

Random Thoughts . . .

FAQS. VI

Evaluating Teaching and Converting the Masses

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Four years ago we raised ten questions that frequently come up in our teaching workshops,^[1] and since then we have devoted five columns to answering eight of them.* In this column we take up the last two:

1. My department head says that we can't count teaching in promotion and tenure decisions because there is no good way to evaluate it. *Is there a meaningful way to evaluate teaching?*
2. Most people who go to teaching workshops are already good teachers—the ones who most need them wouldn't go to one under any circumstances. *How can staunchly traditional professors be persuaded to use proven but nontraditional teaching methods?*

Evaluating Teaching

We have written several columns about evaluating teaching and so will simply provide a synopsis with references here.

The key to meaningful evaluation is *triangulation*—getting data from several different sources. Student ratings obviously should be included: students are the best judges of (among other things) whether instructors are effective lecturers, encourage active participation, are available and supportive outside class, and treat all of their students with respect. Extensive research attests to the validity of student ratings^[2] and several things can be done to maximize their effectiveness at both evaluating and improving teaching.^[3]

* All of the FAQ columns can be viewed on-line at http://www.ncsu.edu/effective_teaching/Columns.html.

While necessary, however, student ratings are not sufficient. Most students are not equipped to judge certain aspects of teaching, such as the depth of an instructor's knowledge of the subject, the appropriateness of the course content and its compatibility with the department's curricular objectives, and the fairness of assignments and tests. Only other faculty members are in a position to make those judgments. *Peer review* is therefore another important component of teaching evaluation.

A proven approach to peer review (as opposed to the traditional unreliable one-shot classroom observation) calls for two raters to observe at least two class sessions, complete rating checklists for both sessions and other checklists for evaluating course materials, assignments, and tests, and reconcile their ratings.^[4] Research-supported checklist items can be selected from lists provided by Weimer, *et al.*^[5]

Additional evidence of teaching effectiveness can be obtained from retrospective senior evaluations and alumni evaluations, student performance on common examinations, and instructor self-evaluations. Student ratings taken over several quarters or semesters may be combined with peer ratings and outcomes of some of these other assessments into a

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teaching portfolio,^[6] which provides the basis for an exceptionally meaningful evaluation of teaching.

Converting the Masses

At almost every workshop we give, we are informed that we are preaching to the choir, and the faculty who most need to change wouldn't go to a teaching workshop at gunpoint. Some of our informants then ask how such individuals can ever be persuaded to change to more effective teaching methods.

We offer several notes of encouragement in response.

In part due to programs such as the National Effective Teaching Institute^[7] and local campus faculty development efforts, the number of faculty members using proven but (in engineering) nontraditional teaching methods has risen dramatically in the past decade, and the number is almost certain to keep rising.

In a 1999 survey of engineering faculty members in the eight institutions that comprised the SUCCEED Coalition, 65% of the 511 respondents reported writing instructional objectives for their classes, 60% assigned small-group exercises, and 54% gave team assignments. Demographic data established that the respondents were truly representative of the entire 1621-person faculty and not disproportionately "true believers."^[8] The survey results support our own observations. In the workshops we have given for over a decade, when we describe active learning (getting students to do things in class other than watch and listen to the instructor) we usually ask for a show of hands of the participants who regularly use this approach in their classes. Ten years ago, two or three hands would typically go up; now, one-third to one-half of them do.

ABET and the new accreditation criteria have been and will continue to be a driving force for the continuation of this trend. If we are to produce engineering graduates with mastery of such skills as communication and multidisciplinary teamwork, we must clearly do something in the preceding four years to equip them with those skills. Equally clearly, lecturing alone won't do it, but instructional methods such as active, cooperative, and problem-based learning when done correctly can promote development of all of the skills in ABET Outcomes 3a-3k.^[9] Engineering instructors who are currently

the only ones in their departments using those methods are unlikely to be alone much longer.

It is not necessary to convert the masses.

It's certainly true that some instructors will never attend teaching workshops or use any of the methods promoted in them, but it's also not worth losing sleep over. Students can still learn in classes taught by skilled lecturers who do nothing else, and even if an instructor does not use cooperative learning, many or most students figure out the benefits of group work for themselves and form study groups on their own. As long as some instructors provide an optimal classroom environment—one that weans the students away from their dependence on professors and teaches them to rely on themselves and their peers as the primary sources of learning—the skills they acquire will carry over to their less expertly taught courses and later to their careers.^[10,11]

In short, there is no need for all of your colleagues to see the light. If you simply do the best job of teaching you know how to do and share what you know with any colleagues inclined to hear it, you can relax—the students will be just fine.

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