training blended into the work place help in this knowledge/experience transfer?

The Department of Defense (DoD)-sponsored Systems Engineering Research Center (SERC) recently completed a study of our junior technical leaders' expectations (SERC-2013



nical director of the AEGIS Program, was assigned to be my qualifying officer. The ED community's approach to qualifying technical leaders was very much like what we hear about today in Coaching and Mentoring. However, this ED mentoring process goes well beyond what we typically read about in the literature. Meinig's approach to mentoring (like that of most ED Qualifying Officers) pushed the mentee (me in this case) by ensuring challenging technical experiences were part of my qualification plan. These experiences provided me with an opportunity to develop critical skills and acquire requisite domain knowledge. Meinig also wanted to make sure that qualified expertise was right there to help solve technical problems correctly. At a very junior level, I was leading a team tasked to solve program-stopping problems right alongside these technical experts. What a way to learn! In the midst of the Reagan build-up to the 600-ship Navy, I gained extensive and relevant "hands-on" experience that would serve me throughout my career.

Fast forward 30 years, after a fulfilling Naval career, 12 years at the Raytheon Company, and four years at DAU, I now look to see what process is in place to pass on my experiences to the next generation of technical leaders beyond the class-

TR-038-2, conducted under Research Topics 45 and 106). These junior engineers expect to move up into senior levels of management in the next five years. They don't have the patience to wait 20 years or so to get myriad experiences in complex engineering that their predecessors had gained before they were promoted.

Little did I realize that my 20-something student spoke for a large portion of our workforce. She had a very good point. DoD has always had a bathtub-shaped age demographic: lots of Dinosaurs and lots of Young Millennials. The differences between 30 years ago and today include the fact that we do not have a lot of new programs like we did in the 1980s for journeymen to gain experiences (not just time in a billet experience but lots of character-building experiences). Another difference is that much of the expertise we gained in the 1980s, such as mine, left government service and went to industry during the "Reinventing Government" exodus of the 1990s. Guess what? Many of Industry's senior experts have retired or moved on as well.

There is hope. On Nov. 15, 2014, Former Secretary of Defense Chuck Hagel signed out a Defense Innovation

Initiative memo that stated: "We must accelerate innovation throughout the Department. ...The 21st century requires us to integrate leadership development practices with emerging opportunities to rethink how we develop managers and leaders." DAU is piloting just such a Development Program for Key Leaders in the Missile Defense Agency (MDA) over the next 12 months.

Key Components of this Leadership Development program are Active Learning, Mentoring and Coaching. Dinosaurs like me will provide experiences in the form of real-world case studies. These case studies will provide the student with challenging DoD acquisition dilemmas. DAU "Dinosaurs" and MDA subject-matter experts will mentor these future Key Leaders as they exercise multiple competencies such as:

- Critical Thinking
- Effective Communications
- Structured Decision Making
- Leading Change

One component of this classroom mentoring will add the dimension of decisiveness. Given these additional experiences while applying best practices and lessons learned, leaders can act more decisively with justifiable confidence in the future. This pilot also will employ a team-coaching concept in the workplace. DAU plans to coach 24 students in their work environments, applying this newly gained experience to their programs. DAU is pushing the envelope of case-based experiences in this pilot. This pilot like the calculator in my classes at the NPGS opens the door to a faster transfer of experiences than can be realized by only on-the-job-training.

Finally, the students then will be responsible for applying that best practice and/or lesson learned (rules of thumb) into their current acquisition environments. These students will brief their leadership on the successes and challenges of these team projects—adding to the Library of Best Practices and Lessons Learned. Without some structured program to document the knowledge of our current "Dinosaurs," thousands of lessons learned, best practices and engineering rules of thumb are about to be lost forever.

A deliberate DoD Innovation Initiative to "Save the Dinosaur" is needed before DoD is forced to practice archeology. This article is an invitation to others in DoD to document lessons learned and best practices across the enterprise. There also is an urgent need to mentor these best practices and lessons learned to enable more rapid development of our future leaders. The complexity of our new systems today demand it.

We may not be able to save the Dinosaurs, but maybe we can preserve their "Rules of Thumb." 

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