2006-1365: BENEFITS AND CHALLENGES OF TRAINING TEACHING ASSISTANTS

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Benefits and Challenges of Training Teaching Assistants

Abstract

Graduate teaching assistants (TAs) contribute significantly to laboratory instruction, grading, and, to a lesser extent, classroom instruction in undergraduate engineering education. However, many universities/colleges do not offer formal training for engineering TAs and, instead, rely on generalized workshops and orientations offered by the University or Graduate School. While these workshops are beneficial to teaching assistants, they are too broadly based to address the individual needs of a particular college or departments. To improve the performance of teaching assistants, additional training specific to the needs of the discipline and college is desired. In order to provide the necessary skills and boost the confidence of TAs, the College of Engineering at Southern Illinois University - Carbondale, through support from Center for Graduate Teaching Excellence, implemented a training program for graduate teaching assistants. The objective of the program is to enable teaching assistants to acquire teaching and professional skills necessary to succeed in their instructional as well as professional roles.

The training program consisted of a series of seminars, presented by invited speakers, focusing on teaching skills and professional development. Topics for the seminar predominantly focused on ethics, principles of effective teaching, communication skills, grading, student/teacher interaction, intellectual property and professional licensure, etc. Speakers for the seminar consisted of professionals from within the college as well as experts from outside the college and industry. Attendance for the seminar was voluntary. However, to encourage attendance students attending minimum of five seminars received a Certificate of Teaching Preparedness and Professional Development. A Guidebook for Graduate Teaching Assistants is being compiled, which consists of summary for each seminar topic, key observations and frequently asked questions (FAQ's). The effectiveness of the seminar was measured through a series of evaluations and feedback from students. This paper presents the outcome of this training seminar series and its effectiveness/challenges in meeting the objectives.

Keywords: Graduate Training Seminar, Laboratory Instruction, Professional Development, Teaching Assistant Training, Teaching Methods, Undergraduate Education.

Introduction

Many universities across the country are relying significantly on graduate teaching assistants (TAs) to fulfill their mission of undergraduate education. This reliance on graduate teaching assistants, in general, is due to the reduced appropriations for higher education and has increased significantly over the last decade.1-5 It has been reported that the proportion of undergraduate teaching assigned to graduate teaching assistants is between 25 to 38 percent.6 However, many graduate teaching assistants are not adequately prepared for their responsibilities. In order to address this concern many
universities across the country have implemented formal graduate teaching assistant training programs since 1980’s.7-10 Most of these training implemented are at the institution level and the program is generalized to include all disciplines.11 As a result the focus of such programs are mainly on procedural issues (e.g., sexual harassment, diversity, campus resources, etc.). While these training programs are beneficial, they offer limited teaching skills and quantitative problem solving skills, critical to engineering education. In order to address these concerns additional training to address the specific needs of individual colleges or departments are essential. This paper describes the development and implementation of a training program for graduate teaching assistants to address the needs of the College of Engineering at Southern Illinois University - Carbondale. The focus of this program was to enable students to acquire teaching and professional skills, so that the benefits go far beyond their stay at the university and help them succeed in their professional career.

Background

American Society of Civil Engineers (ASCE) has been successful in training faculty to teach engineering through their Excellence in Civil Engineering Education (ExCEEd) workshop.12 Starting Fall 2004, the Department of Civil and Environmental Engineering at Southern Illinois University – Carbondale, initiated a graduate assistant training program coordinated by select faculty members trained with the ASCE’s (ExCEEd) workshop. This initiative was supported by the Center for Graduate Teaching Excellence at the University. The training program consisted of a series of informal seminars with invited speakers. Seminar speakers included graduate students, faculty from within and outside the CEE department, professional engineers from local engineering firms and government agencies. The topics for the seminar included: Teaching in an Engineering Lab; Grading; Classroom Ethics; Teaching and Technical Presentations with PowerPoint; Designing Assignments and Exams; Time and Stress Management; Putting Together an Engineering Thesis or Dissertation; and Creating a Resume and Job Interview. The seminars were well attended even though it was not mandatory.

A survey to assess the effectiveness of the seminars indicated that majority of students attended the seminars for opportunity to learn and improve skills. The majority of students also indicated that the seminars helped them to improve their teaching and professional skills, and felt that the seminars should continue. In addition, students and faculty from other departments also expressed interest in participating in the seminar series. The success of this pilot project at the department level provided the incentives to expand the project to the college level. Thus, starting Fall 2005 the training seminar was expanded to the college level to include all the departments within the College of Engineering.

Training Program

The objective of the training program was to supplement the University’s mandatory workshop for teaching assistants. The training was in the form of a series of seminars designed to enhance teaching and professional skills of graduate students. The seminar
fulfills three-fold need of the students. One is the need for teaching assistant training more specific and relevant than what is typically done at the university level. Two is the need for a forum where students can interact with others at the same professional level although in different research areas. Three is the need for the graduate students who come from many different undergraduate institutions to have a unifying professional development experience. The topics were split into two broad categories: those for teaching training and those for professional development and soft skills. To maintain student interest, number of seminars in a semester was limited to six. The seminar was open to all graduate students in the College of Engineering. Thus students who were not teaching assistants also benefited. Invited speakers consisted of faculty from the College of Engineering, experts from other colleges and facilities, professionals from private firms and local government agencies. The presentations were informal with open discussion, and were oriented to address the needs/concerns of graduate students. Attendance for the seminar was voluntary. However, in order to encourage student participation, those who attended minimum of five seminars received Certificate of Teaching Preparedness and Professional Development, from the Dean of College of Engineering.

Topics for the seminar were selected based upon the outcomes and student input from successful pilot project offered at the CEE department during Fall 2004 and Spring 2005. Table 1 presents the seminar topics offered for Fall 2005. Dean of the College of Engineering was the speaker on Ethics. Distinguished speakers for other topics included: an expert from the College of Mass Communication and Media Arts on Communication Skills; Professors from various departments within the college, who were recipient of best teacher award on Effective Teaching; professionals from career services on Resume Writing; an expert from Department of Psychology on Learning Styles; and an expert from School of Law on Intellectual Property. Speakers had wide latitude as to their presentation format and content within the topic. This proved to be beneficial to speakers as well as graduate students. Selection of topics and speakers for Spring 2006 is in progress at this time. The length of presentations and discussions were one hour and was found to be adequate to maintain student attention.

Table 1. Seminar Topics

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Assessment

Assessing the effectiveness of the training seminar is critical for the continuation of this pilot project. Success of this project also depends on students attending the seminar voluntarily. Assessment tools consisted of end-of-semester surveys and solicitation of anonymous comments. A majority of the students (95%) indicated that the reason they attended the seminar was to learn and improve skills. Additionally, using a scale of 1 (i.e., strongly disagree) to 4 (i.e., strongly agree), the survey confirmed that the training seminar met that goal (3.5/4.0). There was a strong desire for the presentation topics to balance between teaching related issues and professional development (3.3/4.0). Students also indicated that there is an added benefit of the seminar when compared to the University’s mandatory workshop for teaching assistants (3.4/4.0) and should be continued in future semesters (3.6/4.0).

Figure 1 presents student ratings for all the seminar topics and speakers. Ratings for the seminar ranged from 3.1 to 3.7, which is a clear indication that the topics and the speakers selected enabled us to meet or exceed the objectives of this training seminar. The topics that received the rating of 3.5 or above were: The Art of Resume Writing (3.7/4.0); Intellectual Property (3.6/4.0); and Understanding Individual Differences in Learning (3.5/4.0). This shows that a healthy balance between teaching related topics and professional development is the key to the success of this project.

![Figure 1. Student Ranking of Seminar Topics (Scale 1 – 4).](image-url)
Incentive offered in the form of a *Certificate of Teaching Preparedness and Professional Development* for students who attended minimum of five seminars proved to be very effective. Twenty three students received the certificates from the dean of College of Engineering.

**Benefits**

The primary goal of this project was to enhance the teaching skills and professional development of graduate students. Assessment data clearly indicated that this was the main reason students attended the seminar. Offering the seminar at the college level is more effective than the department level, since they impact far more students for the same level of investment. Undergraduate students are greatly benefited by well-trained teaching assistants. Since there are significant numbers of PhD students in the college, the impact of this seminar will go far beyond their stay in graduate school as many of them may accept teaching jobs after graduation. A manual consisting of a short one page summary of each seminar and FAQ’s is being developed and will be distributed all the TA’s and faculty in the College of Engineering. The manual is intended to serve as a supplemental guide and future reference for those continuing in instructional roles.

**Challenges**

The attendance for the seminar ranged from 25 to 50 graduate students. This was considered acceptable considering the fact that it was not mandatory to attend the seminar. A majority of the attendees were teaching assistants. This was expected, since they were aware of the benefits of this program. The primary challenge is to attract graduate students who are not teaching assistants. Since the topics include professional development, we believe they will also be greatly benefited from this project. Involvement of more faculties will also be beneficial in attracting more students. The seminar announcement was through bulletin board postings and e-mails to the faculty. Faculties were also requested to encourage their graduate students to attend the seminar. Some departments sent direct e-mails to graduate students. Efforts are being made to reach all the graduate students through e-mail. While incentive in the form of *Certificate of Teaching Preparedness and Professional Development* has proved to be successful, other means of attracting students, such as academic credit or requiring students to attend the training as part of their TA contract needs further exploration.

Some of the other challenges though important, but not critical, were: finding a time slot for the seminar that is convenient for all the graduate students; and selecting appropriate topics and speakers to maintain continued interest. It was also a challenge for many of the speakers to focus their presentation to address the needs of graduate students. However, the informal sessions provided an opportunity for them to identify the needs of the students and overcome that concern.
Summary and Conclusions

Training of graduate teaching assistants to adequately perform their intended role is the key to their success. Graduate students are eager to learn and improve their teaching skills as well as skills needed for professional development. To provide this opportunity the College of Engineering with support from Center for Graduate Teaching Excellence at Southern Illinois University – Carbondale, implemented a pilot project to train graduate students. The college-specific seminar series supplemented mandatory University-wide Graduate Teaching Assistant workshop.

Assessment data indicated that the training seminar was highly successful in achieving its intended goal. Students overwhelmingly indicated that there was added benefit from the seminar when compared to University’s mandatory Workshop for Teaching Assistants (3.4/4.0). A healthy balance between teaching related issues and professional development proved to be effective in gaining student interest (3.4/4.0). Assessment data clearly indicated that students were greatly benefited by this opportunity to learn (3.5/4.0) and felt strongly that the training seminar should continue (3.6.4.0).

Undergraduate students are the main beneficiaries of well-trained teaching assistants. The impact of this seminar on graduate students will go far beyond their stay in graduate school, since many of them may accept teaching jobs after graduation. Also, inclusion of topics related professional development provides valuable tools needed to succeed in their professional career. Development of a guidebook, which consists of summary of each seminar topic, key observations and frequently asked questions (FAQ’s) is an added benefit, since it can be used for future reference.

References


