

## Identifying opportunities for continued growth

*Speakers:* Ms. Connie J. Murphy, The Dow Chemical Company  
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The majority of the Equipping the 2015 Chemical Technology Workforce Presidential Event has focused on how members of the chemical enterprise can collaborate on the education and career development of chemical technicians. What has been underappreciated is the impact that education and career development of technicians has on the rest of the chemical enterprise. By focusing on collaboration and communication, the entire enterprise can benefit from the contributions of chemical technicians

### ***Benefits of career development...to the chemical enterprise***

Connie J. Murphy started her career as a technician at the Dow Chemical Company, and for fifteen years, that was all she was, professionally speaking. She did her job and slowly progressed through the technician ranks.

About five years ago, Murphy started getting truly involved. She helped develop professional networks and new career ladders for technicians at Dow. She helped found the ACS Midland (MI) Technician Affiliate Group and started filling leadership positions in the Division of Chemical Technicians. She joined the advisory board for the Delta College chemical technology program.

Murphy's volunteer work made her visible. Other technicians started asking to go to ACS National Meetings; Murphy was invited to meet with one of the vice presidents at Dow to explain why technicians should go. Her mentoring and leadership earned her a promotion to supervisor, then manager. Although she had not had any formal education beyond her associate's degree, she now successfully manages a team of people with Bachelor's degrees.

While Murphy's volunteer work certainly benefited her own career, it also had a positive impact on those around her. Her fellow technicians benefited from her leadership and mentoring and now have leadership opportunities of their own. Dow benefits from having technicians with a broader range of skills; Dow also has a highly-qualified manager. ACS benefits from having a local section group that actively supports chemical professionals, which is part of the ACS mission. Delta College benefits from her input and support.

If career development opportunities are so beneficial to the chemical enterprise, why is it so difficult to find and use them?

### ***“What we have here is a failure to communicate.”***

The contributions, benefits, and needs of technicians need to be communicated to the rest of the enterprise, just as the rest of the enterprise needs to communicate its own contributions, benefits, and needs.

Communication is a large part of the debate about whether to hire technicians with associate's or Bachelor's degrees. Supervisors are finding that graduates of Bachelor-degree programs other than chemistry or chemical technology have very little laboratory experience; many new hires have to return to school to gain experience. Moreover,

graduates of associate-level chemical technology programs are often better prepared for a specific industry environment than a graduate of any chemistry program.

The benefits of chemical technology programs have to be communicated to technician supervisors. Supervisors, in turn, need to communicate the benefits of such programs to managers and human resource departments, who often insist on Bachelor's degrees for technicians.

Communication between associate's degree programs and Bachelor's degree programs needs to be improved, as well. Students in a well-designed associate-level chemical technology program learn as much and, in some cases, more chemistry than students in an associate-level chemistry program. However, it is harder for a chemical technology program to enter into a matriculation agreement with Bachelor's level program.

The value and rigor of associate-level chemical technology programs needs to be communicated to the rest of the academic community. A student turned on to the transforming power of chemistry by a chemical technology program should be able to continue into a Bachelor-level program. Additionally, if industry is going to continue its emphasis on Bachelor's degrees, many incumbent technicians are going to need to go back to school. Being able to transfer their existing education would be a boon to such technicians.

The value of chemistry also needs to be communicated to the community at large. People often hear "chemistry" and think "hard" or "irrelevant." They hear "chemical" and think "dangerous" or "unnatural." It is no wonder that students do not want to study chemistry or that employers think it is not a part of their business.

The fact is that many of the trendy emergent fields, like biotechnology, nanotechnology, and fuel cells take place at the interface between chemistry and other fields, like biology, materials science, and energy science. The application of chemistry to these fields needs to be communicated, as does the importance of employees with chemistry in their educations. As long as a field involves the manipulation of matter, chemistry will be relevant and worth the effort of study.

### ***Collaboration, communication, cooperation***

Clearly, communication among technicians, industry, academia, professional societies, and the community needs to be stronger. With strong communication will come increased cooperation. With cooperation will come the collaboration needed for the education and career development of technicians. Whether in the form of individual partnerships or formal alliances, the entire chemical enterprise will benefit from the contributions of technicians.

***Follow-up activities***

- Host a panel discussion with industry representatives describing their technician needs and academia representatives describing their program outputs.
- Collect career outlines of technicians; post success stories on the Web.
- Create a “Chemistry & You” day at a local school to show students how chemistry ties into future jobs.
- Have a panel discussion among representatives from biotechnology, nanotechnology, and fuel cell industries to demonstrate the interface between chemistry and other fields.