

ACS Presidential Election

Chemistry in a Global Economy—An Education Agenda

by Joseph S. Francisco

Societal and financial needs are pushing U.S. chemical enterprises to go global. As a result, the skill sets sought by companies are changing. Recruits that have experiences that allow them to work across different cultures have a distinct advantage. Recruits with international experience are being snapped up at a fast rate. The bottom line, *global skills are important in getting the job, keeping the job, and getting ahead in the job.*

The American Chemical Society must take a strong leadership role in influencing the direction of chemical and science education to ensure that our current and future generations of chemists have skill sets that will make them competitive in the global work place. The President of the ACS has the duty and responsibility to start the dialogue with the community and educators, engaging the ACS Education Division and Society Committee on Education (SOCED), regarding the educational experience from K–12 through the graduate programs and answer the following question. What can we do to better prepare our youth for competition in the global marketplace?

K–12 Education

Training the future workforce for the chemical enterprise starts with a foundation of science and mathematics training during the K–12 educational years. As our schools work to improve K–12 education in science and mathematics, it is important that we do not ignore the development of their international knowledge and skills as well. We can begin by increasing their awareness, sensitivity, and understanding of global issues. The goal of ACS should be to expose future chemists not only to the fun and interesting facets of the chemical profession, but also find creative and innovative ways to integrate an international dimension into teaching and service education. The ACS strategic plan is developing new partnerships with societies in other countries; one focus of the partnership should develop teacher exchanges to give teachers an international perspective that will influence their teaching. These partnerships should foster collaborative curriculum development. Bringing teachers together from across the globe at joint international teacher's professional development workshops in locations with our partnering society or at the ACS National meetings can promote further collaboration efforts.

It is important that we explore the uses of technology to bring classrooms together. I would like ACS to pioneer direct teleconferences between chemistry classrooms in the U.S. and classrooms in Europe or Asia. Students will experience how other children are taught in classrooms in other countries without displacement and teachers will see and work directly with their counterparts.

Undergraduate Education—Reinventing Ourselves

The Committee of Professional Training has taken a remarkable and exciting step to give our colleges and universities an opportunity to redesign their undergraduate curriculum to meet the programmatic needs determined by chemistry depart-

ments. Departments now have the opportunity to consider new curriculum directions that can better prepare students for the new challenges in the chemical enterprise. Now is the time for ACS to bring together the leaders and recruiters of global chemical businesses and ask them what training and skills students need to be successful in their companies. This dialogue is important in providing guidance and direction to chemistry departments who seek to provide new curriculum to better serve and prepare their students.



photo by Purdue University

Joseph S. Francisco

Graduate Education and Research

The solution to a number of global issues such as clean water, environmental degradation, global climate change requires applying chemical knowledge across multiple disciplines from biology to physics to business. Moreover, these challenges will require skilled scientists working together with other scientists on an international basis. With the globalization of industries, there is a demand for a more internationally oriented work force with an increasing number of jobs linked to international trade. Educating today's chemists to live in tomorrow's world requires greater independent knowledge, skills, and global competence. As one of my Presidential goals, I would like to encourage collaborations and exchange of U.S. talent with companies abroad, universities, and government agencies. This will give our students coming from our graduate programs a competitive edge in the global marketplace.

In Closing

My daughter, who turned 14, told me that she wanted to be a chemist. I tried to imagine what the world would look like 10 years from now for her. As a parent how would I advise and help her prepare to meet the challenges for the global workplace that is the future? As a teacher, I realized that preparing our students to be citizens in a free society, we must prepare them to live as citizens in a global society. Please visit <http://web.ics.purdue.edu/~francisc/> (accessed Jul 2008).

Supporting JCE Online Material

<http://www.jce.divched.org/Journal/Issues/2008/Oct/absXXX.html>

Abstract and keywords

Full text (PDF) with links to cited URLs

Joseph S. Francisco is the William E. Moore Distinguished Professor of Chemistry and Earth and Atmospheric Science at Purdue University, West Lafayette, IN 47907; francisc@purdue.edu.