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ABSTRACT

The purpose of this study was to identify the training needs and preferences of Graduate Teaching Assistants (GTAs) employed by a large state university that depends heavily on Teaching Assistants for lower level undergraduate instruction. A survey exploring 21 instructional skills relevant for GTA training was returned by 160 GTAs. More than half of the respondents had received either formal or informal instructional training proper to their current teaching assignment. Most of the GTAs reported that they enjoyed teaching and that teaching was very satisfying to them. However, half of them reported that teaching interfered with their graduate work. Also, almost none reported using computers for test creation, test scoring, or as electronic grade books. Respondents identified their greatest training needs as learning how to: (1) lecture effectively; (2) use other instructional methods; (3) motivate students; and (4) understand student characteristics. (Author/SLD)

**Tomorrow's Professors:
Helping University Teaching Assistants Develop Quality Instructional Skills**

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Tomorrow's Professors: Helping University Teaching Assistants Develop Quality Instructional Skills

Abstract

The purpose of this study was to identify the training needs and preferences of Graduate Teaching Assistants (GTAs) employed by a large state university which depends heavily on Teaching Assistants for lower-level undergraduate instruction. A survey exploring twenty-one instructional skills relevant for GTA training was returned by one hundred and sixty GTAs. More than half of the respondents had received either formal or informal instructional training prior to their current teaching assignment. Most of the GTAs reported that they enjoyed teaching and that teaching was very satisfying to them. However, half of them indicated that teaching interfered with their graduate work. Also, almost none reported using computers for test creation, test scoring, or as electronic grade books. Respondents identified their greatest training needs as learning how to: lecture effectively, use other instructional methods, motivate students, and understand student characteristics.

Introduction

"There is a paucity of material which treats TAs (not to mention undergraduate students) perceptions as important components of TA development. Such an oversight is inconsiderate at best, elitist and detrimental at worst" (Eckstein, Boice, & Evans, 1991, p. 163).

Training Teaching Assistants in quality instructional skills is a challenge facing higher education. Universities with large undergraduate enrollments depend heavily on Graduate Teaching Assistants (GTAs) to provide support for or independently teach lower-level courses. Smaller regional universities are also making increased use of GTAs for undergraduate instruction. In some universities, as many as one-third of all undergraduate classes are taught by GTAs, and undergraduate students may have no interaction with any faculty member until they reach higher-level classes (Mangan, 1992). For the universities, Teaching Assistants provide cheap (and readily available) staff to teach courses. For instance, it currently costs the University of South Florida (USF) five times more to hire a full professor, four times more to hire an associate professor, and three times more to hire an assistant professor than to hire a GTA to teach one course each semester. Therefore, in the current times of tight budgets, we can expect universities' dependence on GTAs for instruction to increase. For the graduate students, Teaching Assistantships have become one of the most important sources of graduate school funding (Lambert & Tice, 1993). Thus, Teaching Assistantships conveniently serve the interests of both the graduate students and the universities that employ them. However, this convenient and logical arrangement also requires relatively inexperienced and often inadequately trained graduate students to handle complex teaching responsibilities in a society that increasingly demands "accountability" of higher education.

Performing the basic tasks of a GTA demands a repertoire of teaching skills. Most GTAs have little or no prior experience with these tasks, and receive little guidance. GTAs often get the message that teaching is not the top priority. In addition to the perceived importance of research in academe, for GTAs the time demands of their own graduate studies loom large. The attitudes of GTAs themselves range from viewing their teaching assignment as a convenient source of financial assistance to that of an initial apprenticeship for a lifelong career (Chism & Warner, 1987).

In an increasingly competitive higher education market, universities are now feeling pressured not only to carry out cutting-edge research, but also to provide quality undergraduate education. Consequently, providing adequate instructional preparation of GTAs has become a priority. In a recent survey of 393 institutions of higher education, 71% indicated that they had GTA-training programs. Most of these programs (83%) were ten years old, or younger (Lambert & Tice, 1993), showing the recency of interest in GTA training. Further, there are several universities where GTA training is sporadic at best, and non-existent at worst.

The Task and The Role of Institutional Research

In the design and implementation of GTA training programs, input from the trainees has rarely been sought. Institutional researchers can play an important role in systematically identifying the training needs and concerns of GTAs, and can contribute significantly to the design and implementation of GTA training programs on campus.

Two known surveys of Teaching Assistants were conducted by Diamond and Gray (1987), who surveyed 1,357 GTAs at seven universities, and Gray and Buerkel-Rothfuss (1991), who surveyed 207 GTAs. An interesting finding of the Gray and Buerkel-Rothfuss (1991) study was that most GTAs considered themselves good teachers, with or without training. Both studies found that GTAs recognized their need for improvement, and valued the idea of systematic training in instruction.

The Present Study

The focus of the present investigation was to identify the training needs and preferences of the University of South Florida's (USF) Teaching Assistants. USF is a large state university with 34,000 enrollment headcount. In the Spring, 1993 semester, USF employed 422 GTAs. For every three faculty members, USF employed one teaching assistant (Fact Book, 1992). USF's Center for Teaching Enhancement (CTE) was established recently (September, 1990) to improve the quality of undergraduate instruction provided by the University. Workshops training GTAs in instructional skills are offered on campus by the Center for Teaching Enhancement. This study was designed to provide input from the GTAs to the CTE regarding the design and scheduling of future workshops.

This study sought answers to three main questions: (a) What are the major instructional responsibilities of current GTAs?, (b) How do GTAs rate their instructional skills?, and (c) In what instructional skills would GTAs most like to receive training and be most likely to attend training workshops?

We were also interested in assessing the degree to which GTAs had received any prior training and their attitudes towards teaching.

Method

Sample

Questionnaires were mailed to all of the 1,012 Graduate Assistants employed by USF in Spring, 1993. Of these, 422 were Teaching Assistants and 590 were non-teaching Graduate Assistants (USF's medical school employs only one GTA, and was excluded from the survey population). Perceptions of graduate assistants not currently teaching, but who may have taught in the past or who anticipated being a Teaching Assistant prior to graduation were also considered important. Hence the target population was expanded to include non-teaching Graduate Assistants.

Completed survey questionnaires were returned by 251 graduate assistants from over 30 different departments. Of these, 160 were Teaching Assistants and 91 were non-teaching Graduate Assistants, giving a response rate of 37.9% for Teaching Assistants and 15.4% for non-teaching Graduate Assistants. Forty-six questionnaires were returned undelivered because of incorrect campus addresses and many more might not have been received by the correct individual; thus, these are conservative estimates of the response rates.

Measures

A four page survey instrument, developed specifically for this study, listed 21 instructional skills. A two-step process was adopted in designing the survey questionnaire. Based on a thorough literature search, more than 60 different content areas of GTA training were identified (e.g., Bort & Buerkel-Rothfuss, 1991; Gray & Buerkel-Rothfuss, 1991). The Dick & Carey model for the systematic design of instruction (Dick & Carey, 1990) was used as a theoretical framework for trimming down this list of potential training areas. This model of instructional design contains nine components: identify instructional goals; conduct instructional analysis; perform a goal analysis; identify entry behaviors & characteristics; write performance objectives; develop criterion referenced test items; develop instructional strategy; develop and select instructional materials; design and conduct formative evaluation; and revise instruction. The 60 content areas were matched with these nine components and a total of 18 instructional skills relevant for GTA training were retained. With the recent use of computers to aid in test construction, test scoring, and grading, three additional skills relating to these tasks were also included. This resulted in a final list of 21 instructional skills.

For each skill, the respondents were asked to rate their skill level on a three point Likert type scale (Don't know, Poor, Good, Excellent) and indicate on a three point scale whether they would attend a training workshop in that area (Not likely, Probably, Definitely). The next set of questions asked the GTAs to indicate all the teaching duties they were currently performing. Additionally, demographic data, several attitudinal questions, and space for comments were included.

Procedure

Survey questionnaires were distributed to all graduate assistants through campus-mail. The questionnaire was designed such that respondents could fold, staple, and return it using campus mail.

Results

Because only a small percentage of the non-teaching Graduate Assistants (15.4%) responded to the survey, the following analyses are based on the 160 responses of the Graduate Teaching Assistants. As seen in Table 1, the College of Arts & Sciences employs the greatest number of GTAs and also provided the highest response rate to the survey.

Table 1
Sample of Teaching Assistants by College

College	Number of Responses	Number of Teaching Assistants	Response Rate %
Arts & Sciences	103	250	41.2
Business	18	44	40.9
Education	6	24	25.0
Engineering	11	57	19.3
Fine Arts	6	33	18.1

Most (78.1%) of the respondents had only teaching responsibilities, though some (21.9%) were both teaching and research assistants. About half the respondents had a Bachelor's degree (49.4%) and half had a Master's degree (50.6%), indicating that approximately half of the sample were working towards their second post-baccalaureate degree.

Preparation to Teach

More than half (53%) of the GTAs indicated that they had received some training to teach, prior to their current assignment. Approximately one-third (35.6%) had attended at least one GTA training workshop conducted by the Center for Teaching Enhancement. Many more had received either formal training (41.9%) or informal preparation to teach (50%), in their department.

Instructional Responsibilities of Teaching Assistants

Most of the GTAs report doing most of the listed activities, including such content activities as selecting class reading assignments. Figure 1 shows the frequency of various teaching activities performed by GTAs. Holding office hours (92.5%) and grading (91.9%) were the most frequently cited activities, followed by lecturing (78.8%).

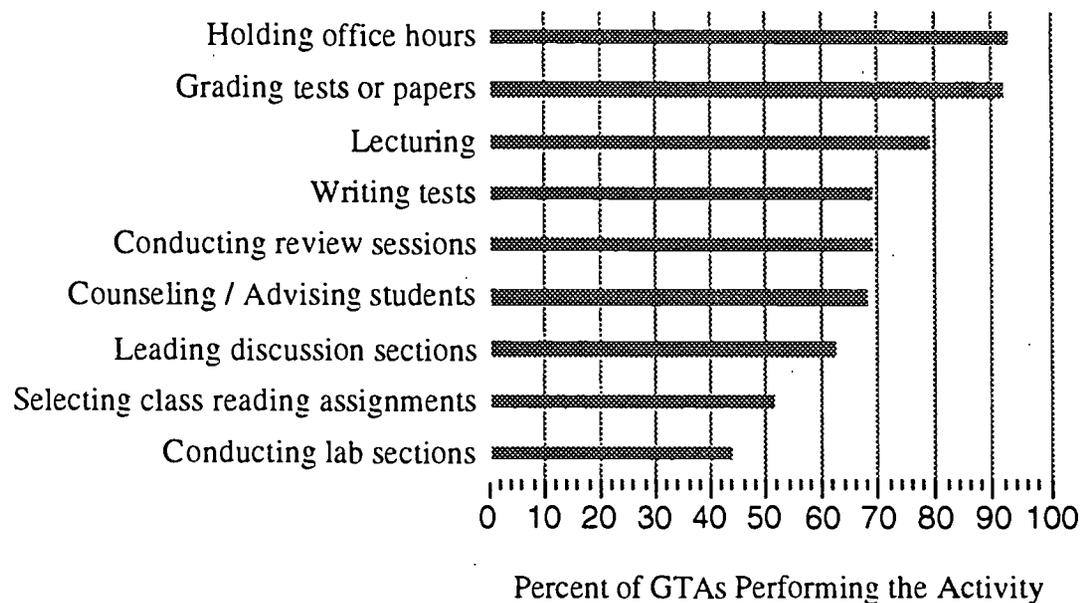


Figure 1. Instructional Responsibilities of GTAs

The frequency of GTAs conducting labs varied by college. We grouped the departments from the College of Arts and Sciences into three different groups: Natural Sciences, Arts and Letters, and Social and Behavioral Sciences. As seen in Table 2, most of the GTAs in Fine Arts, Natural Sciences, Business, and Engineering conduct labs. Fewer GTAs in Social and Behavioral Sciences, Arts and Letters, and Education are involved in conducting labs.

Table 2
Proportion of GTAs Conducting Labs

College	Proportion of GTAs %	Number of GTAs
Fine Arts	83.3	6
Natural Sciences	80.0	30
Business	72.2	18
Engineering	63.6	11
Social Sciences	34.5	29
Arts and Letters	11.6	43
Education	16.7	6

Instructional Skills of Teaching Assistants

For each of the 21 instructional skills, GTAs were asked to rate their current skill level. When GTAs had no experience and were unable to judge their current skill level for a particular instructional skill, they responded "Don't Know" (or gave no rating). Of those who felt they could rate themselves, most rated themselves as either "Good" or "Excellent".

As Table 3 shows, few of the GTAs have much experience using computers as electronic grade books or for creating and scoring tests. Over 57% indicate a lack of knowledge of these skills. Even worse, of those who did rate themselves, more than 30% rated themselves as "poor" in these skills. On the other hand, almost all respondents reported having knowledge of interactive skills such as "Building rapport with students", "Motivating students", and "Conducting classroom discussions". Further, although not a monotonic relationship, the more knowledge about a skill the respondents reported, the fewer who rated themselves as "poor" at the skill. Other areas in which about 20% of the GTAs reporting knowledge rate themselves as poor are: selecting textbooks, designing learning aids for students, using audio-visual teaching aids, evaluating yourself as a teacher, and understanding student characteristics.

Table 3
Self-Ratings of GTAs on Instructional Skills

Instructional Skill	Don't Know or Missing %	Poor % <i>excluding Don't Know</i>	Good or Excellent % <i>excluding Don't Know</i>
Using electronic grade books	71.9	53.3	46.7
Using computer based item banks and test assembly programs	57.5	32.4	67.6
Using computer based test scoring services	57.5	32.4	67.6
Selecting textbooks	48.1	22.9	77.1
Running labs skillfully	38.1	13.1	86.9
Using other teaching methods	26.3	11.9	88.1
Designing learning aids for students	25.0	24.2	75.8
Revising your course based on student feedback	23.8	9.0	91.0
Selecting reading assignments for class	23.1	7.3	92.7
Using audio-visual teaching aids	20.6	20.5	79.5
Writing a course syllabus	16.9	6.0	94.0
Writing course objectives	16.3	9.7	90.3
Writing tests	14.4	10.2	89.8
Evaluating yourself as a teacher	12.5	20.4	79.6
Understanding student characteristics	10.0	18.8	81.2
Delivering effective lectures	7.5	8.8	91.2
Conducting classroom discussions	6.3	6.7	93.3
Grading student performance	6.3	4.5	95.5
Motivating students	5.6	11.8	88.2
Describing performance expectations to students	4.4	11.1	88.9
Building rapport with students	3.8	3.2	96.8

Interest in Training

For each of the 21 instructional skills, GTAs were asked to indicate how likely they would be to attend a GTA training workshop on that topic. Figure 2 show the proportion of graduate assistants likely to attend these GTA training workshops. For 17 of the 21 instructional skills, more than 40% of the respondents indicated that they were likely to attend training workshop covering that topic.

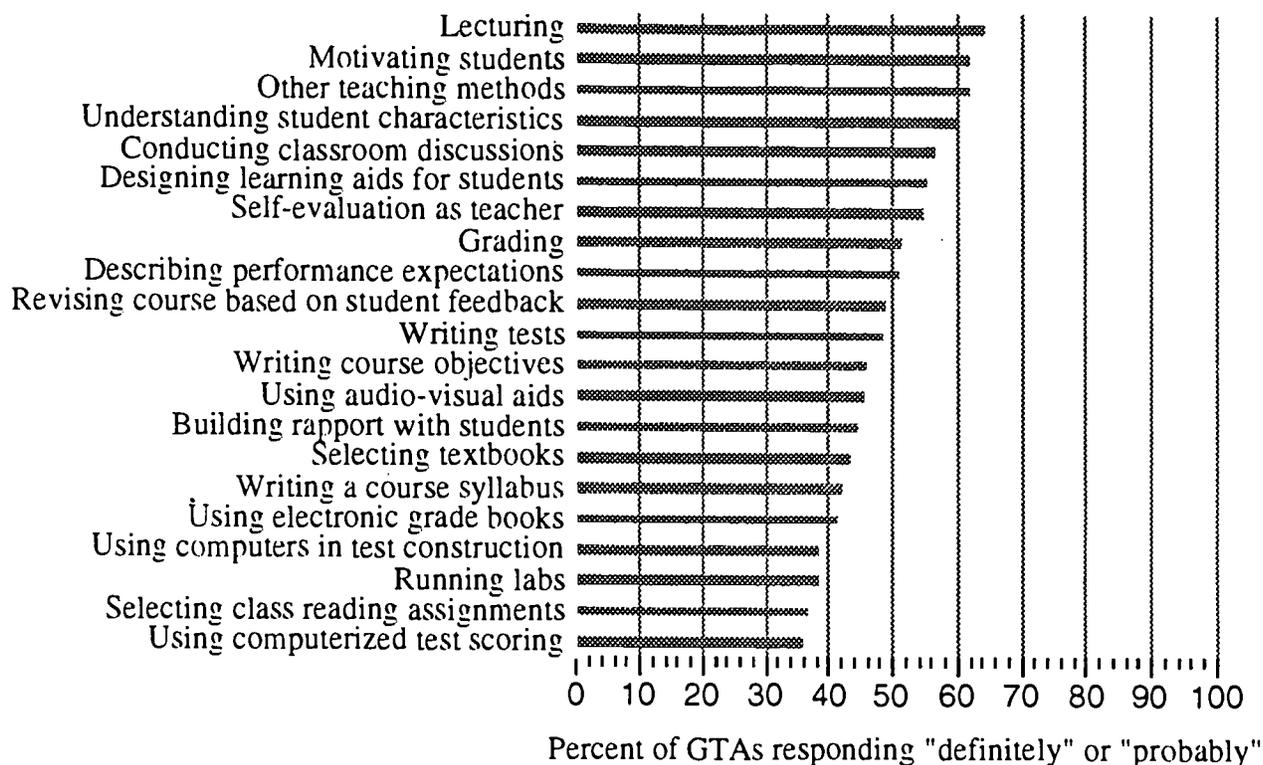


Figure 2. Self-reported likelihood of attending GTA training workshops

To facilitate the scheduling of future workshops, based on what the GTAs would like to study, need priorities were established. The 21 instructional skills were classified into **high, moderately high, moderately low, and low** priority instructional needs. This classification was based on the proportion of respondents expressing an interest in attending a GTA training workshop (indicating that they would "probably" or "definitely" attend a workshop).

High priority needs. Four instructional skills for which more than 60% of the respondents expressed an interest in attending a workshop were classified as high priority needs. These included: (1) effective lecturing, (2) other teaching methods, (3) motivating students, and (4) understanding student characteristics.

Moderately high priority needs. Five skills for which between 50 to 60% of the respondents expressed an interest in attending a workshop were classified as moderately high priority needs. These included: (1) conducting classroom discussions, (2) designing learning aids for students, (3) evaluating oneself as a teacher, (4) grading student performance, and (5) describing performance expectations.

Moderately low priority needs. Eight skills for which between 40 to 50% of the respondents expressed an interest in attending a workshop were classified as moderately low priority needs. These included: (1) revising a course based on student feedback, (2) writing tests, (3) writing course objectives, (4) effectively using audio-visual aids, (5) building rapport with students (6) writing a course syllabus, (7) selecting textbooks, and (8) using electronic grade books.

Low priority needs. Four skills for which less than 40% of the respondents expressed an interest in attending a workshop were classified as low priority needs. These included: (1) using computer based item banks and test assembly programs, (2) using computer based test scoring services, (3) selecting reading class assignments, and (4) running labs.

As mentioned earlier, using computers for test construction, scoring, and electronic grade books were three skill areas where most respondents indicated a lack of knowledge, yet they indicated almost no interest in training.

Attitude Towards Teaching

A series of seven questions on the survey explored GTA attitudes towards teaching. As seen in Table 4, most of the GTAs reported that they enjoyed teaching and that teaching was very satisfying to them. Most of the GTAs reported that they had adequate time to fulfill their assistantship responsibilities. However, fully half of the respondents indicated that teaching interfered with their other graduate school activities and that balancing instructor and student roles was difficult. Further, more than half of the respondents felt that research was more highly valued than teaching and that teaching was not adequately rewarded in their departments.

Most of the GTAs (80.6%) indicated that they planned to teach at a college or university upon graduation. There are notable differences in the attitudes of those GTAs who planned to teach and those who did not.¹ As seen in Table 4, a greater proportion of GTAs who planned to teach reported that they enjoyed teaching and that teaching was satisfying, than those who didn't plan to teach. Surprisingly far more of the GTAs who planned a teaching career also reported that teaching interferes with their other graduate school activities and that balancing instructor and student roles is difficult, than their colleagues who didn't plan a teaching career. Among those GTAs who did not plan to teach, a greater proportion felt that research is valued over teaching and that teaching is not adequately rewarded in their departments.

Table 4
Comparison of the Attitudes of GTAs Who Plan to Teach and GTAs Who Don't Plan to Teach After Graduation

Attitude	Percent Agree (N=160)	Plan to Teach (N=129) % Agree	Don't Plan to Teach (N=28) % Agree
I enjoy teaching	95.6	97.6	89.3
Teaching is very satisfying to me	92.5	96.9	78.6
Teaching interferes with my other graduate school activities	50.6	51.2	39.3
Balancing instructor and student roles is difficult	50.0	56.6	21.4
Generally, I have enough time to fulfill my assistantship responsibilities	79.4	78.3	82.5
Teaching is <i>not</i> adequately rewarded in my department	55.0	51.9	64.3
Research appears more highly valued than teaching in my department	56.3	54.3	60.7

¹These differences were not tested for significance.

Discussion

In general, respondents in this study were Teaching Assistants who consider themselves good teachers, irrespective of whether they had received any training. This supports the findings of Gray and Buerkel-Rothfuss (1991). Most of the GTAs planned to teach at a college or university after graduation. Although most of the GTAs enjoyed teaching and found it a satisfying experience, more than half of the GTAs also indicated that research is valued over teaching in their departments, that teaching is not adequately rewarded, and that teaching interferes with their graduate work.

How to lecture effectively, use other teaching methods, motivate students, understand student characteristics, conduct classroom discussions, design learning aids, and evaluate oneself as a teacher, appear to be the most important perceived instructional needs to GTAs. Of less perceived importance are skills involved in using computers for test construction, scoring and electronic grade books; writing tests, using audio-visual aids, communicating performance expectancies to students, and revising course based on student feedback.

The lack of knowledge and interest in the empowerment offered by computers when used as electronic grade books and for testing appears to be a fertile area for further investigation. These results may demonstrate a general lack of innovative instructional technologies in the University classroom. They may also indicate the lack of adequate computing facilities, either hardware or software or both, for use by the GTAs. Inadequate computing facilities create disincentives due to the effort involved in seeking out these resources. On the other hand, when easily accessible, the empowerment offered by computers, e.g., in terms of savings in time and effort, becomes an incentive for using them. It may be worthwhile to examine GTA perceptions about the adequacy of computing resources available for their use. Perceived inadequacies can be addressed by setting up computer labs with appropriate software tools, to be used by GTAs. Not only is it important to train GTAs in the application of technology in their teaching efforts, it is equally important to provide them with adequate resources to bring what they learn into their classroom.

The perceived conflict between teaching and graduate work may be indicative of a phenomenon at the systemic level in higher education, where research and publications seem to be more valued than teaching. In selecting new faculty members, their instructional skills are almost never evaluated, while the list of their research publications is perused carefully. The tenure decisions of junior faculty members are rarely based on the quality of their graduate or undergraduate instruction. The prevalent attitude in academe seems to be that if you demonstrate doctoral level knowledge and research competencies in your field of specialization, you can teach the subject matter. Careerism is a dominant value for today's college student. In an academic world of "publish or perish" graduate students perceive that their teaching experience is almost inconsequential for their future career success. If the departments in which they teach value research over teaching and fail to reward teaching, as this study indicates, then it isn't at all surprising that at least half of the GTAs perceive teaching as interfering with their graduate work, which to them becomes their research. This implies that there will be future professors who will feel that teaching interferes with their research. Interestingly, a greater proportion of respondents who plan to teach at Universities reported that teaching interfered, than did those who do not plan to teach. Changing the attitude of these graduate GTAs will have to be preceded by a change in the orientation of academe, which seems to communicate to the professorate of tomorrow that teaching is unimportant, and that they don't have to teach, or teach well, to be college professors. Further investigations into the causes of this perception may prove useful for large, research oriented universities such as USF.

Training GTAs in instructional skills is a challenge facing higher education. Asking graduate students themselves to report their instructional needs increases the probability of their participation in such training, especially when such training is not mandatory. This study demonstrates one effective application of survey methodology to the identification of training needs and preferences of the GTAs employed by a large public University.

As with most surveys, this study suffered from having a moderate response rate and probably contained a positive self-evaluation bias. Most of the respondents rated themselves to be "good" or "excellent" on most of the skills, even though they may not have had any training.

Assessment of GTA training needs could be improved by using several different methods (e.g., systematic classroom observation and focus-group interviews), in addition to surveys. Similarly, several different sources of information (e.g., undergraduate students and faculty supervisors) could also be explored. Such an in-depth needs identification is most feasible when conducted at the departmental level, where one can focus on a small number of GTAs.

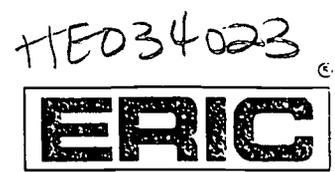
Adequate training of GTAs improves the chances for teaching experiences to be rewarding, both to the GTA and the students. Because this training is so important, if the preceding steps are taken, the promise of Teaching Assistantship as an apprenticeship for tomorrow's professorate can be fully realized.

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