

## WHAT WORKS - PKAL LESSONS LEARNED

# KECK/PKAL CONSULTATION REPORTS

*PKAL facilitates Keck consultancies in which institutions request experts be sent to an institution to analyze specific reform issues. Requests range from new program development, to curricular reform efforts, to constructing new STEM facilities. Over 175 institutions around the country have received a KECK/PKAL consultancy. Here are reports from two KECK/PKAL visits.*

**BACKGROUND: INSTITUTION #1.** This Midwestern institution has a relatively young faculty, given retirements and an expanding program. It has an unusually clear and well-articulated sense of mission and a sound strategic sense. They asked the consultants to address was how faculty could do more— engage in more interdisciplinary interactions, involve students in undergraduate research, serve the needs of the growing minority student population— given current constraints and expectations.

### Recommendations

#### Create an office of sponsored programs to support a research-active faculty

The most important step that the college could take to further its plans to maintain a strong science program is to create an office of sponsored programs.

The need for such an office exists at two levels. First, faculty members need support for their individual research careers and for their curriculum development initiatives; they also need instrumentation to serve those research and teaching activities. By meeting those needs, the college will strengthen its ability to attract and retain a faculty that offers a high quality education for its students.

Second, a number of the institution-wide plans that are being developed could be underwritten by public or private agencies, sometimes partially, sometimes completely. We met several faculty members with the skill and knowledge that successful grantsmanship requires, but at this time no one has the time, resources or authority at the institutional level to be effective.

What does an office of sponsored programs do?

It identifies potential sources of support for individual and institutional projects and maintains an up-to-date library of grant opportunities. This office coordinates proposal development, assists novice proposal writers with the shape and essence of a competitive proposal, takes responsibility for developing budgets, secures institutional sign-offs, arranges for matching funds and etc. It should be the repository for all institutional activity relating to the search for support for science programs (and others too, of course).

Our experience indicates that campuses most successful in bringing new ideas and approaches into the learning environment are those that take the search for external support seriously. This success goes beyond the potential gifts ►

### KECK CONSULTANCIES

With support from the W. M. Keck Foundation since 1994, PKAL has provided consulting teams of senior faculty and administrators to institutions requesting assistance in continuing reforms begun at a PKAL-sponsored workshop. For reforms in undergraduate science and mathematics to take root and become institutionalized, external advice and counsel is needed at critical stages. Reports, phone calls and letters received from faculty and presidents of Keck institutions speak of critical forward steps aided by the advice of the Keck/PKAL Consultants.

## KECK/PKAL CONSULTATION REPORTS

and grants that arrive and reflects the fact that faculty have thought seriously about their professional goals, about a schedule, and are worth an investment of resources.

Additionally, the peer review process is another valuable part of the exercise. Faculty members establish themselves in their professional communities, and avoid the professional isolation that is a danger.

### Use the office to support institutional initiatives

With regard to institutional proposals (e.g. proposals for new and renovated facilities or for student research), the office of sponsored programs prepares the proposal, working closely with appropriate faculty and administrative colleagues.

We recommend that such an office be clearly within the academic administration rather than the development office; however, the office activities need to be closely coordinated with development activities.

The sponsored programs office should be clearly defined as having an academic support role, rather than a more general fund-raising role. Given this, the staff responsible for the office should have a strong background in teaching and research, as well as in writing.

#### SEE ALSO:

"Getting Support and Budget for Your Great Idea."

Peter A. Facione

[http://www.pkal.org/template2.cfm?c\\_id=1484](http://www.pkal.org/template2.cfm?c_id=1484)

#### BACKGROUND ON

**SCHOOL #2.** The chemistry department at this liberal arts college in the southwest has been recognized for its continual pursuit of excellence. However, the department wants to increase the visibility of and enrollment in the department. Several steps were identified that will contribute to and add to the success of the department.

### Recommendations

#### Analyze the relationship between curriculum, advising and student perception of the science program

Currently, the number of chemistry majors is falling, but steps can be taken to increase the number of chemistry majors. Student advising, beginning as early as the first semester, affects the course enrollment in every department.

Pre-medical and incoming students interested in science should be encouraged to take general chemistry during their first semester.

Given the current structure of the chemistry (and biochemistry) major, it appears to be difficult for a student who does not enroll in general chemistry in the first semester to complete either major in four years. Therefore, undecided students should be encouraged to keep their options open by enrolling in general chemistry.

Further, there should be a coordinated advising effort involving the biology and chemistry departments to encourage students to take those

courses that do not limit their future options.

A thorough exit interview or survey of graduating chemistry, biochemistry and biology majors and minors conducted by someone outside of the departments will provide information on student perception of and experience in the current science program. Advising techniques should be evaluated by the students to ensure effective instruction. Curriculum roadblocks that preclude students from choosing chemistry could also be identified.

#### Institutional support for undergraduate research must be demonstrated in tangible ways

The college must demonstrate support for undergraduate chemistry research in tangible ways. This support should be visible to faculty and students and outside funding agencies.

Support can take a number of forms, such as factoring the supervision of undergraduate research students during the academic year into teaching load determination. In some instances, room and board can be provided to summer research students free of charge, or at a greatly reduced rate.

Or, a procedure for providing matching funds for any outside grants which sponsor undergraduate research may be established. Providing extra money for supplies utilized in summer research activities is another alternative. Such support could be provided to any science department involved in undergraduate research.

## KECK/PKAL CONSULTATION REPORTS

---

### **Provide resources to allow faculty to develop intriguing pedagogical techniques to retain student interest at all levels**

High quality teaching results from the education of engaged, creative faculty.

Most faculty want to institute pedagogic reform but are often hindered by a perceived lack of information. Faculty often feel isolated from other campuses where reform is championed, therefore resources are needed to allow faculty to attend conventions to participate in the reform revolution.

Otherwise, frustrated faculty may abandon lofty but achievable notions due to lack of resources. Support for professional development must be extended to all members to ensure departmental success. American Chemical Society meetings and conferences on chemical education are excellent opportunities for faculty to learn about recent innovations and to present the results of their work in research and teaching.

Strong natural science programs are, if not a necessity, an excellent basis for a strong liberal arts college. The scholarly activity of the faculty members is essential to reaching this goal.

The college must enable the faculty to interact with other colleagues, share ideas, gain fresh insights, and remain excited about the research in which they are engaged.

Students interested in chemistry must witness the zeal and enthusiasm of faculty regarding teaching and research activities first-hand.

Interesting faculty will keep students interested and through word-of-mouth, the entire campus will learn of the interesting work being done in the department. ■

