THE TEACHING EXCHANGE
BROWN UNIVERSITY ▪ VOLUME 3 / NUMBER 1 ▪ SEPTEMBER 1998

Why Bother to Be a TA?

A Cost-Benefit Analysis of Teaching and Professional Development

see also: Suggestions for TA Development

Charlotte F. Manly
IRTA Postdoctoral Fellow, Cognitive Neuroscience Section, NINDS (Neurological Disorders and Stroke), NIH; Ph. D., Brown University, Cognitive and Linguistic Sciences, 1998.

One day, I was chatting with a new graduate student who was concerned about our program's Teaching Assistant requirement of four semesters, which he thought excessive. Couldn't he learn everything in one or two semesters? And which courses were least demanding? I thought these were the wrong questions. But what were the right ones?

The "Cost" of Being a TA

Why be a TA? The practical reasons are money and department requirements. But I think there are professional reasons, too. The question is, what will it cost you? I raise this question because it is commonly suggested that research and teaching are each pursued at the expense of the other, and therefore, trying to teach better will cost you research accomplishments.

I doubt it's so simple. Bad teaching takes time, too; I'd rather learn what's effective so that the time I spend teaching is energizing rather than a chore. And I think there can be synergy between research and teaching. Research encourages depth, while teaching encourages breadth. So doing both leads to basic research which is likely to have long-term relevance to society. Given Congress' increasing reluctance to fund basic research, I think it will become increasingly important for university researchers to account for their lines of research. I realize that some grad students expect to do only research in the future. Be

forewarned: There will always be someone footing the bill who wants an explanation. You will need presentation or communication skills no matter what you do. In addition, there are similarities between evaluating students and supervising subordinates, which you may also do.

But now, about the cost of professional development as a TA. Brown requires TA duties not to exceed 20 hours per week, but the courses I've TA'd have averaged 12-15 hours. Doing the bare minimum might have involved about 10 hours, but I would have learned nothing. So if you're already getting paid to TA, the incremental cost of developing your teaching or communication and presentation skills is perhaps 3-5 hours a week. I considered this a worthwhile investment, both for the sake of my current students and for my own future employability. In addition, I was the one who decided how to use this time, which increased my professional autonomy.

The Benefits of Being a TA

There are three main ideas in this article. The first is that TA'ing will be smoother if you understand the TA role and cultivate a good relationship with the professor. This relationship is important if you are TA'ing for professional development, because you need inside information on reasons for the course's construction, the use of certain policies, and so on. I preferred to start with the professor before the course began. If they did not hold a TA meeting, I went to them. In addition to the syllabus, I wanted to know about late-assignment and collaboration policies, my formal duties, and the professor's informal expectations of me. I also wanted to learn the professor's teaching and supervision style. Was s/he hands-on or hands-off? Which things did s/he want to be fully informed about, and which was I to handle as delegated? If student disputes arose, when did s/he want to be brought into the process? The answers to such questions allowed me to handle administrative questions as the professor would.

Specific duties and expectations do vary by department. In mine, the formal duties usually covered grading and office hours, but most professors expected me to attend classes, and some hoped I would generate exam questions or deliver a guest lecture. But across departments, it is the professor's job to teach the class, and the TA's job to assist the professor in teaching effectively. Keeping in mind that I am not responsible for teaching the course has helped me deal with TA-related frustrations. I have also come to recognize - though unfortunately only after my last course - that as the person responsible for the

course, the professor gets the credit and blame for a TA's contribution. This explains why professors sometimes resist suggestions from their TAs, or hesitate to let them guest lecture, as well as why a TA who affects course development may not see it in the course evaluations.

The second main idea is the use of reflection in handling imperfect feedback. I have in mind especially those end-of-semester course evaluations. Mine have usually been negative, but I've managed to make them informative. I've also sought mid-course feedback from my students, e.g. "List two or three useful things you learned in today's section." If the answers were blank or irrelevant, that indicated my agenda was unclear; if responses were jumbled, my explanation was not clear. Students' decisions to approach me outside of class have told me whether they considered me approachable (and knowledgeable). I've also requested suggestions from people who know how to teach - professors and people at the Sheridan Center. By combining different kinds of feedback, it's possible to discover one's impact on students without enduring permanent ego damage.

The third main idea is the place of reflection in professional development. Reflection is a tool for understanding your TA experiences so that they are useful in other contexts such as teaching your own course, making presentations, or supervising others. There are some rather dismal research results about skill learning which suggest that in general, skills don't transfer very well. That means if you get good at TA'ing by following professors' instructions, when you graduate you will be able to TA but not much else. However, other research indicates that people who understand the goals a skill pertains to, the breakdown of the steps, and the rationale(s) for each step are better able to recombine those steps to solve new but related problems. So if, while learning how to TA, you also learn why teachers do things that way, what indicates success (preferably long before the course evaluations are in), and how to adjust to different circumstances, then you will be a more effective teacher or presenter when you graduate. Perhaps this sounds far-fetched? The anecdote on learning to lecture illustrates how difficult it was to shake an inappropriate habit I didn't know I had.

Understanding the TA Role

I'll illustrate these ideas through anecdotes about my own TA experiences. These are organized around skills and concepts which have been important in my professional development. Some examples concern my actions; others are more reflective. Although my

experiences include observations about some of the teaching practices of professors I worked with, these are simply raw data. I haven't identified the professors, and my comments are not evaluations of them. Because life does not come in neat instruction packets, I will end with some thoughts on leveraging your own TA experience for professional development.

Surviving My First TAship

My first course was a lab course, and at the time I had little experience running psychology experiments. Since the experiments were run by computer, I could not botch laboratory techniques in front of students, but I was still nervous about leading a laboratory section. In running lab sessions, I did only what I could justify. The Sheridan Center's new TA orientation suggested a brief introductory lecture and name sharing, so I did that. Thirty minutes into the first lab, I'd solved the same problem for the third time. So for the following week I prepared a five-minute lecture about why students were having software problems and how to avoid them. We had few computer problems after that.

In the third week, I stopped giving introductory lectures because I couldn't think of anything to talk about. I fretted about that for a while, because I thought labs were supposed to start with a brief orienting lecture. But I also had vivid memories of a high school chemistry teacher who would go on for half the class period because someone had asked him an algebra question. I had no wish to repeat his example, but I did want to feel useful, and soon found an outlet. For group projects, students had to plan their own experiment. So I sat in on these meetings and made sure the plan was well-designed, reasoning that most big problems could be prevented.

I did eventually run into the sort of problem I'd feared. For the final project, one lab group chose a method which required a kind of statistical analysis that was unfamiliar to me. One of the students pointed it out after he talked with an outside professor. When I realized he didn't understand the analysis very well either, I told the group to consult with the professor instead of me. Although this was a little awkward, it didn't seem to affect my authority as a TA.

Learning to Lecture

It took several lectures before I felt competent as a lecturer even though, at the time of my first lecture, I had already given four presentations in graduate seminars. Furthermore, I'd

been told my presentations were good, and they did generate discussion rather than silence. What I did not know was that only part of my presentation style was good for teaching, while other parts were entirely inappropriate.

My first chance to lecture came when the professor was unexpectedly called out of town. S/he gave me some outlined notes and the papers being covered, and I prepared as for a seminar. I was aware that undergraduates were less talkative than faculty and grad students, but having studied my professor's manner of eliciting class participation, I thought I could imitate it. That first lecture did not go off well. While delivering it, I was aware of going through my material too quickly, and tried to spark student discussion to slow things down and make sure I was being understood. But I couldn't get a response. (I apparently spoke too softly, and I probably made the classic novice mistake of not waiting long enough for a response.) I came to the end of the material after only an hour, in an 80-minute class. Any last questions? None. The students were eyeing the clock - it was the day before Thanksgiving break - and wondering if I would release them early. I did.

My next chance came in another course, on a topic in which I had some expertise. It went better - I could see that the students were following me - but my 45-minute lecture took only 30 minutes, and I became aware of a certain sketchiness as I spoke. When I asked for comments, the professor suggested that I include more details, even writing them down on my slides so I would remember. S/he also pointed out that those details I knew so well would be new to the students.

It took one more lecture to figure out what was going on. The third lecture was a general talk in the engineering grad students' summer talk series. It was supposed to take 30 minutes, but took only 20. However, it was well-received. At this point I saw that I was consistently preparing lectures which were two-thirds as long as they should have been, well-organized, but short on details. Why? Implicitly, I was still preparing for a graduate seminar audience. That group was so talkative that it was only necessary to prepare 40 minutes of material per scheduled hour. In addition, discussion was best sparked by presenting the main points clearly and skipping most details, since if the details turned out to be important, someone was sure to ask for them. These assumptions only worked with an audience of people who were already experts in the field.

Learning on the Job

Realistic Expectations for Student Work

Soon after entering grad school, I noticed that one young professor's expectations of student work were rarely met, whereas experienced profs did not have this problem. So I wondered whether I could learn appropriate expectations as a TA. It didn't take long to find out. The first lab reports I received were a shock. I had an implicit standard which corresponded to the journal articles I'd been reading for over a year, and these papers didn't come close! (Neither did my own writing.) I adjusted my expectations, wrote suggestions and added praise to the more promising sections and assigned tentative grades. When the lab reports came back from the prof with final grades attached, I was relieved to find that that they were similar to my assessment.

I wasn't surprised again until I TA'd a course with mostly first-semester freshmen. Among more advanced students, the more thoughtfully written papers are also better written. But even among the freshmen who seemed to know what they wanted to say, many of their first exercises were badly organized, floundered through an introduction, didn't state a conclusion, and stumbled disjointedly in presenting their argument. They reminded me of my own high school writing attempts. My comments were extensive, but I tried to be gentle. The next week in sections, I presented some things I had learned about how to approach writing. One of the pleasures of grading the fourth exercise was realizing that students' writing had improved so much that their quality of writing rarely obscured their thinking.

Grading Disputes

Students' ideas on reasonable standards do not always coincide with our own, which can lead to disputes over grading - one of the things TAs like least about TA'ing. To keep grading questions from escalating into conflict, I try to treat them as requests for instruction, so that I'm not put on the defensive.

When I grade student work, I have specific criteria for each level of credit. Although this is to make my grading consistent, most students simply want to know why they got the grade they did and how they might make it better next time. For example, one student came in after an exam to suggest that I'd made an arithmetic error. I explained my grading system, in which some kinds of mistakes were worse than others, and showed her how I had obtained her score. She left satisfied, although in retrospect this is the sort of clarification I could easily have included in my comments on all exams.

But sometimes students aren't easily satisfied because they don't understand the material well enough to see the distinction between their answer and a good one. Another student came in complaining that many of the multiple-choice questions on an exam were ambiguous. As we proceeded through the questions he objected to, I read each aloud and reasoned through to the correct answer, which seemed to satisfy him for that particular problem. But we had to go through most of the questions he'd gotten wrong before he would concede that the exam was fair.

Another student question led me to develop a concept I call the anchor grade: If a student meets the performance expectations laid out by the professor at the beginning of the course, the anchor grade is the one s/he earns. Courses with a lot of factual material to be mastered usually have an A as the anchor grade, and errors drop a student below the A. Courses with less specific material to master but more conceptually-oriented or open-ended in their demands tend to have a B as the anchor grade. An A is earned when the student exceeds the stated requirements and shows evidence of independent thought, for example by creatively synthesizing material or raising interesting questions which pertain to the work covered in class. In such cases, A-level work can't be fully specified (though one can offer examples), because it's a matter of "surprise me with your depth of thought." Another way of thinking about the anchor grade is that it's the grade for which different students' work looks most similar.

Explicit Goals and Implicit Expectations

Grading issues bring to mind more general facets of the course such as its goals (in the syllabus) and expectations. On course goals, I defer to the Sheridan Center for a full explanation. In brief, they suggest that it is important to know what students will gain from a course, and to communicate those goals to students in writing. (qv. Sheridan Center Teaching handbook Constructing A Syllabus)

That said, I must add that the syllabi of courses I've TA'd have often lacked at least some course goals or policies. Since the professors were generally regarded as good teachers, I tried to figure out why they omitted some things by asking about specifics over the course of the semester. The general conclusions I've come to are, first, that it is always desirable to be clear in one's own mind about the course goals and policies, and second, that there are two common reasons - one practical but temporary, the other a matter of judgment - why a professor might choose not to put some things in writing.

The practical reason is flexibility: Things in writing are fixed for the semester. When a professor is teaching a course for the first time, fewer things are written in detail, because a new course has to be tested and sometimes adjusted during the semester. So there may be a grace period of a year or two during which syllabi are less explicit than one would like. A related matter - but one which benefits from putting something in writing - is the issue of communicating course or assignment goals while allowing for student variability. I think this is particularly a problem when the anchor grade is a B. In one course I TA'd, the first paper assignment was given orally. After the papers were graded, I observed to the professor that a few students' papers had been off-target, and they might not have remembered the details of the assignment. (Several other papers were outstanding and creative.) So for the next assignment, I wrote down the goal and suggestions for library research - where to begin and how many of what kinds of sources to consult - to indicate the depth and scope we expected. (I expected those who did stronger library research to produce better papers.) In this way, the assignment was explicit enough to guide those who needed it, without constraining those who could figure things out for themselves.

The other reason why a professor might not put everything in writing has to do with negotiating expectations between the professor and the students. The course syllabus can be interpreted as a legal contract. But the professor also negotiates less formal matters, such as how much effort students put into the course, how well-prepared they are when they come to class, and the kind of interaction that occurs in class. Two things worth noting about such negotiation are that the students can reject the professor's proposed relationship (in which case their course reviews may be trenchant), and that a professor can inadvertently undercut his or her verbal communications through conflicting nonverbal behavior. As an ITC observer, I have occasionally consulted with TAs who knew what kind of classroom behavior they wanted to elicit from their students, but had difficulty getting it. Usually there were inconsistencies between the TA's goals and some of his or her behavior, and we suggested modifications.

Although I'm not an expert on such negotiation, I think it's a part of teaching which TAs will find worth studying. I can recall two kinds of successful approaches to the first-day lecture, which is when students seem to make these critical decisions.

One approach is to state specific requirements for each grade level. For example: "I don't give D's. D's are just passing F's. To get an A, you will not only need to do well on exam problems, but also prove theorems in the exam. If you just do well on the problems, you

will get a B..." It works when students can measure and assess their own performance. Ability to prove a theorem, write a program, or anything else with built-in feedback (such as delivering a persuasive speech to the class) works, but ability to write well or come up with creative ideas doesn't.

Another approach is more process-oriented: "Work hard and you'll be fine." This may be stated only indirectly, but if the kind of work valued is identified (e.g. prepare for class, question carefully, try to figure out how everything fits together), then it can affect students' performance, which is the real end. This approach also requires inspiring trust from students because the terms are vague, but it can be reassuring for students without much background knowledge. However, it seems more suited for teachers who grade with mercy; those who grade more strictly may accidentally violate the trust they've established.

Both approaches use expectations which are simple enough for students to assess their own efforts or progress. This can be motivating, because people like to know where they stand and how much they're improving.

Seeking Feedback and Guidance

I've also learned how to get and use feedback. We only need feedback when something's wrong, and then we need diagnostic information, not a general evaluation. (I used to provide software technical support, and the least helpful user report was, "It bombed." When pressed for details, such users would expand, "I was just using it like I always do, and then it bombed." I had to ask specific questions in order to figure out what had gone wrong. Similar principles apply to seeking feedback about your teaching.)

In general, I've only sought guidance from my professors when something went wrong, or when I hadn't known what to do. I was often reluctant to admit that I'd goofed. Having a good working relationship with them helped, because when I needed help, I was only temporarily out of my league. Some of these incidents led to a better understanding of my legitimate authority. For example, the first time students in my lab section formed lab groups for the assignment, they chose their own groups. Unfortunately, one of the groups contained two weak students and one moderate student. Their relative weakness was apparent from the beginning, and I spent extra time with them in the planning stage, but when I read their individual lab reports, I suspected that my intervention had not been enough. So I talked to the professor, who told me my authority included assigning students to lab groups.

Feedback from students can be useful, but also painful. The key to handling course evaluations is to understand what students expect and how that relates to how much they're learning, and to try to coordinate the course evaluations with other forms of feedback. I'll use some of my own evaluations as examples:

"I wish sections were organized more clearly so as to be explicitly relevant to class."
"I don't think this course really needs a section..."
"The TA, though extremely knowledgeable in CG, was often difficult to understand and we had difficulty understanding her responses to our questions. It's nothing that a little `teacher training' can't fix."
"The assignments were thoughtfully/ carefully written."

In this course, I was responsible for running sections, which were tied to short essay assignments. The professor and I developed the assignments as deeper explorations of some issue within the general lecture topic. There are two issues here. The first is the role of sections within the course as a whole; the second is my teaching of those sections. In retrospect, I realize that whereas the professor clearly stated the goals of the course on the first day, and periodically re-iterated them when s/he sensed uncertainty or confusion, I am not sure I ever restated the goals of section myself, and I'm certain that I didn't repeat them over the course of the semester. My guess is that doing so would have helped students see the connection between sections, assignments, and lectures. Had I started including introductions and conclusions earlier in the semester, that would have helped too.

The comment that I was difficult to understand is harder to interpret, because I taught three different sections with distinct characteristics. The first was right after a class lecture and had 20-25 students. Except for four talkers, I habitually had difficulty getting participation out of this group. (Participation served as practice for the same kind of thinking as in the assignments.) The second section met at 6:00 the same day, and had about 10 students. In general, they were thoughtful participants, but attendance at this section declined most precipitously over the course of the semester. (Overall, 70% were attending section at the end of the semester, which seems to be at least as good as usual.) The third section met the next day, also at 6:00, and had 12-15 students who were quite talkative both in and before class. They responded best in sections.

I would guess that the comments came primarily from the first section; that is the group that can most legitimately complain about how section was handled. Although there were a

couple of factors working against me, I think I may also have had a broader range of student ability than I realized. I tend to teach to the students who talk, and since so few students were active participants, I may have been teaching at too high a level. Because I was not clear at the beginning about the purpose of sections, students may also settled into an expectation that I would lecture and they would listen.

If these are as good as my teaching evaluations get, why am I not dismayed about teaching? It's simple: for every negative comment in an end-of-course review, I've had several positive interactions with students outside class. I have tried to make myself available and approachable, because I believe students (in aggregate) have a right to a certain amount of a teacher's time, and I expected to set limits only if their demands became excessive.

There are several ways I made myself accessible. The first was how students reached me. I chose office hours that I thought would suit student schedules and in a different time slot from the professor's hours, and sometimes I also chose a weekday that preceded major deadlines by a couple of days. I was willing to include my home phone number, plus the latest time they could call. And I included my email address. Students seem to use office hours and appointments for relatively big questions, when they actually need teaching. It's excellent one-on-one teaching practice. They use phone calls rarely, and mostly because they have a quick or urgent question. And some students love email, because they can post a question when it occurs to them. I like email too, because the questions tend to be easy or interesting, and also because, like those written evaluations, it provides evidence about my teaching. (Positive evidence, at that.) On occasion, I did run into students outside of class and besides saying hi, they wanted to ask me a question. If necessary, I was not shy about saying something like, "I have a seminar in five minutes, so if it's short, I can answer it, but if it's long, let's make an appointment."

The other part of making myself accessible was to try to convey my willingness to help. This is one reason my grading comments were somewhat extensive, and if I wanted to write more than two sentences, I'd suggest the student see me. I also liked to position myself near the professor after class and act aware and interested, because although students preferred to ask questions of the prof, they would come to me if they were in a hurry.

The last way to get feedback from students is through student assessments, either graded or non-graded. The Sheridan Center has material on this. Not all graded assessments tell you about teaching effectiveness; you need a "before" and "after" for comparison. Non-

graded assessments are like short anonymous pop quizzes, and can be done in class anytime.

Professional Development: Leveraging Your Own TA Experiences

Your TA experiences and professional goals may differ from mine. So how do you leverage your own experience? First, get some idea of your professional goals for interpersonal skills. Second, analyze those in terms of specific behaviors, such as giving a timed presentation or explaining a concept one-on-one. Third, match new teaching opportunities to skills you haven't yet mastered. I've often thought of it as a matter of acquiring puzzle pieces during graduate school, and assembling them later.

It is important to match communication level, because learning to pitch explanations at the right intellectual level does take practice. Will you talk to others with technical backgrounds but not in your own subfield? Then TA courses for concentrators in your field. Will you talk to general managers or write grants for people outside your field? Then TA courses for freshmen and non-concentrators. It isn't that general managers know as little as freshmen, but frosh struggle and learn, whereas managers expect a straightforward presentation - particularly if you are asking for money.

Once you know what pieces you want to acquire, start reflecting on your teaching or a professor's. What are you trying to do and why? How do you know if it's producing learning or not, and why do you think it's having that effect? What could you do differently? The answers to these questions do not all come from within. It's best to talk with other people who are concerned with teaching issues and try to work out answers which make sense. If you don't have many teaching experiences of the type you desire, then reflect on someone whose teaching you can observe carefully.

There are some things I wish I'd known about learning to reflect on teaching. When I started, I saw mostly weaknesses - both my own, and those of the professor(s) I was TA'ing with. (This may be why student evaluations are so negative - they don't know much about teaching, so their comments tend to be global instead of analytical.) At this point be gentle with yourself, because most people's teaching worsens if they think about their appearance rather than how their students are doing. An Individual Teaching Consultation can also help. Practice looking for teaching strengths, because the easiest way to develop your own

teaching style is to do more of whatever works. It's also helpful to try out different things, because the contrast between different effects can be useful in learning to achieve the effect you want. And keep at it; eventually you will gain a more balanced perspective.

Expect gradual progress from reflective teaching. You can't cram a lot of reflection into a few weeks after you turn in your dissertation, because if you haven't been thinking about your TA experiences all along, you won't have anything to organize. But you also get about the same effect whether you spend a lot of time or a little each week, so just spend an hour or two, regularly. In addition, start early in your graduate school career, because by the time you graduate, you want to be past the hypercritical phase so you can identify your particular strengths and style, and include them in job applications.

Last, document some of your efforts, progress, and achievements as appropriate for your professional goals.