Departmental Policy for Teaching Evaluation and Improvement

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Abstract

The Department of Civil and Environmental Engineering at the University of Missouri-Columbia (MU) has recently adopted a new policy for evaluating faculty members’ teaching contributions to the department and college. The MU promotion and tenure policy requires that all candidates submit two forms of evaluation for their educational efforts, one of which must be student course evaluations. In response to this requirement, and with the ultimate goal of improving teaching in the department, a committee was formed to evaluate the current situation and recommend improvements. In consultation with the Program for Excellence in Teaching on campus, the department is implementing a requirement that the second method of evaluation be an external peer review of the teaching portfolio, with particular emphasis on whether the content, rigor, and expectations in courses taught are appropriate. Reviewers of teaching portfolios may or may not overlap with those asked to evaluate research contributions. It is anticipated that the materials sent for review, in addition to the typical teaching portfolio contents, will include materials similar to those required for an ABET review – syllabus, assignments, exams, notes, and samples of student work.

1. Introduction

Effective teaching has always been a primary goal of engineering departments. The Accreditation Board for Engineering and Technology (ABET) ensures a department’s overall teaching product and program content. However, the department is made up of its faculty, and evaluating teaching effectiveness of individual faculty has historically been troublesome. The Department of Civil and Environmental Engineering (CEE) at the University of Missouri-Columbia (MU) has recently adopted a new policy for evaluating individual faculty members’ teaching contributions to the department and college. The impetus for the new policy is to reaffirm a commitment to undergraduate education, improve teaching in the department, and to meet MU Promotion and Tenure (P&T) requirements. The MU P&T policy requires that all candidates submit two forms of evaluation for their educational efforts, one of which must be student course evaluations. The second required method is at the discretion of the department. The new teaching evaluation policy described herein meets or exceeds the P&T requirements and allows the department the opportunity to evaluate and improve teaching effectiveness and to maintain a current curriculum.

This paper surveys other MU engineering department policies, discusses the development process for the new policy, including the tension between formative and summative evaluation, assesses experiences to date with the policy, and addresses continuing needs in improving faculty performance and its evaluation in the area of education responsibilities. The paper is not
intended to provide a comprehensive review of the literature on peer review and teaching portfolios, but rather to document what we believe is a relatively unique approach to combining the two for summative evaluation.

2. Background

The two primary motivators for evaluating faculty teaching at any university are 1) a need to document evidence of excellence in education for promotion and tenure (P&T) decisions, and 2) a desire to improve the education of students. Programs accredited by the Accreditation Board for Engineering and Technology (ABET) have an additional incentive to document curriculum content and effective teaching. The ABET Policy and Procedure Manual\(^1\) states that its policies and procedures are intended to assist educational institutions in planning their educational programs. A program must document that it applies current knowledge to the practice of engineering, and it must provide to outside reviewers the teaching materials, such as course outlines and textbooks, for all required courses. These teaching materials should show examples of the range of student performance for assignments (e.g., homework, quizzes, exams, lab reports, projects, etc.). Engineering programs therefore have a strong incentive to demonstrate that they are preparing their students for the practice of engineering. A comprehensive evaluation of individual faculty teaching performance could help establish that the overall program prepares its students well.

At MU, the P&T procedures state that each college/division is expected to have in place at least two methods for evaluation of teaching, one of which must be student course evaluations. For the second method, a wide range of indicators of teaching effectiveness have been used. These include teaching awards; recommendation letters from faculty, students, parents, and alumni; peer visit evaluations; self-assessments; and department chair evaluations. However, the most common second method used appears to be peer visit evaluations. Usually, this peer review consists of a faculty member from the same department visiting a class, perhaps with prior consultation with the teacher of the class, and subsequently writing a letter for the dossier summarizing his or her impressions.

The faculty in our department had concerns with the peer visit evaluation method and with the lack of standardized procedures. Anecdotal evidence suggests that faculty members often postponed initiating teaching evaluation procedures until very close to when the dossier was due. As a result, peer classroom visits were often arranged at the last minute and without much forethought. Further, many faculty members give little weight to peer assessments due to one or more of the following perceptions:

- Faculty most often want their colleagues to receive tenure and therefore would be reluctant to record anything negative in the evaluation;
- Students who have experienced the class for an entire semester are better qualified to evaluate the professor’s classroom performance than a colleague who sits in on one lecture; and
- There are no standardized criteria in place for peer evaluations.

Mentoring new faculty members is of particular concern, as neither the department nor the college has a formal mentoring program for new hires. Most new PhDs have had little or no
teaching experience as graduate students. While senior faculty members often take an interest in the research initiatives of new faculty, for example in initiating collaborative efforts, reviewing papers or proposals, or simply helping to establish contacts, teaching tends to be “on-your-own.” Classroom methods, especially failures, are rarely discussed among faculty members and, therefore, even the informal mentoring that takes place for research does not occur for teaching.

As a result of these concerns, our department established a committee to develop a standardized policy for documenting educational effectiveness for our faculty. Although one motivation for action was the need for better documentation for promotion and tenure, our faculty members are also interested in improving the overall quality of education in the department. The adopted teaching evaluation policy is the first step in the effort to improve education through involving faculty members in a variety of methods for assessing teaching efficacy, including development of a teaching portfolio, peer and self assessments, and participation in teaching development activities.

3. Alternative Methods and Issues

A tension exists between evaluation made for the sake of teaching improvement (formative evaluation) and evaluation made for the sake of P&T or personnel decisions (summative evaluation). The dilemma goes back to the issues raised in discounting the method of peer visit evaluations. We need critical and honest feedback to improve, yet no one wants negative comments in their permanent record. For example, a good formative evaluation would include a critique that will help one improve as a teacher, without affecting P&T or personnel decisions. The objective is to improve teaching effectiveness. On the other hand, a summative evaluation must generally be standardized to ensure fairness, with the objective to scrutinize teaching effectiveness.

A number of methods for documenting teaching effectiveness are mentioned above. These methods differ in their usefulness for formative and summative purposes. Four of these evaluation methods – self-assessment, student evaluation, peer visit evaluation, and the teaching portfolio – are discussed below.

Self-assessment of teaching effectiveness is generally viewed as an important step in improving one’s teaching. Self-assessment is designed to identify strengths and weaknesses, clarify teaching goals, and improve teaching performance through addressing feedback from students. Cashin states that the most effective means to improve end-of-semester student evaluations includes acting on the results of mid-semester student feedback, with assistance in understanding how to use those early results. This type of evaluation and “course” correction (pun intended) can be a central part of self-assessment of teaching effectiveness. While self-assessment can provide useful improvements (formative), by its nature it is not an objective evaluation of teaching performance (summative).

Student ratings of courses and teaching effectiveness seem to be almost universal on today’s campuses. As McKeachie states, many authorities agree that they are “the single most valid source of data on teaching effectiveness.” Instructors can use student ratings to help improve courses (formative). Administrators and P&T committees also use student ratings in personnel
decisions (summative). However, student evaluations document only part (although a large part) of a teacher’s effectiveness. A likeable well-spoken lecturer giving many A grades using out-of-date easy material may certainly receive high student evaluations and yet not effectively teach. There needs to be a second component to the evaluation, one that examines the course content, rigor and organization, which is best accomplished by peer faculty in the field.

In traditional peer review, one or more observers visit the instructor’s classroom to evaluate teaching performance for improvement or evaluation. Ideally, the process would include extensive work outside of the class, including a review of class activities to date, course objectives, teaching philosophy, teaching approaches being used, student preparation for the course, classroom environment, past assignments, and the instructor’s goals for the class sessions to be visited. However, this ideal rarely occurs. In our college, for example, the process has been conducted in a variety of ways. Some departments have provided for visits only as a last-minute response to provide information for P&T. One department has each untenured faculty member visited twice a semester by faculty within the same specialty area. Another department has used an individual who has received awards for teaching excellence to evaluate the teaching of all untenured faculty members. In most cases around the college, however, the evaluation has been simply an examination of in-class performance at one point in the semester, often just before a P&T decision. In practice, therefore, the peer visit is similar to and actually inferior to the student evaluations. Students in a class are better qualified to evaluate in-class and out-of-class performance than a faculty peer. Students, through experience, know the difference between “good” and “bad” teaching and can judge the instructor in question much better than a peer visiting the class once or twice. However, peers are more qualified than students to evaluate aspects of the course such as the appropriateness of course objectives, content, rigor, instructional activities, and student evaluative devices. This type of peer review, if done correctly, has great potential value for teaching improvement (formative) and evaluation (summative).

A teaching portfolio can be used for teaching improvement and/or personnel decisions. A typical portfolio includes a statement of teaching responsibilities, teaching philosophy, methods, strategies, objectives, evidence of teaching effectiveness and selected course materials. A portfolio might also contain information regarding improvement activities, innovations, scholarship on teaching, and educational service. Thus, a teaching portfolio is really a way of compiling and presenting a variety of information about a faculty member’s educational efforts, and it may include results of the methods described above. Teaching portfolios have generated a great deal of interest, as evidenced by the number of articles on the subject that have appeared in the literature over the last several years. Indeed, Seldin’s book on the subject has become a valued resource on many campuses. Much of the literature, however, focuses on use for formative rather than summative evaluation, and for internal review exclusively.

4. The Policy as Adopted

The stated objective for the CEE department’s new teaching evaluation policy is to evaluate an individual’s teaching performance, particularly for consideration in promotion and tenure (P&T) decisions. Promotion to Associate Professor and to Professor will be based, in part, on teaching
performance as measured through this program. However, the program is also expected to provide useful information for teaching improvement.

The two required methods of evaluation are “Student Evaluation of Teaching” (student evaluation) and “Peer Review of the Teaching Portfolio” (portfolio evaluation). Student evaluations, which are part of the portfolio, are used to help characterize teaching expertise, classroom performance, and out-of-classroom interactions with students. Portfolio evaluation is an external review of the teaching portfolio used to help describe teaching accomplishments, the appropriateness of course content, and the level of rigor expected from students. Promotion and tenure candidates are allowed to add additional documentation of other evaluation methods to the portfolio at their discretion. The candidate carries the responsibility for showing that the additional information is relevant toward evaluation of teaching.

The teaching portfolio, as now required by the Department of Civil and Environmental Engineering at MU, includes information to provide an overview of the candidate’s educational effectiveness as well as specific information about at least two courses. Much of the included course material is also normally assembled for ABET reviews. The teaching portfolio must include:

- The candidate’s statement of teaching philosophy,
- A summary and evaluation of activities in student advising (e.g., undergraduate advising, graduate advising, thesis/dissertation direction, etc.), and
- A minimum of 5 years of numerical student evaluations, summarized and related to departmental standards.

The portfolio should also include any of the following that apply:

- Information on the candidate’s involvement in campus-wide teaching initiatives, such as the Campus Writing Program, the campus General Education Program, the Honors College, Residential Learning Communities, Freshman Interest Groups, First-Year Experience, and the use of technology in delivery of instruction;
- A description and evaluation of the candidate’s extension activities;
- A description of the candidate’s international work, including teaching, lecturing, technical assistance, and program development;
- A description of teaching awards; and
- Other relevant information.

The items listed above are standard, campus-level requirements for P&T. However, the CEE Department is also requiring that, for at least two courses, preferably an undergraduate level and one senior or graduate level course, the portfolio include for each course:

- The course syllabus,
- Course notes,
- Homework and other assignments, and
- Quizzes, tests, and exams.

In addition, the candidate must make the text and samples of two students’ work (e.g., homework, tests, other assignments) available to the Department P&T Committee. For P&T purposes, the samples of student work should be in a format that can be photocopied for outside reviewers.
The teaching portfolio will also be used by the Department P&T Committee as a significant component of the third-year review of Assistant Professors. This provides the opportunity to address and improve teaching effectiveness early in an Assistant Professor’s career or to correct problems if they exist. For decisions regarding tenure and promotion to Associate Professor or Professor, the teaching portfolio will be sent to four outside reviewers from the same list developed to evaluate research accomplishments. These external reviewers are to have significant teaching experience and may be the same persons who review a candidate’s research accomplishments. Reviewers will be asked to use the portfolios to evaluate the contributions of the candidates to the teaching mission of the university. They will also be asked to critique the appropriateness of course content and level of rigor indicated in the course materials provided to them. The four external reviews of the teaching portfolios will be included in the P&T dossier in a manner similar to that of external reviews of research accomplishments.

While the use of teaching portfolios as part of the P&T dossier certainly is not new, the use of external evaluation of teaching portfolios in engineering is not common. The focus on external peer review of the course materials provided with regard to content and rigor is also unusual, as far as we know. It is this aspect, in particular, that we hope will add a new dimension to the information considered about a candidate in the P&T process.

5. Future Efforts

The program described was adopted by the MU CEE faculty in November of 2000. Therefore, the first faculty members to be evaluated based on these criteria are currently undergoing the third year review or consideration for P&T.

One faculty member has completed the third year review component of the new Teaching Evaluation procedure. That Assistant Professor was initially concerned about the time required to assemble the materials for the review. About 16 hours were required, but some of that time would have been needed without the new policy to assemble material required for the annual salary evaluation and to write the teaching philosophy statement that will be required in two years for the campus Promotion and Tenure process. Overall, the content of that teaching portfolio was deemed appropriate and useful by the committee reviewing the materials. However, the course materials gathered filled a typical small moving box; clearly the volume will have to be reduced for distribution to external reviewers.

The program will continue to be evaluated as follows:

- The candidates will assess the level of effort required to compile the requested information; and
- The P&T committee will assess the “value-added” to the dossiers by the additional information.

Based on the results, the program, which is a “work in progress,” will continue to be modified and further developed.

In the future, we hope to expand the program into a department teaching improvement program, in which faculty at all ranks will work as teams to improve the education for our students. To
accomplish this, however, the tension between formative and summative evaluation must be resolved in a satisfactory manner.

Bibliography


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