

AC 2010-1323: MAKING SERVICE COUNT: ADVICE FOR NEW ENGINEERING EDUCATORS

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Making Service Count: Advice for New Engineering Educators

Abstract

Promotion and tenure requirements for engineering educators vary for different types of institutions and generally focus on one's achievements in teaching, scholarship, and service. At many institutions, research publications are necessary for successful promotion and tenure cases. For non-tenure track faculty and for faculty at teaching institutions, scholarly publications resulting from research activities may not be as critical. In these cases, publications documenting innovations in teaching and service activities may be acceptable as evidence of scholarship. This paper considers examples from the literature showing how service activities can lead to scholarly publishing opportunities. Recommendations are also provided for new engineering educators wishing to utilize their experiences in various types of service activities in developing scholarly publications.

Introduction

Engineering faculty members are typically evaluated on their contributions and achievements in teaching, scholarship and service. While most new faculty have an idea of the expectations and receive guidance in teaching effectiveness and scholarship associated with grants, research and publishing, the expectations for service often receive little discussion. Usually serving on several committees within one's department and university, or with professional organizations, is considered sufficient.

Non-tenure track faculty, such as lecturers and laboratory instructors at research universities, as well as tenure-track faculty at teaching institutions may not be expected to perform significant levels of funded research which result in publications as part of their jobs. However, expectations for achievement in scholarly and professional development activities still exist and are becoming more prominent in the promotion and tenure process at teaching institutions. Heavy teaching loads and a lack of graduate students often result in limited time and resources for conducting research resulting in scholarly publications. In most cases, scholarship and publishing in one's technical field is still necessary, but service activities can provide additional opportunities for scholarly publishing that may be seen favorably by promotion and tenure and renewal committees.

Boyer¹ indicates the potential for service activities to play an important part in the scholarship of faculty. To be considered scholarship, service activities should have some direct relation to one's discipline. These service activities are typically significant and demanding undertakings that require rigor and accountability, similar to research activities. In many cases, these service activities are typical of senior level faculty whose years of effort and contributions in their fields have led them to be selected to serve on various committees and commissions related to the profession.¹ Boyer's view of scholarship resulting from service activities at the highest level of one's profession has limited applicability for new engineering educators who are often just starting out in their professional field. In order for a new engineering educator to use service as a

scholarly activity, they must not merely serve, but they need to produce a scholarly publication as a result of that service.

Some of the general types of service activities typical of engineering faculty include serving professional societies or organizations, serving on various departmental and university committees, and community service or outreach activities. Depending on the activities involved, each of these types of service activities provides opportunities for development of scholarly publications.

Service to Professional Societies and Organizations

Service to professional societies or organizations can provide opportunities for scholarly publishing. Selected committees in professional organizations are often tasked with the development of proposals for new policies or standards for the profession. Professional society committee work developing new guidelines for the future educational requirements of the profession can result in papers on the development and implementation of these guidelines.²⁻⁷

Committees assigned to develop and review various standards used in a given field often present the results of their efforts in a written standard or design guide for the profession. Direct involvement in standard development may allow participating faculty to easily incorporate the development and use of standards in their teaching, and document such experiences in the literature.⁸

Service as an editor or reviewer for a professional society journal⁹ or conference¹⁰ may provide opportunities for publishing editorial comments or summary reviews related to these publications. While serving as a journal editor typically requires a considerable time commitment and may not be appropriate for untenured faculty, service on a conference planning committee is more manageable and provides opportunities to interact and develop relationships with professional colleagues. Even if the service activity itself does not result in a publication, the contacts made can lead to further collaboration and scholarship.

Service to Department, College and University

One of the main areas of service for untenured faculty is on various committees at their own institution. Here opportunities for scholarly publishing exist, as well. Every aspect of committee work will not result in a publication opportunity. To be successful, it is necessary to consider the committee's task and outcomes relative to one's own discipline and the publication venues appropriate for the proposed paper. Several examples will now be presented.

A tenure stream faculty member served on an institution's diversity task force assigned to develop a plan to help promote diversity at the institution. As part of their work, a number of task force members attended a two week long diversity workshop in the summer highlighting ways to incorporate diversity issues into the classroom. The faculty member used the methods presented in the workshop in his own teaching, obtained student feedback, and prepared and presented a paper for the ASEE Annual Conference.¹¹

A newly tenured faculty member served on a university's global education task force assigned to look at ways to increase the international and global educational experiences of students at the institution. Considering ABET criteria related to global issues in the engineering curriculum, the faculty member used a campus-wide reading assignment for all incoming freshmen and guest lecturers in a freshmen engineering technology seminar to incorporate international and diversity issues into the course. Student feedback was obtained and a paper prepared and presented for the International Division at the ASEE Annual Conference.¹²

In another case, a civil engineering faculty member serving on a university's campus committee became quite aware of the parking situation on campus, the cost to construct various types of new parking spaces, where such new spaces or parking lots could be located and the financing of such construction. Unfortunately, transportation studies and parking lot layout and design were not in the faculty member's area of expertise. If they had been, the committee experiences might have been easily incorporated into the classroom leading to interesting class design projects with real world application. This could have been documented in a paper resulting in a scholarly publication.

Service on curriculum committees can provide opportunities for publications. Curriculum development and revision often involves reviewing the literature to see what other institutions are doing in a given area, determining what modifications are needed to suit one's own program, and implementation. Documenting the planning, development and implementation process in the literature is common and is welcomed at conferences such as ASEE.¹³⁻¹⁶

Another common service activity is related to ABET accreditation preparations. Many faculty serve on departmental committees to prepare for accreditation and assess course and program outcomes. The effort involved in many of these committees can be significant. Establishing program outcomes, developing assessment plans and grading rubrics are often done over a period of time. This work may involve various committees reviewing the literature on what others are doing, developing modifications to best suit a particular program's needs, and implementation within a given program. As a result of the amount of effort involved, numerous papers have been published documenting preparation strategies,¹⁷ rubric development¹⁸ and assessment methods.¹⁹

Another aspect of service within the department or university is serving as an advisor to student professional organizations such as IEEE, ASCE, SWE, ASME, and others. In some cases, these advising experiences can be translated into professional publications. Scholarly papers documenting successful practices, community service projects, and other aspects of advising various student groups are common in the literature.²⁰⁻²³

Service to Community

One type of community service that best lends itself to scholarly publications is related to outreach activities.²⁴⁻³³ Engineering educators often become involved in outreach to K-12 schools to help improve student interest in engineering as a career choice. Documenting these experiences themselves may be worthy of publication, however, long term assessment of their

effectiveness is of more interest to the engineering educators, journal editors, and conference reviewers.

Some common papers document outreach activities,^{24, 28} while others may discuss service-learning projects that involve international experiences.²⁵⁻²⁷ In one case, two faculty members involved with summer engineering camps for middle school students proposed a paper on their summer camp. The ASEE K-12 Engineering and Pre-College Outreach Division showed little interest in the proposed paper as it was merely presenting the details of another K-12 outreach program. Instead the authors revised their proposal to focus less on the content of the summer camps and instead highlight the collaborative effort between the University and an external non-profit organization to fund, promote, and administer the summer camps. This idea resulted in a paper prepared for and presented at the 2009 Frontiers in Education Conference.²⁹

Engineering faculty directly involved with development of unique outreach activities have documented their programs in the literature.³⁰⁻³² In one case where undergraduate students were being used in a faculty member's outreach activities, the faculty member chose to document how participation in outreach activities promoted the development of leadership skills in the students.³³

To effectively prepare a scholarly paper from outreach activities, ideally the paper should either present some new or unique activity, provide a meaningful assessment of its effectiveness, and provide insight to others who may be interested in undertaking such activities.

Recommendations for New Engineering Educators

Initially, new engineering educators consider service activities a burden on their busy schedule while trying to teach and conduct research in their quest for tenure. At research universities, service activities should be approached with caution, as research and teaching achievements are typically keys to promotion and tenure. For non-tenure track faculty, such as lecturers and laboratory instructors, and tenure track faculty at small teaching schools, service activities can provide opportunities for scholarly publications.

Ideally, for a scholarly publication to result from one's involvement in a service activity, the service activity should have some direct relation to one's field of expertise. A paper resulting from advising a non-academic club or outreach to a community organization not related to one's discipline may carry little weight with renewal and tenure review committees.

In order to take advantage of scholarly publishing opportunities resulting from service activity experiences, one should become familiar with various publication venues available. Conferences such as the ASEE Annual Conference (www.asee.org), the Frontiers in Education Conference (www.fie-conference.org), and conferences sponsored by the International Society for the Scholarship of Teaching & Learning (ISSOTL) (www.issotl.org), are conference publication venues which should be considered. Review of prior conference proceedings and current calls for papers can help identify topics of interest related to one's service activities. Journals, such as ASCE's *Journal of Professional Issues in Engineering Education and Practice*, and IEEE's

Transactions on Education, are potential journal publication venues that can be considered, as well.

Several general recommendations for those interested in using their experiences performing various service activities to develop scholarly publications are as follows.

1. First and foremost, talk with colleagues at your institution and determine if publications resulting from service activities will be looked at favorably at your institution. If they are or could be under certain circumstances, the types of publishing opportunities presented in this paper may be worth considering. Make sure you understand what combination of scholarly publications is expected for renewal or promotion and tenure at your school. Putting all your effort in several papers related to service activities and not producing any technical papers may not result in tenure at most schools. It is better to focus your professional development on traditional scholarly engineering publications, and keep your eyes open for opportunities to utilize unique service activities that may come your way to publish other scholarly papers.
2. For professional service involvement, consider the significance of the committee's work. If it is worthy of publication, the appropriate venue must be considered. In addition, the approval of all those contributing to the committee's efforts must be sought. It is important to acknowledge the contributions of others, include appropriate co-authors, and not overstep one's position on the committee by writing a paper which is unauthorized or not approved. New engineering educators should tread lightly in this area so as not to hurt their relationships and reputation with their professional peers. Another venue is to incorporate one's specific committee experiences into their teaching, obtain student opinions and feedback on its role and effectiveness, and write a paper documenting the exercise.
3. For university, college and departmental committee work, consider how the committee task relates to teaching within the discipline, ABET criteria, and program outcomes. If there is a connection, consider how best to pursue it, keeping in mind the interests of appropriate publication venues. Find something unique or a new approach that is worthy of sharing with the engineering education community. This will increase the interest in the topic and increase its potential for publication. Becoming familiar with the many different divisions of ASEE and their specific calls for papers can help in identifying what topics and ideas are of current interest.
4. For community service activities, outreach experiences and service learning remain hot topics. However, interest is waning in merely documenting "what we did." It is important to assess the effectiveness and obtain feedback that provides useful guidance to others. Unique features, unusual experiences and research on long term influences of such activities should be considered when developing an outreach or service learning program so that opportunities for scholarly publications are provided.

Service activities are a necessary part of faculty life and contribute to one's scholarly development leading to contract renewal or promotion and tenure. For service activities to result

in scholarly publications, the unique features of the activity must be recognized, relative to the technical, professional, and educational literature of the engineering profession, and the experience documented in an appropriate publication venue.

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