

AC 2007-375: AN INTEGRATED APPROACH TO TEACHING ASSISTANT TRAINING AND ORIENTATION

Ronald Kane, New Jersey Institute of Technology

Ronald S. Kane is Dean of Graduate Studies and Assistant Vice President for Academic Affairs at New Jersey Institute of Technology. Before that he had been Dean of Graduate Studies, Research, and Continuing Professional Education and Professor of Mechanical Engineering at Stevens Institute of Technology and before that served as Mechanical Engineering Department Chair at Manhattan College. He has industrial experience in the energy and aerospace industries and worked for a number of years on nuclear safety and alternative energy systems, with focus on modeling and evaluation of thermal/fluid system problems. He is a Fellow of the American Society of Mechanical Engineers.

Dr. Kane has been an ABET visitor and has been active in ASEE since 1984, presenting numerous papers and moderating sessions on graduate education, international students, and minority issues. He has served on the ASEE Board of Directors and held every major position in the Graduate Studies Division and is a Fellow of ASEE. He has also been active as a member and officer of the Council of Graduate Schools and the Northeastern Association of Graduate Schools, and still continues as President of the Association of New Jersey Graduate Schools. He recently completed a four year term as a CGS representative to the Boards of the Graduate Record Examination (GRE) and the Test of English as a Foreign Language (TOEFL).

Clarisa Gonzalez-Lenahan, New Jersey Institute of Technology

Clarisa Gonzalez-Lenahan has been the Associate Director of the Office of Graduate Studies at New Jersey Institute of Technology since 2000. Before that she held a number of other positions at NJIT as Acting Director of the Ronald McNair Achievement Program including coordination of the undergraduate research experience component, Acting Director of the University Learning Center, Assistant Director of the Education Opportunity Program, and Coordinator of the NSF Educational Learning Assistance Program at NJIT. She is active, and a former Board Member, in the Hispanic Association for Higher Education (HAHE) and has presented at previous ASEE meetings.

Michael Kerley, New Jersey Institute of Technology

Dr. Michael Kerley has been a professor at NJIT for the past eleven years. He currently is Coordinator of The Teaching Assistant Instructional Program (primarily for International students), and also teaches Engineering Ethics, Technical Writing, Oral Presentations each semester. Dr. Kerley's background is in Theatre and Media Education, having his Masters Degree in Theatre Directing from the University of North Carolina at Chapel Hill and his doctorate in Education and the Media from Columbia University. At NJIT, Dr. Kerley has been very involved with the EOP Program and the McNair Achievement Program.

Jerome Paris, New Jersey Institute of Technology

Jerome Paris is Director of the English as a Second Language (ESL) Program at New Jersey Institute of Technology. He has a Ph.D. in English and American literature from Cornell University and an M.A. in Teaching English to Speakers of Other Languages from Teachers College, Columbia University. He was chair of the New Jersey Higher Education ESL/Bilingual Administrators Council from 2001 to 2004. He has been co-coordinator of the NJIT Teaching and Communication Skills Workshop since its inception in 1991.

Janet Bodner, New Jersey Institute of Technology

Janet Malovany Bodner is the Associate Director of the ESL Program at New Jersey Institute of Technology. She has been the Co-Director of the Teaching and Communication Skills Workshop at NJIT, now in its sixteenth year. She has a B.A. in English from Douglass College, Rutgers University; an M.A. in English from American University in Washington, DC; and an M.A. in ESL from Kean University in Union, NJ.

Ronald Rockland, New Jersey Institute of Technology

Ronald H. Rockland is Associate Dean of the Newark College of Engineering of NJIT and Associate Professor in Engineering Technology, with a joint appointment in Biomedical Engineering. He received a B.E. and M.S. in Electrical Engineering from New York University and a Ph.D. in Bioengineering, also from NYU, and an M.B.A. in marketing from the University of St. Thomas. He has over 20 years of industrial experience in research, engineering, marketing and sales management with several high technology corporations. His current research areas are application of computers to the technical learning process and biomedical signal analysis, as well as development of pre-engineering programs. He currently chairs NJIT's Master Teacher Committee.

AC 2007-375: An Integrated Approach to Teaching Assistant Training and Orientation

Ronald Kane, Michael Kerley, Jerome Paris, Janet Bodner, Ronald Rockland, and Clarisa Gonzalez-Lenahan

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The training and quality of the Teaching Assistant is a continuing need at technological universities, particularly for those universities with large international student populations. A multifaceted approach has been developed to address concerns about pedagogy, academic quality, communication skills, educational culture, academic progress of graduate students, and educational needs of undergraduates and undergraduate programs. The approach includes a combination of short courses, seminars, regular coursework, language proficiency evaluation, and faculty developed policy in cooperation with academic administration. The programs are continually reviewed for quality and potential improvements. Details of the program and the achievement of best practices are described.

Introduction

The growth of graduate and doctoral programs (Ref. 1) at New Jersey Institute of Technology has provided an opportunity for research-involved faculty to handle their teaching duties and continue to perform their research at a high level of activity. NJIT was designated New Jersey's public technological research university in 1994 by legislative action. With NJIT now a major research university, support of graduate students, particularly doctoral students in their first years of study is a major concern. Most research universities make extensive use of doctoral students as Teaching Assistants. Most will later move toward funded research support as Research Assistants.

Like most technological universities in the United States with focus on engineering, applied science, computer and information science, doctoral programs see significant enrollment of international students who may serve as Teaching Assistants. This presents unique challenges in training and orientation programs. NJIT has found that an integrated approach to address issues of communication skills, pedagogical techniques, and cultural issues has served well to enhance the services provided to faculty, staff, and most importantly to undergraduate students.

NJIT had a total Fall 2006 enrollment of 8,209 students, with 433 doctoral students and 2,396 master's students. Half of all master's students are full-time. About 85% of the doctoral students are full-time with a large percentage of those international students. In any given year, about 180-200 graduate students, almost all doctoral, will serve as Teaching Assistants. Anywhere from 20 to 40 new TAs with international backgrounds may begin their service each year.

Prior to the integrated approach, the graduate office and many other university offices heard regular comments from students about the lack of communication skills of faculty when they were in fact often referring to the international Teaching Assistant cohort. However, it is to be noted that many faculty also have international backgrounds and it is not apparent that the type of training now provided at NJIT was in place while they were graduate students in the United States. For personnel and campus political reasons, it should be understood why the valuable programs that may be mandatory for doctoral students can only be considered voluntary for regular faculty.

Setting Standards

One of the first issues to be addressed as NJIT began its major growth in doctoral education was the setting of standards for admission to the doctoral program. The factor that was of most concern to the issue of TA support was communication ability. For United States students, these skills could be readily evaluated from Letters of Recommendation, undergraduate and graduate transcripts, written documents provided by the students and other materials. For international students, none of these could, with certainty, provide the needed information about communication skills. Graduate record examination (GRE) scores are required of all doctoral applicants to NJIT regardless of their country of origin. International applicants are required to submit scores from the Test of English as a Foreign Language (TOEFL) and meet minimum standards for admission.

The TOEFL has undergone a series of changes over the years. When a base-level score was first established for admission to graduate study at NJIT, only the pencil and paper test was available. In the late 1980's, a pencil and paper score of 520 was set as the base level for all international admissions with a 500 score allowable if supplemented by additional English language training. By the early 1990s, when the doctoral programs began to grow and concurrent with administrative changes in graduate education, the minimum score levels were re-evaluated and a level of 550 was set for all international student admissions. An environmental scan of other similar universities indicated that this score was consistent with most other universities focused on technology. Specific programs were allowed to set higher standards but not allowed to lower standards.

As the computer-based TOEFL appeared, the base-level score was reset for CBT at the equivalent score of 213. The new internet-based exam, iBT, has only recently been introduced and the four component scores of the new test are being evaluated for setting base-level standards. The new test has components that did not appear in earlier versions and that can be quite useful for Teaching Assistant evaluation and placement. The four scores report on reading, writing, listening and speaking skills. The GRE verbal score was not found to be of value in determining communication skills for Teaching Assistants although it was valuable admission-related information for those academic programs more focused on verbal skills. NJIT has had the experience that verbal GRE scores for domestic students are not always significantly higher than they are for international students.

Communications Evaluation

For international students and regardless of TOEFL scores, each new graduate student, TA or not, is required to be evaluated for speaking and listening skills by the English as a Second Language (ESL) staff at NJIT. That evaluation occurs before newly arrived students register for their first classes and allows recommendations to be made on placement in a variety of ESL courses. Many students require no placement at all after testing. It is a matter of historical interest that in the many years that most of the authors of this paper have been at NJIT, we have seen a marked improvement in the English language communications skills of our new international students. This reflects the experiences of those of us who have traveled overseas and particularly to locations in Asia.

The ESL courses that are recommended to students are generally at the intermediate level or higher. There are courses on accent reduction and on technical writing which may be required by some academic programs. Most courses are graded Satisfactory/Unsatisfactory but count as if they are credit-bearing classes for the purpose of determining full-time credit loads. This is of great value to new students who might need at least one semester to acclimate themselves to American educational culture and the environment. Teaching Assistant tuition support policies allow the cost of ESL courses to be covered.

Teaching Skills Workshop

The first initiative at NJIT for a more general program, as compared to a departmental program, was initiated in the late 1980's by a former Dean of Students at NJIT and has been carried forward to this day by the ESL staff. All students from overseas, who have been given Teaching Assistant awards to attend NJIT, are required to arrive two weeks before other international students, and attend a five day intensive Teaching Skills Workshop. Students are housed on campus during the workshop and given an introduction to American culture through dining and social events in addition to the technical work.

Each student is asked to give a sample talk on any topic familiar to them and that talk is videotaped and reviewed by both the staff and the other workshop participants. This process and second talks have shown been very effective in handling communications skills that are often not strictly language-based. The program includes a panel discussion by faculty at NJIT on effective teaching and effective communication with students. Typical advice provided is about how to answer questions in class and how to handle the differences in culture that will be seen. Issues of academic integrity in the American context are discussed at this workshop as well as later at the general international student orientation. Articles from a number of books are discussed during the workshop (Ref. 2,3,4,5).

Required Courses

All Teaching Assistants (domestic or international) are required to enroll for and receive a Satisfactory grade for ENG 599, University Teaching Methods/Communications Skills, or an equivalent course offered by a department. The requirement for taking this course can be waived by the graduate dean if the student already has the skills, experience, or training covered by the

course. Because of the development of this course, many departments have dropped their own courses in favor of this one. The course focus is pedagogy but also provides instruction in skills valuable for the professional workplace. Students who are not Teaching Assistants now but may want to become a TA later or are likely to pursue careers that involve instruction often select this course as an option. The course makes extensive use of techniques and ideas developed at other universities (Ref. 3,6,7,8,9,10).

The faculty Graduate Council, the primary academic committee at NJIT responsible for reviewing courses and programs, approved this course and made it a requirement for all Teaching Assistants in 1999. The stated policy is that students should not be in charge of recitation sessions or do lectures until they have completed this course or its equivalent. Many Teaching Assistants work in laboratories or do grading of papers; the course also discusses interpersonal skills. For international students, ESL courses can be taken simultaneously with this course. The course is continually updated by its instructor to keep pace with the improving language skills of new doctoral students and changes in technology. The course covers issues of academic integrity, professional behavior, e-mail protocol, meetings leadership and participation skills and others that all contribute to both professional and instructional effectiveness.

Evaluation

All instructors, including Teaching Assistants are regularly evaluated at NJIT, through a carefully monitored and student-controlled process. Outstanding Teaching Assistants are recognized by their departments and by the university. One Teaching Assistant is selected each year to receive an award at the university Honors Convocation. The NJIT Graduate Student Association also provides input for the university about Teaching Assistants with a focus on their needs to perform their assigned duties properly. That feedback is provided to the departments and to the administration of the university.

Impact

The integration of factors and activities to assure that Teaching Assistants enhance the instruction of students at NJIT proceeded from setting the standards of admission of doctoral students, to communications and teaching skills evaluation, to training programs and evaluation, and finally to the skills development for professional careers, has effectively responded to the former reports of undergraduate students about deficiencies in teaching skills. A number of years ago, NJIT began to recognize its most outstanding teachers by designating them as Master Teachers. Most recently, the Master Teachers Committee has developed a seminar series for new faculty and doctoral students that provides an introduction to an academic career. This provides a natural closing of the loop for the training of Teaching Assistants from arrival at NJIT through completion of the doctorate. It complements and enhances the challenging academic program path they have followed in achieving the doctorate and prepares them for careers in either industry or in academe.

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