NCW 2007: The Many Faces of Chemistry

A Local Section's Attempt To Recruit "The Many Faces of Chemistry"

by A. M. R. P. Bopegedera

Who are the many faces of chemistry? Where do they work? Are they active members of the ACS? Perhaps even more importantly, where do we find the next generation of the many faces of chemistry? How do we recruit them and engage them to be active in the chemistry community?

My pledge, when I was nominated as chair-elect of the Puget Sound Section of the ACS, was to address these questions by paying special attention to engaging "the future faces of chemistry", namely current undergraduate students in our section. During my tenure as chair-elect, chair, and past chair from 2004–2006, we tried some new strategies to attract the interest of these students. Up until then the annual "Undergraduate Research Symposium", where students presented the results of their research projects, was the only Local Section activity designated for undergraduates. The new strategies included highlighting the accomplishments of the "chemistry/science clubs" of our colleges in the Section's monthly publication (The Puget Sound Chemist), creating a Local Section Student Affiliate Membership at a cost of $1 for undergraduates, providing funds for chemistry clubs to become Student Affiliate Chapters of the ACS, financially supporting the outreach efforts of chemistry clubs to participate in National Chemistry Week events, and hosting a "Career Event". In my view the Career Event was the most significant contribution we made towards engaging the next generation of chemists. Drawing from my personal experience of hosting a Career Week for juniors and seniors at my own institution *(1),* I planned a Local Section Career Event for undergraduates for the first time in 2004 and annually since then. This year's National Chemistry Week theme "The Many Faces of Chemistry" gives me the opportunity to reflect on the success of Career Event in making connections between the past, present, and future faces of chemistry.

The main goal of the Career Event is to educate undergraduate chemistry majors about their career options. Although the emphasis was on chemistry, due to its broad applicability, we encouraged students from all science disciplines to attend. When possible we included 50-year members of the ACS residing in our section in the activities to provide opportunities for the future generation to learn from the past generation. We invited chemists from academia to present talks on graduate education. We encouraged all participants to become ACS members, create a network of chemists by getting to know each other, and get involved in local section activities.

Career Event was staffed entirely by volunteers. On average about 35 students and 20 volunteers were involved in each event. While many of the volunteers were ACS members, there were a fair number of non-members. To minimize volunteers' time away from work and to minimize undergraduate students' time away from the classroom, Career Event was limited to one afternoon (from 1 to 5 p.m.). A typical schedule is given in Table 1.

Keynote Address

The purpose of the keynote address was not to overwhelm students with research opportunities at a given graduate school but to help them understand the many considerations they must take into account when selecting a graduate school that is right for them. Topics covered in the keynote address included

- finding information about graduate schools *(2)* including the ACS Directory of Graduate Research *(3)*
- identifying Web sites with listings of graduate programs *(4)* including those recommended by the American Chemical Society *(5)*
- mastering the application process for graduate admissions including writing letters of intent
- preparing for the Graduate Record Examinations *(6)*
- obtaining transcripts and letters of recommendation
- preparing for site visits to graduate schools of interest *(7)* including important considerations in selecting a thesis advisor
- financing graduate education through teaching and research assistantships (many students learned for the first time that chemistry departments provide tuition waivers and stipends for graduate students)
- learning what to expect during the first year of graduate school (such as placement exams, cumulative exams, course work, teaching, and research).

For the benefit of those who were not seniors, emphasis was made on the importance of engaging in research projects over summer months such as the Research Experience for Undergraduates programs funded by the National Science Foundation *(8).* Students were introduced to the ACS job site *(9)* and encouraged to ask the speakers questions.

Tour of Lab Facilities

We were fortunate to be able to host Career Events at state government laboratories that employ scientists from a broad spectrum of fields with different educational and training backgrounds. This provided an excellent opportunity to showcase the many faces of science to the next generation of scientists. A tour of laboratory facilities provided a first-hand glimpse of the wide range of sciences conducted in these laboratories on a daily basis, the state-of-the-art facilities and instrumentation, and the education/training of the personnel. This was also an opportunity for the hosting institution to showcase their work and attract future employees. Students were divided into small groups for lab tours to provide closer interactions, opportunities to ask questions, and engage in conversations with lab personnel about their work, education, and training.

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Table 1. A Typical Schedule for Career Event (1–5 p.m.)

Time	Event
1:00–1:10	Welcome! by the ACS Executive Committee
1:10–2:00	Keynote address on "Selecting the 'Right' Graduate School for You" by a chemist from a graduate school
2:00–3:30	Tour of lab facilities of the hosting institution and interacting with the "many faces of chemistry" in the laboratory
3:30–4:00	Social time for Chemistry Club interactions (with cookies and juice)
4:00–4:45	Panel discussion on Careers in Chemistry
4:45–5:00	Raffle drawing
5:00	Concluding remarks, ACS Executive Committee

photo by A. M. R. P. Bopegedera

A stop on the tour of the W. R. Giedt Public Health Laboratories during Career Event 2007.

Panel Discussions

A panel was carefully selected to represent "the many faces of chemistry". A science teacher from a local high school was almost always included in the panel. Other panelists included chemistry professors and chemists from state, federal, and commercial labs. Fifty-year members of the ACS were often included and their stories and variety of experiences fascinated the audience. Students were also impressed by the active and interesting lives led by these chemists even after retirement. Each panelist gave a short oral presentation of his or her education, training, and career experiences. Students often posed questions to the panelists on the success of their careers, their satisfaction with their career choices, the challenges faced by women chemists and possible changes over time, reasons for changing careers, and reasons panelists were attracted to their career choices. The Panel Discussion was one of the most popular activities of the Career Event for all participants.

Social Time

Providing an opportunity for participants to network was an essential part of the Career Event. Acknowledging that the students were with their future colleagues, we reminded them of the value of networking and provided them the opportunity to talk freely with each other and the presenters over cookies and juice. We also used this time to allow chemistry/science clubs from different campuses to share their most successful outreach efforts as well as fund raising and fun raising activities.

Raffle Drawing

We were successful in procuring a generous number of molecular model kits from textbook publishers to raffle off at each Career Event. The Puget Sound Local Section of the ACS allocated funds from its annual budget to purchase copies of the *Merck Index* and the *CRC Handbook of Chemistry and Physics* for raffle prizes. About two-thirds of the undergraduates returned home with a useful item from the raffle.

Some Unexpected Rewards

Although Career Event was conducted primarily for the benefit of undergraduate students, it provided unexpected rewards for others as well. The members of the Executive Committee of the Puget Sound Section, who are primarily from academia, made closer contacts with chemists from government and industrial labs. This resulted in increased participation of these chemists in our Local Section activities. Faculty members who brought their students to Career Events left with a better appreciation for what is expected of their students upon graduation if they are to be successful in finding jobs in public laboratories. They also learned about possible internship and volunteer opportunities for their students at state government laboratories. We recruited our current Chair Elect of the Puget Sound section at one of the Career Events. Research collaborations between chemists from academia and state government labs also resulted from these events. Although we did not encourage exchanges of resumes, some students made connections for future jobs, summer internships, and graduate school admissions. During our first Career Event the Puget Sound Section presented the W. R. Giedt Public Health Laboratories of the Washington State Department of Health with a "Salute to Excellence" award in recognition of their "unique and innovative approaches in the field of public health and commitment to promote the health and wellness of the citizens of the State of Washington." We were also delighted that several students who participated in Career Event chose to write "thank you" notes to our Local Section in appreciation of what they learned at these events.

Venue Selections

We have hosted all our Career Events in public laboratories in Washington State (the W. R. Giedt Public Health Labora-

tories and the Department of Ecology and EPA Laboratories) because these laboratories employ a wide range of scientists (not just chemists) with different educational and training backgrounds. The fact that the employee population represented gender and ethnic diversity was also an important consideration in our selection. Although we have attempted to host Career Event at commercial labs and ACS members in these labs were very supportive of our efforts, this is difficult because of current safety regulations at these commercial labs that prevent the presence of large groups of visitors.

Broader Applicability

Although we planned Career Event to serve the needs of undergraduates, it can be easily re-designed to meet the needs of high school students. Such an event can be conducted at a local university since universities are eager to welcome high school students. A panel discussion at such an event could include panelists from a variety of vocations, including those without college degrees. If the intention is to encourage students to pursue careers in the sciences, many colleges (and certainly many chemistry departments) are willing to host a "Science Day" or a "Science Carnival" for the benefit of high school students *(10)*.

Although students tend to think more about careers when they get closer to graduation, Career Event is more beneficial when students participate in it earlier in their undergraduate career. This gives them the opportunity to learn about career options when the stakes are not high, and they can return to Career Event in a later year (as some students have chosen to do) for an enriched experience.

Acknowledgements

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