



Effective Learning in Organizations

Broomfield, Colorado

April 5, 2011

The NASA Academy of Program/Project & Engineering Leadership, along with co-host MWH Global, brought together knowledge experts from NASA centers, industry, and academia for the Academy's fourth NASA Knowledge Forum in April. MWH hosted the event at their Learning Center in Broomfield, Colorado. In addition to NASA and MWH Global, representatives from organizations including CH2M Hill, Common Knowledge Associates, the Educational Testing Service, Encana Natural Gas, Greenes Consulting, International Program Management Association, McDermott Consulting, Orbital RPM Consulting, Revolution Advisors, Riverside Technologies, and Working Knowledge gathered to explore effective learning in organizations as well as to exchange stories, research, ideas, and experiences

Bob Uhler, chairman and CEO of MWH Global, welcomed the forum participants and provided an overview of MWH's efforts to align corporate strategy and knowledge. In the early 1990s, he said, "We were convinced that the world would globalize." MWH would become a global company but it didn't know how yet, and learning would be key to its progress. "It's [about] having the courage to keep making mistakes," said Uhler. "Everything we've ever done had five failures before we got a success."

In retrospect, Uhler explained that establishing a learning environment supported by a reliable, collaborative repository of knowledge has been central to the company's success. Using this system, MWH focuses on learning from its projects to enhance overall performance. "Our strategy has been about networking through education, an integrated workforce and globalization, trying to capture the repeatability of what we do, and combine that with an overall intellectual property database that's reusable," he said.

In the spirit of the philosophy that "the practitioner knows best," the group of participants shared stories and ideas about the challenges and successes of using knowledge in projects. As projects become more globally distributed, there is an increasing demand for organizations to enable their workforces to learn and transfer valuable knowledge effectively.

Defining Our Reality

"The most important thing," said Dr. Ed Hoffman, director of the NASA Academy, citing management thinker Noel Tichy, "is understanding the reality." A few years ago, Hoffman explained, he started looking at the reality facing organizations engaged in complex projects around the globe. Were there any patterns or recurring trends, challenges, or issues? For nearly four years, his organization has sought to track trends and identify patterns affecting project-based organizations. "It's our way to capture some of the things that have fundamentally changed the way we work."

One way to envision this is to focus on changes taking place on three levels: the world around us, organizational capability, and the way that we work. The world around us is complex and demands transparency, sustainability, and a new ways of innovation. Not only do people within an organization need to know what's going on, people outside of the organization expect to know what's going on. It's about accountability.

Organizations must be capable of managing portfolios and talent. As projects becoming increasingly virtual, globalized, and diverse, there is a growing demand for certified project managers to lead projects, explained Hoffman. Many organizations are developing in-house project academies to meet workforce development needs that are not addressed through traditional human resource approaches.

Hoffman identified [three major trends](#) that are driving the project world: transparency, frugal innovation, and smart networks. *Organizational transparency* manifests in the form of greater public visibility and participation in organizational processes, successes, and failures. *Frugal innovation* is about reusing and recycling things in unorthodox ways rather than inventing something newer and better. An aerospace example included the recent LCROSS mission, which looked for evidence of water on the moon. *Smart networks* enable diverse global teams to come together rapidly to solve difficult problems. The accompanying challenge is getting people who see things differently to work together.

Hoffman added that he recently saw a space enthusiast's [YouTube video](#) highlighting the “awesomeness” of the James Webb Space Telescope (JWST), despite the intense scrutiny the project has received for cost growth. Hoffman challenged the forum participants to find innovative ways to enable “increasingly awesome” projects like JWST to thrive in the current environment. “I want to live in a world that is increasingly awesome,” said Hoffman.

Juggling Knowledge and Learning Experience

“Mind your comfort zone because you’re about to be pushed out of it,” said Betsy Redfern, chief learning officer at MWH and leader of the morning forum activity. “It’s quite interesting to engage in effective learning, to make people think in different ways,” she said as she led the forum participants into an empty space where the group activity would take place.

“When was the last time you learned something brand new?” she asked. Answers ranged from that day, that week, that month, or within the past few months. “We are learners,” she said. “We learn new things all the time.” The challenge is to translate the context of global events and trends into teachable best practices, skills, and lessons to the workforce. Today, the forum participants would learn something new: juggling.



MWH Global Chief Learning Officer Betsy Redfern facilitates the discussion about effective learning after forum participants took part in a juggling exercise.

Since most individuals in the group were not expert jugglers, they had the opportunity to experience the problem of effective learning as they attempted to achieve the goal of juggling three balls. Several approaches were tried: group instructors led short, small-sided teaching sessions for groups, a collective group lesson led by one instructor with step-by-step instructions, and then self-teaching and practice. In the end, most everyone got it got the hang of it.

In a discussion facilitated by Redfern, group members said that the effective techniques for successfully learning this new skill included verbal and visual instruction, repetition and practice, an incremental approach, fun, and an understanding that failure was inevitable and permitted. The group agreed that while the learning experience may be different for everyone, the process is repeatable.

Staying Relevant

The field of knowledge management is not what it was ten years ago. A working session led by Kent Greenes, CEO of Greenes Consulting, raised this question: How are you staying relevant in the field? He engaged forum participants to share stories and reflections on this topic.

At NASA, staying relevant has meant adapting to multiple audiences, new and traditional. The Jet Propulsion Laboratory shared how they have had to adapt to the social media and collaborative tools used by the next generation of employees. “[We are] taking this technology that appeared very threatening, but because of the need to stay relevant, [we] are embracing it and using it effectively,” said David Oberhettinger, chair of the JPL Lessons Learned Committee. Hoffman shared that in the twenty years he has been running the NASA Academy, he learned that while the Academy’s direct customers are the project and engineering management communities across NASA’s centers, he had to understand the political and leadership landscape within the NASA organization. “To be relevant, I had to understand Headquarters,” said Hoffman.

Relevance also means acknowledging the global environment, said Nancy Dixon, founder and principal researcher of Common Knowledge Associates. Her recent experience in launching her own blog taught her the surprising rate at which information can spread anywhere. “No longer is Australia on the other side of the world,” she said.

Larry Prusak, editor-in-chief of *ASK Magazine*, used the example of the recent financial crisis to illustrate the importance of looking beyond the technical skill of acquiring and sharing knowledge. The amount of knowledge and expertise housed within the financial workforce is tremendous, he explained, and yet their recklessness nearly brought down the global economy, with little in the way of consequences for their actions. These events have forced him to reevaluate knowledge management. “What’s the value of knowledge divorced from judgment, wisdom, and values?” he asked.



The MWH Global Learning Center is designed to encourage collaboration, unleash creativity, and inspire innovative discussion.

Learning for Knowledge Effectiveness

Larry Prusak and Don Cohen, managing editor of *ASK Magazine*, hosted a panel on learning for knowledge effectiveness with Richard McDermott, McDermott Consulting; Joe Horvath, Millenium: The Takeda Oncology Company; and Nancy Dixon, Common Knowledge Associates. Gaining a deeper understanding of how effective learning takes place within organizations is perhaps more challenging than other areas of knowledge management. Employees are overwhelmed with information, a portion of which they will read, a portion of which they will understand, and a portion of which they will act on.

Horvath shared a story about a woman who contacted him regarding updating her information in their learning management system. Horvath sent her instructions and found it odd that she was unaware of how to do this. Perhaps she hadn’t taken the training, Horvath thought, but upon further investigation, he found that she had taken the training rather recently. “It was telling about our assumptions of putting information in front of people and assuming they absorbed it,” said Horvath. “I think we still underestimate how likely our messages are to be filtered out.”

“I think the tools we have for managing knowledge are far more sophisticated than our skill for using them,” said McDermott. “If anyone is going to figure out how to cope with it, it’s us.” Dixon agreed. “We have great practices, but I don’t think we have an overarching theory about knowledge and what sorts of practices are useful for different types of knowledge,” she said.

The forum participants engaged panelists in a conversation about these issues. Communities that work are the ones that have a passionate leader or community manager behind them, the group agreed. Successful communities don't just self-organize and evolve. "You get great results from coordinated leadership," said Prusak.

Another challenge is what Prusak termed "the erosion of cognitive authority," which leads to a need to distinguish between canonical or authoritative knowledge and collaborative knowledge that arises from the global community and requires vetting. "How do we maintain truth maintenance?" Horvath asked. The forum participants agreed that efforts to train organizations to be better at evaluating the quality and sources of knowledge are important.

Often, it is difficult to see organizational learning as it happens; technical learning seems more common. "The tendency of human beings doesn't change," said Hoffman. He pointed out that this may be due to the complexity involved in understanding human behavior versus technical knowledge. Redfern added that it may seem organizations aren't learning because the landscape of learning is expanding all the time. "It's a perspective thing," she said.

The Four A's

Beginning in 2007, the NASA Academy asked over 275 practitioners, "How did you become effective at what you do?" The responses, collected in group activities over several Academy Masters Forums, led to the identification of four factors that shape personal effectiveness: ability, attitude, assignments, and alliances. Matt Kohut, communications lead for the NASA Academy, asked attendees to consider the following questions with respect to these "Four A's."

- 1) What are the critical aspects of each A in the organization?
- 2) Are there hidden or less obvious dimensions of each?
- 3) What strategies is your organization using now for development of each?

(Share your insights, stories, thoughts, on the [NASA Academy of Program/Project and Engineering Leadership Facebook Page](#). Join the discussion.)



Participant Discussion and Summary

- What are the critical aspects of each A in the organization?
- Are there hidden or less obvious dimensions of each A?
- What strategies are your organization using now for development of this A?

<p>A balance between being technically brilliant and right, versus being effective.</p> <p>Recognizing patterns</p> <p>Abilities are both innate and learned."</p> <p>Ability</p> <p>Have to be able to communicate ability to others</p> <p>Understanding whether you are a source or a receiver of learning content; understanding the preferences of that audience</p>	<p>Assignments viewed as early tests</p> <p>Feedback loop: ability, attitude, and alliances help you get better assignments</p> <p>Not everyone has the ability to advertise their skills.</p> <p>Assignments</p> <p>Sometimes people get pigeon-holed or monopolized by projects</p> <p>Intentional rotations build cross-functionality</p> <p>Groom people, but don't tell them they are being groomed. The right people figure it out.</p>
<p>Willingness to collaborate</p> <p>Intellectual curiosity</p> <p>Changing attitude in response to changing project landscape</p> <p>Attitude</p> <p>Attitude is demonstrative and can be contagious</p> <p>Accountability for yourself and others</p> <p>Being able to experiment; modeling of others to show that attitude is something you have to be able to see</p> <p>Cultural sensitivity</p>	<p>Break barriers across regions and cultures; not always about peer-to-peer</p> <p>Alliances</p> <p>People learn who they can go to pretty fast.</p> <p>People development decreases transactional costs</p> <p>Trust. Depend heavily on establishing personal relationships</p> <p>Establish mentoring/shadowing programs to foster alliances.</p>

Group Activity Challenges

Garry Sanderson, chief of Global Strategy at MWH Global, posed four questions to the Knowledge Forum audience. The questions, he explained, are representative of four common challenges facing the knowledge management community. The forum participants divided into small groups and wrote down potential solutions to the challenges Sanderson posed:

1) How do we make learning, knowledge transfer, and innovation part of everyday business activity?

- Create the conditions where good ideas can be brought to the surface.
- Get senior leader buy-in and demonstrate its value.
- Incorporate creativity through diverse thinking and diverse forums (e.g., unconferences), incentivize by making it part of an employee's performance plan, and reinforce success through stories.
- Embed these processes into existing processes.

2) How do we accelerate the capture and reuse of repeatable processes and solutions?

- Prioritization and buy-in to get input on the values of the process.
- Have someone allocate the appropriate resources and focus on it (instead of letting it be an afterthought).
- Consider substituting "sustainability" in for the word "reuse."
- Adapt processes instead of adopting new ones.
- Establish a repository for reuse candidates.
- Determine an active champion or broker who is trusted or credible and incentivize it.

3) How do we find adequate time, resources, and sponsorship to capture and share knowledge?

- Visible leadership support; knowledge management has to matter.
- Create a business case and show the value of the knowledge efforts.
- People have to feel like they're creating the solution that's going to work best for them.
- Leverage existing resources, eliminate replication, and build upon what is efficient and effective.
- Share the value through stories.

4) How do we create the right culture and level of trust for improved knowledge sharing?

- Leadership models the behavior of knowledge sharing in addition to "bottom-up" efforts.
- Storytelling.
- Visible recognition: peer-awards, community management, newsletters, and blogs.
- Align culture with organizational strategy and strategic goals.
- Focus on hiring people who will fit and enrich the culture.
- Identify champions of change; use network analysis to suggest actions and see who is participating.

Sanderson charged each participant to begin addressing these four challenges using some of the solutions the groups generated. The group agreed that all changes are not equally easy to implement. Some solutions may not work, while others will. Some solutions may be implemented by an individual, while others may be too far outside their realm of influence. Participants were encouraged to use the day's discussions in conjunction with stories of success or failure and share them. Through this sharing process, the group agreed, learning organizations can effectively develop strategies to disseminate and apply knowledge throughout their workforces.

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