



## WHAT WORKS – AN ESSAY FROM THE PKAL ARCHIVES

# BUILDING A COMMUNITY OF SCHOLARS

### Knowing the Basics

Strong faculty are indispensable to healthy learning communities. In addition to providing excellent teaching, faculty serve as role models for their students, provide intellectual stimulation for their colleagues, and catalyze all aspects of the academic process. To draw people into science and mathematics, careers in these disciplines must be seen to be attractive and rewarding. Faculty who are satisfied with their careers, who enjoy teaching, and who are excited about scholarship serve as dynamic models of the kind of persons we hope to graduate from our colleges.

In successful academic communities, people work together to model the diversity that we want our students to experience. Institutions must recognize the diversity of talents that exist within a department and promote ways for faculty members to develop their different talents. Scholarly activities should be expected of all faculty, since active scholarship promotes excellent teaching. However, scholarship must be viewed broadly, including creativity in educational endeavors as well as in traditional academic research.

A vital community of learners can be built and sustained through:

- ♦ a commitment at all levels within an institution— faculty and administration must possess similar visions of the institutional mission, and everyone must work cohesively to achieve common goals
- ♦ federal agencies and private foundations— by working with colleges and universities to develop new initiatives, they provide both intellectual and fiscal resources that are the lifeblood of faculty development.

The interactive combination of teaching and scholarships that is most satisfying to a teacher-scholar in undergraduate science or mathematics will also result in the most instructive and engaging education for students. This ideal of the professionally active teacher should, therefore, shape our understanding of how faculty development occurs within the community, and how the sense of community can be sustained and extended.

### Balancing Research & Teaching

There are many examples of how natural science communities play a central role in the success of colleges & universities in attracting students to the study of science and mathematics. Faculty catalyze the formation of these communities by playing the combined role of teacher and scholar.

Public concern about the dominance of research priorities over undergraduate teaching has led to an unfortunate misconception about the appropriate relation between teaching and scholarship. Various national commentators and policy leaders have expressed concern that emphasis on research will result in diminished quality of undergraduate teaching, as if the environment of teaching and scholarships were a zero-sum game.

Excerpted from *PKAL Volume I: Building Natural Science Communities*, 1991.

It is a hard fact, reluctantly confronted, that remodeling a curriculum inescapably implies remodeling a faculty. When the culture itself is changed slowly, and when liberal arts education itself was a modest enterprise, evolution could take place almost imperceptibly and almost painlessly. To put the matter with perhaps indecent brutality, professors then became extinct at about the same pace as the courses they taught.

—The Sloan Foundation, “The New Liberal Arts,” 1981.



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The experience of effective science education in productive liberal arts colleges exposes these concerns as profound misunderstandings through the following ideas:

- ♦ science-active liberal arts colleges have demonstrated that between the extremes (research at the expense of teaching and teaching at the expense of scholarship) lies a productive synergism of teaching and scholarship in which student and faculty learning thrives.
- ♦ Scholarship and research are pursued together in liberal arts colleges as forms of undergraduate teaching, just as in research universities they are pursued as forms of graduate and post-doctoral teaching.

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The symbiosis of research and teaching that has made U.S. universities an international magnet for graduate education is focused in liberal arts colleges on their unique mission—undergraduate education.

- ♦ In these institutions one finds faculty committed to the combined role of teacher and scholar and administrations committed to consistent support of a natural science community of learners.

### Recruiting Faculty

One of the biggest challenges facing colleges today is hiring new science faculty. The anticipated shortage of professors has provided impetus for many institutions to develop new ways to attract and retain qualified candidates.

The most common response is to offer more money. While salary is certainly an important consideration, it is by no means the only factor in the employment equation. Working conditions and the general quality of life in the college community are critical factors, especially for scientists or mathematicians interested in the kind of undergraduate environment this report envisions.

Individuals looking for academic careers in science and mathematics will be attracted to colleges that support the realistic development of such careers. Where collaborative learning is prized in the sciences and mathematics, its labor-intensive character must be reflected in faculty expectations.

As they recruit new faculty members in science and mathematics, undergraduate institutions must be forthright about the importance of teaching and the commitment of time and energy that such a commitment entails.

Any misrepresentation of the nature and priority of teaching betrays the mission of a college and misleads prospective faculty members. To support the student-faculty community learning, course assignments, tenure, and promotion must encourage a broad view of educational scholarship.

Prospective science and mathematics faculty members must be equally clear about their own commitment to teaching. Undergraduate science education is most successful when the commitment to teaching is personal and deep. Faculty must understand that teaching is a meaningful and important responsibility and that scholarship is as important for their department's curriculum as it is for their own professional development.

The synergism of teaching and research provides faculty with a unique opportunity to open up the minds of their students and concomitantly to cultivate their own professional identity.

### Laying Out Faculty Responsibilities

Commitment to both teaching and scholarship combine in the undergraduate setting to provide first-rate education for students in the sciences and mathematics. With that commitment, responsibilities become opportunities; without it, they become onerous obligations.

Committed faculty members teach to increase their students' "hands-on" connections to the sciences and mathematics. They view their own activity as professionals always with an eye to the impact such activity can have on their teaching.

In liberal arts colleges, successful faculty are those who understand that undergraduate students play an important role in the intellectual community of learners. Learning is not a uni-directional endeavor, but one in which faculty learn new ways of looking at old questions from the students they teach. ▶

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Fresh student perspectives infuse faculty with new insights into the scientific endeavor and promote a shared approach to understanding scientific questions. A positive “esprit de corps” between undergraduate students and faculty helps students aspire to career goals in science and mathematics.

One must admit that circumstances sometimes make development of community difficult. Frustrated faculty members sometimes blame students for:

- ◆ lack of a proper work ethic
- ◆ lack of enthusiasm
- ◆ lack of a proper background.

Students often blame science and mathematics faculty for:

- ◆ antiquated teaching methods
- ◆ dry lectures
- ◆ draconian grading systems.

Such frustrations by students and faculty can undermine the foundation of a learning community. They must be resisted and reversed if science education is to thrive.

One of the most fundamental necessities of a good teacher is to respect students. Students who resist science, perhaps because of a residual fear, need nurturing that can be provided only by faculty members who are committed teachers. Faculty who respect students as individuals will learn to recognize the unique gifts of students who are unsure of their interests or who lack sufficient background or confidence to excel immediately.

Success in cultivating scientific and mathematical talent and interest will prove to be the ultimate measure of effectiveness of the science and mathematics programs.

### Supporting Scholarship

The role of departmental chair is pivotal to program success, to faculty development, and to general support of scholarship. In addition to individual responsibilities such as teaching, scholarship, advising, and committee work, chairs are responsible for:

- ◆ departmental curriculum needs
- ◆ budget construction and supervision
- ◆ public relations
- ◆ recruitment of students and faculty
- ◆ mentoring faculty
- ◆ distribution of teaching opportunities
- ◆ encouraging scholarship
- ◆ conducting performance evaluations.

Beyond these duties, chairs serve as a vital liaison between the faculty and the administration. It is of paramount importance for institutions to recognize the importance of departmental chairs and to cultivate their leadership abilities.

Regular development of proposals for professional work is another essential component of the undergraduate science and mathematics environment. Writing proposals allows for invaluable peer evaluation and promotes the development of personal long-range plans.

Faculty must be committed to the process of proposal development as part of their own long-range professional planning; deans and department chairs must encourage these endeavors; and institutions must provide appropriate tangible support through their development offices. Proposals and publications frame and sustain the entire spectrum of scholarly endeavor, contributing both to the foundation of the discipline and to the scholarly community on campus.

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While grant writing by faculty should be encouraged by college administrations, grant awards must not become the measure of success. College administrations must not allow federal or private organizations to become surrogate tenure and promotion committees. They should, instead, promote faculty grant writing as scholarly achievement of value for itself.

Faculty participation in professional and educational conferences is a critical dimension of teaching and scholarship that combats the sense of isolation often felt at a small college. By sharing teaching and research insights with one’s peers, a faculty member can more readily sustain pedagogical vitality and professional self-confidence. Such work also models for students a significant aspect of the scientific and mathematics community.



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The learning model envisioned in this report cannot be limited to the contact hours assigned to lectures and laboratories. Collaborative research, consultation with students, and advising about a host of related concerns vie for a faculty members' time along with such activities as course preparation, curriculum development, and other traditional collegiate responsibilities.



Student-faculty scholarly partnerships are powerful learning arrangements, but only work well if both commit time and energy to it.



Working with undergraduate research students during the summer is another important priority that needs to be supported by faculty, departments, and institutions. Student-faculty scholarly partnerships are powerful learning arrangements for both parties, but only work well if both commit time and energy to it. Faculty must find self-satisfaction in the fact that they are functioning as teachers and as scholars as they undertake their work with undergraduate research colleagues.

### Developing Academic Careers

To remain vital, faculty need support throughout their academic careers that reflects changing, complex, multi-dimensional perspectives. Dynamic faculty undertake new challenges, teach different subjects, and engage in varied types of scholarly endeavors. Focused achievable goals for faculty are important stimuli that help shape academic careers. The formulation of these goals should be encouraged and aided by their departments and institutions.

Perhaps the most pressing need of faculty at any institution is time— the time necessary for:

- ◆ work
- ◆ reflection
- ◆ meaningful deliberation with students and colleagues
- ◆ informal associations that are vital to the development of community upon which the integrity of learning depends
- ◆ professionally growth— always taking into account the different needs of faculty at various stages of their careers.

New faculty especially face not only the excitement of developing courses, but also the challenge of developing their own scholarly endeavor; established faculty face different types of teaching and scholarly challenges as their careers evolve. A key strategy to create time for faculty is the establishment of lean curricula shorn of excessive devotion to narrow aspects of the discipline. ■