Perceived utility and knowledge of graduate teaching assistants

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Abstract: The current study examined the graduate teaching assistantship experience from the perspective of course instructors, graduate teaching assistants, and students. Specifically, the purpose of the study was to determine the degree to which these groups perceived teaching assistants as utilized and knowledgeable in their assigned tasks. Students had a high propensity to answer, "I don't know" as to whether a teaching assistant was utilized in multiple duties. One-way ANOVAs with post-hoc analysis indicated most statistical differences in perceptions were between instructors and students. Overall, instructors perceived teaching assistants as more effective than did students.

Keywords: teaching assistants, knowledge, utility, graduate student training

Many new faculty members experience stress and dissatisfaction during their beginning years as junior professors (Magnuson, Shaw, Tubin, & Norme, 2004). Entering academia requires adjusting to a new perspective. New faculty members are making the transition from one self-image as a student to a new self-image as a professor (Magnuson, 2002). Not only are they adjusting to new identity roles, but, due to economic constraints in higher education, new professors also face increased teaching and advising responsibilities in a rapidly changing environment of technology (Savage, Karp, & Logue, 2004). Regrettably, most faculty members receive little or no teacher training (Jones, 2008) even though they report spending most of their time with teaching duties rather than in research activities (Gale & Golde, 2004; Golde & Dore, 2001; Magnuson, 2002).

I. Literature Review.

The graduate teaching assistantship is a central preparatory experience toward scholarly teaching (Nyquist, Abbott, Wulff, & Sprague, 1991; Nyquist & Woodford, 2000). Graduate teaching assistants have many of the same responsibilities professors do such as preparing and delivering lecture material, compiling examination questions, grading papers, and conducting laboratory sessions for courses. By providing proper training and mentoring to graduate teaching assistants, many of the problems experienced by first year teachers could be minimized.

The teaching assistantship was originally based on an apprenticeship model where the assistant worked directly under the professor by performing tasks like grading papers or preparing class materials. After enrollment increased in the 1960s and the 1970s, teaching assistants took on additional roles such as holding office hours, conducting laboratory sections, lecturing, and even assuming complete responsibility for courses (Nyquist et al., 1991). Currently, graduate teaching assistants (hereafter referred to as teaching assistants or TAs) fulfill diverse duties and responsibilities throughout their teaching assistant experience. Yet, similar to the junior faculty they often serve, TAs are given little or no preparation for their varied responsibilities (Golish, 1999). Often, this begins the cycle that leads to a gross lack of

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preparation for new faculty. As a result, many states are calling for improvements in doctoral education to better prepare faculty (Applegate, 2002).

How well a TA learns to teach is particularly imperative in a time when parents, employers, and legislators are interested in the quality of education provided at colleges and universities (Austin, 2002). Most departments expect TAs to teach and maintain the educational objectives of their university or college but provide very little training toward their success. As departmental budgets continue to shrink, the benefits provided by TAs become scrutinized. The degree to which TAs are utilized and knowledgeable turns into a key issue from the prospective of the institution, instructor, teaching assistant, and the student.

A. Utility.

For many graduate teaching assistants, the preparatory experience for future professional pursuits does not progress beyond clerical tasks. In many situations when they receive teaching opportunities, it is usually in response to a departmental need to cover courses or sections rather than a focus on the developmental needs of future teachers (Austin, 2002). Yet, utility as a teaching assistant in various teaching responsibilities can serve as an important preparatory experience.

Teaching assistant utility, or the tasks a teaching assistant is required to complete, is ultimately the responsibility of the supervising faculty member, regardless of university, college, or departmental responsibility designation. In order for teaching assistants to provide the most help to students, as well as gain from the interactions of working with students, teaching assistants must clearly know what the cooperating professor intends the students to know. When the professor understands a teaching assistant's abilities, experience, and goals, the professor is better able to tailor responsibilities specific to the teaching assistant.

B. Knowledge.

Recently, there have been advances in increasing and advocating quality training for doctoral students for faculty careers as evidenced in such programs as *Preparing Future Faculty* (Applegate, 2002). Boyle and Boice (1998) found that mentoring, involvement, and modeling were much more effective in developing junior faculty members and teaching assistants in the area of teaching than training programs. As Shannon, Twale, and Moore (1998) found, there is no replacement training for actually teaching experience. Therefore, actually performing the task translates into required knowledge to perform the task effectively in the future. Nonetheless, in most academic settings, the principle training for graduate teaching assistants is the completion of an introductory training workshop (Buskist, 2000).

Some scholars have examined teaching assistant relationships with students (Golish, 1999) while others have primarily focused on professors or supervisor relationships (Bernard-Rodrigues & Bond-Robinson, 2006; Bomotti, 1994; Notarianni-Girard, 1999). To date, however, no one has examined perceptions of all stakeholders involved in the teaching assistant experience. In order to have a complete understanding of the experience, perceptions from students, teaching assistants, and cooperating instructors should be examined. The purpose of the study was to determine the degree to which stakeholders perceived teaching assistants as utilized and knowledgeable in curriculum development, course maintenance, teaching responsibilities, and mentoring.

II. Methodology.

In order to determine the degree to which teaching assistants were utilized and perceived as knowledgeable, opinions from all stakeholder groups were solicited. Because of the limited information in this area of inquiry, we employed an exploratory descriptive design.

A. Participants.

A convenient sample of participants (N = 233), consisting of graduate teaching assistants, instructors, and students in three social science departments agreed to participate in this study. The sample was drawn from a Research I institution in the western United States. The cooperating departments were selected based on two criteria. First, their course material was similar in content, focusing on human development, behavior, and relationships. Second, they shared compatibility of departmental requirements for their graduate teaching assistantships. The sample was comprised of 21 graduate teaching assistants, 20 cooperating instructors, and 192 students enrolled in the class for which the participating graduate students were assigned. Upon IRB approval, participant recruitment proceeded in three steps. First, we solicited participation from faculty members who had teaching assistants within the departments. Of the 45 faculty members who had teaching responsibilities that required a teaching assistant, 20 (44%) agreed to participate. Participating faculty members asked their teaching assistants if they would be willing to participate. All 21 teaching assistants agreed to complete the survey. Finally, faculty members announced the purpose of the study to their students in class. Student e-mail addresses were gathered in their respective classes. Students were e-mailed a copy of the survey to complete. Of the possible 403 students, 203 eventually completed the survey. Duplicate surveys were not included, leaving 192 (48%) of the surveys sufficient to use in the data analysis. The response rate was better than expected for this type of survey design (Deutskens, Ruyter, Wetzels, & Oosterveld, 2004).

Participants completed an anonymous survey about the perceived knowledge and utility of the teaching assistant and returned it electronically. As shown in Table 1, student respondents were mostly juniors (39%) because of the make-up of the participating classes but the other years in school were also represented with freshman (17%), sophomores (16%), and seniors (28%). Most of the teaching assistants were master's students, either in their first year (33%) or their second year (29%). Half of the faculty participants (50%) were tenured/tenure track professors, with the remainder including graduate instructors, adjunct faculty, and lecturers.

B. Measurement.

We constructed three separate measures, one for each participant group. We identified four principle areas (curriculum development, course maintenance, teaching responsibilities, and mentoring) from each department requirement sheet in an attempt to identify potential duties in which teaching assistants were viewed as knowledgeable and utilized. Surveys were administered to a pilot sample of graduate student instructors who were not participating in the study, but could provide perspectives since they had fulfilled roles as students, graduate teaching

Table 1. Number of participants per participant category.

	Teaching Assistants ($n = 21$)		Instructors ($n = 20$)		Students ($n = 192$)
First-year Master's	7	Full Professor	3	Freshman	33
Second-year Master's	6	Associate/Assistant Professor	7	Sophomore	30
Third-year Master's	1	Lecturer	5	Junior	74
First-year Doctoral	4	Adjunct Faculty	3	Senior	54
Second-year Doctoral	3	Graduate Instructor	2	Other	2

assistants, and instructors. No items were eliminated based on their feedback. Various items included on the survey are included in Tables 2 through 4.

TA utility. We defined perceived utility by the frequency teaching assistants completed potential duties. Teaching assistant duties derived from combining the social science departmental requirements and separating them into separate categories based on the duty. For example, curriculum development consisted of duties pertaining to creating course materials such as examinations and lecture material. Course maintenance consisted primarily of clerical duties. Teaching responsibilities addressed teaching assistant attendance and participation in the course, such as teaching lectures. Mentoring consisted of items like tutoring students and holding office hours. There were 7 items measuring curriculum development, 11 items measuring course maintenance, 9 items measuring teaching responsibilities, and 5 items measuring mentoring. Each item was measured on a 5-point Likert scale with response options ranging from 1 = Never to 5 = Very Often.

TA knowledge. We defined perceived knowledge as the participant's agreement or disagreement of knowledge for the same potential duties, and associated items, in which teaching assistants were utilized. Perceptions of knowledge were measured using a 5-point Likert scale with response options ranging from 1 = Strongly Disagree to 5 = Strongly Agree, indicating that higher scores were associated with increased perceptions of knowledge on the specific task.

III. Results.

A. Utility.

First, we calculated frequency and percentages for each survey item across respondent groups (teaching assistants, students, and instructors) to provide a general sense of group perspectives and response distributions for the teaching assistant experience. Overall, respondent groups felt that professors utilized the teaching assistant (62% of TAs, 55% of students, and 80% of instructors). On the other hand, only 24% of teaching assistants and 27% of students felt the students utilized the teaching assistant. Instructors did not share this view, with 55% of instructors indicating that students were utilizing the teaching assistant.

Specific findings with regard to teaching assistant utility revealed that 5% of teaching assistants, 39% of students, and 30% of instructors either agreed or strongly agreed that they underutilized teaching assistants' knowledge. Interestingly, professors (65%) viewed teaching assistants as knowledgeable in their role but failed to utilize them in most (87%) of the specific tasks.

Students also had high tendencies, on average, to report, "don't know" whether their teaching assistant was utilized in curriculum development (41%), course maintenance (43%), teaching responsibilities (11%), and mentoring (41%). Furthermore, there were discrepancies between reports of perceived knowledge and reported utility. For example, 86% of teaching assistants agreed or strongly agreed they were knowledgeable in maintaining office hours. However, more than half (52%) of them reported rarely or never maintaining office hours. Another example was teaching assistants indicating they agreed or strongly agreed (81%) they were knowledgeable in tutoring students with course materials, yet only 23% of them said they had often or very often tutored students.

Based on frequency distributions in these data, mean scores indicative of utilization were set at 4.0 or above. As seen in Table 2, teaching assistants reached this standard on items in course maintenance and mentoring. Trends in the data indicated students were most likely to perceive the teaching assistant as utilized and instructors were least likely to perceive them as utilized.

A one-way ANOVA was used to compare group differences. Statistically significant mean differences were found in all four categories. For curriculum development, the group mean scores differed in how each group felt about teaching assistants developing course curriculum, $F(2, 137) = 3.47$, $p = 0.034$. In course maintenance, statistically significant differences were found for how often TAs recorded examination scores, $F(2, 147) = 4.89$, $p = 0.009$, with the student respondents ($M = 4.33$, $SD = 1.01$) having the highest mean scores. Mean scores were also statistically different $F(2, 172) = 5.61$, $p = 0.004$, for the teaching assistants' utility in remaining up to date with grade information. The greatest differences in these areas were seen between students and instructors.

All group mean scores differed, $F(2, 141) = 5.36$, $p = 0.006$, in how they viewed the utility of the teaching assistant task of dropping off/picking up test materials and/or promptly recording grades. Finally in course maintenance, statically significant mean score differences were found for the utility of the teaching assistants in making copies $F(2, 105) = 4.30$, $p = 0.016$, and meeting with the instructor $F(2, 107) = 4.42$, $p = 0.014$. Post-hoc tests indicated the greatest statistical differences in means were between TAs and students for these areas.

In teaching responsibilities, mean scores of participant groups differed $F(2, 228) = 3.74$, $p = 0.025$, in their views of teaching assistants utility for attending lectures. In mentoring, the utility of maintaining office hours had statistically significant different participant mean scores $F(2, 131) = 14.16$, $p < 0.000$.

B. Knowledge.

Overall, most of the respondents (57% of teaching assistants, 74% of students, and 50% of instructors) agreed or strongly agreed that the students viewed the TA as knowledgeable. At the same time, even more of the respondents (86% of teaching assistants, 78% of students, and 65% of instructors) agreed or strongly agreed that the instructor viewed the teaching assistant as knowledgeable.

Table 2. Teaching assistant, student, and instructor means and standard deviations for questions addressing teaching assistant utility.

	Teaching Assistants (n = 21)		Students (n = 192)		Instructors (n = 20)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Course Maintenance						
Graded assignments	**4.48**	0.68	**4.48**	0.88	**4.20**	0.89
Returned student work in a timely manner	**4.19**	1.21	**4.29**	1.00	**4.15**	0.99
Recorded examination scores	3.86	1.46	**4.33**	1.01	3.47	1.74
Remained up to date with grade information	**4.05**	1.28	**4.24**	1.03	3.28	1.71
Met with the instructor regularly	3.80	1.24	**4.17**	0.99	3.40	1.10
Maintained confidentiality about student records	**4.81**	0.51	**4.69**	0.72	**4.88**	0.33
Mentoring						
Maintained office hours	2.57	1.47	**4.03**	1.21	2.83	1.76
Available through e-mail and/or telephone contact	**4.43**	1.03	**4.39**	0.84	**4.20**	1.24

As seen in Tables 3 and 4, there were mean scores greater than 4.0 in all four major categories. However, teaching assistants, students, and course instructors did not all agree on their perceptions of knowledge for any of the six subcategories of curriculum development. Overall, trends in mean scores indicated instructors viewed teaching assistants as more knowledgeable than did the teaching assistants themselves, and the teaching assistants viewed themselves as more knowledgeable than did the students, which was a reversal from perceived utility. Mean scores of both professors and teaching assistants indicated significantly higher ratings than student respondents.

A one-way ANOVA compared group mean differences for knowledge as well. Group means differed in course maintenance where teaching assistants ($M = 4.67$, $SD = 0.48$) perceived themselves as more knowledgeable, $F (2, 195) = 3.19$, $p = 0.043$, in maintaining confidentiality with student records than instructors ($M = 4.39$, $SD = 0.70$), and students ($M = 4.21$, $SD = 0.84$). For overall perceptions of teaching assistant knowledge, the item, "the students viewed the TA as knowledgeable" was the only one in which comparison of participant mean scores was statistically significant. Students ($M = 4.08$, $SD = 0.98$) had the highest mean scores $F(2, 227) = 3.97$, $p = 0.020$, followed by instructors ($M = 3.84$, $SD = 0.90$), and teaching assistants ($M = 3.48$, $SD = 0.98$).

Table 3. Means and standard deviations for teaching assistant knowledge in curriculum development and course maintenance.

	TAs (n = 21)		Students (n = 192)		Instructors (n = 20)	
	m	*sd*	*m*	*sd*	*m*	*sd*
Curriculum Development						
Locating outside resources	3.95	0.94	3.90	0.96	**4.06**	0.94
Preparing PowerPoint presentations	3.95	1.19	**4.03**	1.02	**4.11**	0.68
Reviewing drafts of course materials	**4.15**	1.14	3.87	1.02	**4.06**	0.83
Assisting with activities not specific to the course	3.85	1.09	3.63	1.00	**4.07**	0.83
Course Maintenance						
Grading exams	**4.43**	0.68	**4.13**	0.90	**4.50**	0.52
Grading assignments	**4.52**	0.60	**4.37**	0.81	**4.53**	0.61
Returning student work in a timely manner	**4.52**	0.68	**4.24**	0.97	**4.53**	0.62
Recording examination scores	**4.67**	0.58	**4.19**	0.96	**4.33**	0.69
Remaining up to date with grade information	**4.43**	0.81	**4.16**	0.98	**4.22**	0.81
Taking materials to e-reserve	3.29	1.35	3.76	1.03	**4.50**	0.67
Dropping off/picking up scantrons and/or promptly recording grades	**4.10**	1.04	**4.01**	1.02	**4.38**	0.72
Making copies	**4.48**	0.81	**4.00**	1.00	**4.31**	0.70
Meeting with the instructor regularly	**4.33**	0.91	3.92	0.93	**4.22**	0.73
Maintaining confidentiality about student records	**4.67**	0.48	**4.21**	0.84	**4.39**	0.70
Maintaining or updated Blackboard	3.95	1.12	3.90	1.09	**4.36**	0.74

Table 4. Means and standard deviations for teaching assistant knowledge in teaching responsibilities and mentoring.

	TAs (n = 21)		Students (n = 192)		Instructors (n = 20)	
	m	sd	m	sd	m	sd
Teaching Responsibilities						
Attending lectures	**4.48**	0.98	**4.03**	1.19	**4.00**	0.71
Setting up teaching equipment	**4.24**	0.89	3.73	1.12	**4.06**	1.00
Distributing handouts	**4.57**	0.75	**4.10**	1.03	**4.39**	0.70
Teaching classes	**4.29**	1.06	**4.28**	0.89	**4.25**	0.68
Participating in class when appropriate	**4.19**	1.03	3.99	1.08	**4.24**	0.75
Conducting exam reviews	3.57	1.21	3.33	1.38	**4.00**	1.18
Giving exams or supervised exam periods	**4.43**	0.68	**4.07**	1.05	**4.29**	0.73
Facilitating class discussions	**4.10**	1.00	3.68	1.18	**4.06**	0.85
Taking notes on in-class information	**4.29**	1.06	3.75	1.11	**4.06**	0.66
Mentoring						
Maintaining office hours	**4.14**	0.96	3.85	1.00	3.73	1.10
Being available through e-mail and/or telephone contact	**4.52**	0.93	**4.17**	0.80	**4.33**	1.08
Tutoring students with course material	**4.10**	1.00	3.77	1.05	**4.00**	1.13
Answering student's questions	**4.29**	0.90	**4.06**	0.91	**4.39**	0.70

IV. Discussion.

The principle area of teaching assistant utilization was comprised primarily of clerical tasks. If the teaching assistantship is the primary apprenticeship for teaching, and the primary tasks they complete are clerical, there is disconnect between future goals and current practices. This could be a reflection of a number of things. The graduate students may serve as teaching assistants for employment rather than mentorship in college teaching. Instructors might only need clerical

tasks completed or either party may be uninformed of the potential tasks teaching assistants can complete. Perhaps the department and the supervising faculty member should renegotiate the assessment and designation of responsibilities to better serve as preparation for the teaching assistant's ultimate professional goals. If graduate students wish to make their teaching assistantships more pertinent to their career goals, it is also incumbent upon them to take initiative to mold their experiences to fit their professional pursuits.

The mean score comparisons for perceptions of knowledge revealed teaching assistants, students, and instructors viewed the teaching assistant experience differently. There were statistically significant differences when asked if the student viewed the teaching assistants as knowledgeable and when asked if the teaching assistant's knowledge was underutilized. Most of the observed differences were between the students and the instructors. These differences are important to understand for both form and function. Assuming a business analogy, the instructor is the employer, the teaching assistant is the employee, and the students are the consumer. There is a discrepancy between the employer and the consumer as to what the employee is actually doing and what the employee actually knows. This concept is particularly pertinent in an academic climate experiencing increased enrollment and an increased opportunity for students to actually make consumer choices concerning higher education. Universities and tenure seeking faculty members could mutually benefit from optimal learning environments (e.g., informing students of teaching assistants as a course resource) for the consumer student.

Overall, instructors felt teaching assistants were more knowledgeable than teaching assistants reported. Perhaps instructors hoped or assumed their teaching assistant was knowledgeable, otherwise they would not have been granted the employment opportunity. When comparing participant perceptions of utility and knowledge, it is interesting that instructors perceived teaching assistants as knowledgeable in tasks which the teaching assistants were not requested to complete. This brings into question how instructors conclude them as knowledgeable in tasks in which they were not utilized? Even though instructors perceived teaching assistants as knowledgeable they still did not assign them to complete many tasks that would potentially prepare the teaching assistants for future employment and careers. This may be a manifestation of what Nyquist and colleagues (1991) suggested when they proposed there is an inherent belief that if scholars know their disciplines then it is assumed they can teach within them. Perhaps the instructors assume the teaching assistants have knowledge within the discipline, which, in turn, is an assumed knowledge in task completion. Perhaps TAs experienced an "imposter phenomenon" in which they felt fake in their abilities and less competent or intelligent than they appeared to others (Clance & O'Toole, 1988).

Teaching assistants perceived they were more knowledgeable than students reported, which coincides with the findings of Twale et al. (1997) that teaching assistants tend to give themselves higher evaluations than students because they have had minimal training and/or teaching experience and so may see their performance as acceptable. Perhaps the student perception of teaching assistants as less knowledgeable coincides with the finding that students seem unaware of their responsibilities. Students are not given a list describing the potential duties a TA may fulfill. It is up to the instructor what information about a TA's responsibilities are shared in class, and how the TA is presented as a tool for the students. The teaching assistant is a potential resource for students to utilize in courses, yet students do not seem to be informed of those duties. Students should be enlightened to the duties in order to more fully utilize them.

The relationship between knowledge and utility requires further investigation. The question stands: Is a teaching assistant utilized more based on perceived knowledge or is a

teaching assistant perceived as more knowledgeable because he or she has been utilized more? How, exactly, are they gaining their knowledge of teaching when the majority of their utilization comes from completing assigned clerical tasks?

A. Limitations.

The small sample size in this study made it difficult to generalize about populations of teaching assistants, students, or instructors. Furthermore, findings should only be considered for teaching assistants in social science departments recognizing that graduate teaching assistants in other departments often have different responsibilities. We created the measures administered in this study specifically for this study and so no prior reliability information was available.

B. Implications.

This study is potentially useful for universities and departments employing graduate teaching assistants. If the majority of teaching assistants' duties are clerical, and if they are, in fact, underutilized, then there are some obvious economic implications for universities and departments, alike. Universities should encourage departments, instructors, and teaching assistants to make the most of teaching assistantships to not only improve courses but also provide career development opportunities for teaching assistants and justify the expense of keeping them on the university payroll.

Instructors would be well advised to utilize their teaching assistants, recognize a teaching assistant's necessity for experience with teaching, and to affirm they have a clear understanding of expectations and requirements of the assistantship. As noted, their utility is often the jurisdiction of the department and, ultimately, the supervising faculty member. To make economic sense, the teaching assistant should have a clear vision of what his or her duties are in order to best fulfill those duties.

Departments should also evaluate which potential duties are actually being fulfilled. If there is not a need for teaching assistants to fulfill all of the required duties and if some are not needed for full assistantship hours, then departments should consider either scaling back assistantship hours or assigning one teaching assistant to multiple instructors. On the other hand, departments could also suggest that faculty members utilize their teaching assistants more to provide a wider gamut of experience to teaching assistants and perhaps better assist faculty members.

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