Assessment Spotlight: Chemistry

Historically, the Chemistry Discipline has maintained a record of graduate school placements, collaborative student-faculty publications in refereed journals, and student-faculty presentations at national and regional conferences as indicators of program effectiveness. Both lists are impressive. During Summer, 2001, Chemistry revised its assessment plan to include learning outcomes assessment. The Chemistry Discipline identified intended learning outcomes in six general areas (Continued on Page 2)

The National Assessment Institute

Dr. Eliot Elfner, Social Science Division Chair

In the 25 years I have been attending and presenting assessment workshops, conferences, and consulting visits I have never found the time to attend the annual IUPUI Assessment Conference. Thanks to the OIE I was able to finally attend. Many of the big names in assessment were there including Peter Ewell, George Kuh, Tom Angelo, Jeff Seybert, and, of course, the conference host Trudy Banta.

The conference was organized around daily plenary sessions with the above panelists and subsequent individual presentations by each of them, with concurrent sessions of presentations by others involved with various assessment issues. The plenary panel members were as strong in their presentations as expected, both in their group panels and in their individual sessions. The concurrent session presenters ranged from interesting and valuable to atrocious (the latter represented by presenters from ETS who seemed to be saying the ETS was not interested in supporting the Academic Profile even though they felt we should be using it for our general education assessment).

For the Plenary sessions, I focused on sessions presented (Continued on Page 2)
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(fundamental knowledge, laboratory skills, computer skills, information skills, presentation skills, writing skills) and devised a data collection strategy based on imbedded assessments and curriculum audit using the American Chemical Society Standards.

Chemistry initiated its newest data collection effort by embedding 25 multiple choice questions from a national standardized exam in the final exam for each section of Ch 107. This allowed the discipline to draw conclusions about their majors base knowledge of important chemical concepts and to compare SNC students’ proficiency with chemistry students at other colleges and universities.

For the 25 assessment questions, the SNC students were consistent with the national sample for 6 of the questions. A higher percentage of SNC students answered 11 of the questions correctly and a lower percentage answered 8 questions correctly as compared to the national sample. The largest positive deviation from the national mean was 11%. The largest negative deviation from the national mean was 30%. SNC students performed well above the national mean (>10%) on their understanding of concepts such as catalysts, oxidation numbers, and buffer regions of titrations. However, the assessment data indicates that two concepts (orbital energies and amphiprotic compounds) may need additional reinforcement. The use of computer animations to explain the “Rutherford Au Foil Experiment” appears to have resulted in SNC students scoring 20% higher than the national sample on items related to this experiment.

The Chemistry Discipline will continue to collect data assessing majors’ fundamental knowledge each semester. Chemistry will also begin to assess student learning related to laboratory skills, computer skills, information skills, presentation skills, and writing skills through targeted data collection in select intermediate and advanced courses.

Note: This summary was abstracted from the Chemistry Discipline Report submitted in the Summer 2002. The OIE wishes to acknowledge the efforts of Dr. Matthew Johl and his colleagues in the Chemistry Department.

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by Ewell and Angelo, both of whom have regularly provided keen insight into the macro-development issues surrounding the assessment of student learning. Again, their comments led us to a deeper understanding of the purposes for, and the ways in which to accomplish the important duty of assessing student learning. Handouts from each presenter were helpful in focusing their presentations and providing the audience with material to take home and use on our own campuses.

The concurrent session I was most interested in was one aimed at developing rubrics to assess student learning. It was presented as a process for a large number of attendees to experience the necessary steps in developing rubrics. Unfortunately, it did not present any of the background information about the types and value of rubrics, even though we know that the assessment movement, especially for more subjective learning outcomes, is relying more and more on rubrics as a means of gathering evidence about student learning. It also bogged down when the audience participants began arguing about the semantic issues regarding the focus of the rubric – oral presentations. The presenters did provide a nice set of handouts to help new participants in approaching the rubric development process. But most of the knowledge about rubric development was contained in the handouts, not through the session.

This is a good conference for those who are first becoming involved in the assessment process. It provides stimulating sessions by respected keynoters and a number of more practical approaches to assessment, some of which are valuable and interesting. Attendees can benefit by gathering information from interesting sessions and sharing what they learned with colleagues when they return to their home campuses.

Note: In the last two years, the OIE has sent six SNC faculty to the National Assessment Institute in Indianapolis. If you would like to attend in 2003 (November 2-4), please let us know.
A Funny Thing Happened on the Way to Salt Lake
By Dr. Tom Connor

On November 22-24, Dr. Tom Connor and Ikuko Torimoto attended the annual meeting of the ACTFL (American Council on the Teaching of Foreign Languages) in Salt Lake City. The ACTFL is the nation's second largest association for foreign language educators and is at the cutting edge of foreign language methodology, pedagogy, and assessment. Although our discipline of Modern Foreign Languages started addressing assessment years ago and has made substantial progress toward implementing assessment of our majors, we still have some philosophical and, especially, practical questions about it (you know the kind, I suspect, "whowhatwhyhowwhen?"). We still are hoping to find that ultimate assessment tool that will help us do the job with a minimum of pain for all parties involved and ease our conscience by reassuring us that our hesitant efforts are effective and in keeping with national standards.

We had identified a total of 32 sessions on assessment (out of a total of 450 on everything from the use of stained glass windows for teaching medieval civilization to the incorporation of technology in the classroom). We managed to attend the half dozen or so sessions that were our top selections (crashing a few of the others to secure those precious handouts that give their cachet to the ACTFL conference), and we felt that we learned something. If there was a particular presentation that stood out, it would have to be the one on a four-skills assessment test developed by the State of Oregon, STAMP (Standards-based Measurement of Proficiency). This assessment tool tests students' mastery of the four language skills (listening, speaking, reading, writing), and relies on the ACTFL's own guidelines for language proficiency. We had the opportunity to see a hands-on-demonstration of an actual test and came away thinking that this was the sort of thing we could use to measure students' abilities in an objective manner. STAMP would give us a clear indication of student's skills using nationally recognized standards.

Overall, we were struck by the awesome possibilities offered by assessment, which can empower us not only to develop our own program but also to hold our students to the strictest of standards. I guess it suddenly dawned on us that the specifics of assessment are not written in stone; rather, it is up to us to set our own standards and then monitor how well our students live up to our expectations.

We intend to make assessment a positive learning experience and look forward to continuing our discovery of its potential to enhance our program. Lastly, we would like to thank the Office of Institutional Effectiveness for supporting our trip. Merci, Arigato.
Apply now for Summer Assessment Mini-Grants

Mini-grants of approximately $3,000 are available. Funds may support any of the following assessment activities:

- Carrying out one or more elements of an academic discipline or student life program assessment plan
- Data analysis or report writing
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- Acquiring, administering, or scoring assessment instruments
- Enhancing expertise regarding student outcomes assessment

A copy of the “Request for Funds to Support Assessment Activities” is available on the OIE website: www.snc.edu/oie or by contacting Pat Wery (x3855) in the Office of Institutional Effectiveness.