

TEACHING ASSISTANT IN RESIDENCE: A NOVEL PEER MENTORSHIP PROGRAM FOR LESS EXPERIENCED TEACHING ASSISTANTS *

Ben Stephenson, Andrew Kuipers, Rosa Karimi Adl
Department of Computer Science
University of Calgary
2500 University Drive NW
Calgary, Alberta, Canada
ben.stephenson@ucalgary.ca

Flora Stephenson
Institute for Public Health
University of Calgary
2500 University Drive NW
Calgary, Alberta, Canada

ABSTRACT

Each year approximately 70 graduate teaching assistants (TAs) support the delivery of the undergraduate computer science program at the University of Calgary. During the 2012-2013 academic year, a novel TA mentorship program was initiated for these TAs. An experienced teaching assistant with a demonstrated record of excellence in teaching was hired to serve as the TA in Residence. This graduate student provided training and advice to new teaching assistants, including classroom visits where the TA in Residence observed TAs in action and provided personalized suggestions that TAs could follow to improve their teaching skills. TAs that participated in the program generally reported that the advice provided by the TA in Residence was helpful, and all of the TAs that responded to the survey believed that it would be worthwhile to continue the mentorship program in the future.

1 INTRODUCTION

Teaching assistants are used extensively to support undergraduate education at large institutions. They perform a variety of duties that may include leading laboratory and tutorial sessions, meeting with students individually, overseeing student projects and

* Copyright © 2014 by the Consortium for Computing Sciences in Colleges. Permission to copy without fee all or part of this material is granted provided that the copies are not made or distributed for direct commercial advantage, the CCSC copyright notice and the title of the publication and its date appear, and notice is given that copying is by permission of the Consortium for Computing Sciences in Colleges. To copy otherwise, or to republish, requires a fee and/or specific permission.

grading assignments and exams, among others. Yet, while they have these important responsibilities, many teaching assistants receive little training before taking on their duties. For example, one study suggests that as little as 40 percent of engineering TAs receive training before undertaking their duties [10], and our own department has failed to provide a meaningful training program in previous years.

In this paper, we outline our recently established computer science TA training program and the impacts that it has had on our TAs. While many other institutions provide training for their TAs, our program is unique in that it uses an experienced TA to provide the training rather than a faculty member or permanent staff member. Additional details about our program and its goals are presented in Section 2. The impact the program had on our TAs is reported in Section 3. Feedback received from the two individuals who have filled the role of TA in Residence is discussed in Section 4. We describe related work in Section 5. Finally, Section 6 summarizes our results.

2 PROGRAM DESCRIPTION

The University of Calgary is a research intensive, doctoral degree granting institution. Its Computer Science Department employs approximately 70 teaching assistants each semester to support the delivery of approximately 30 undergraduate courses to over 2000 course enrollees. In the past the department has assumed that graduate students arrive at the institution with the skills necessary to be effective teaching assistants, or that they will quickly pick up these skills on their own. No general TA training, beyond an overview of a few administrative details, has been offered to the teaching assistants by the department. Yet past research indicates that graduate students often have fears about teaching [8], and that they need help fulfilling their duties [3], leaving individual instructors or the TAs themselves to overcome these challenges.

In the fall of 2012 we initiated a new TA mentoring program to help overcome our training deficiency and improve the effectiveness of our TAs. This program was designed to:

- Provide specific, relevant and personalized assistance to individual TAs
- Share wisdom and experience accumulated by previous TAs with new TAs
- Reinforce the importance of the role that TAs play within the department
- Achieve these goals using minimal, if any, new financial resources

A new role was created within the department, known as the TA in Residence, to help fulfill these goals. Each term one graduate student was hired to fill this role. The TA in Residence was an experienced TA with a demonstrated record of excellence in teaching. Each TA in Residence:

- Created and delivered a training workshop near the beginning of the term to introduce TAs to their responsibilities, outline effective teaching strategies, and familiarize new TAs with the university's student management systems
- Observed individual TAs as they lead their laboratories and tutorials, acknowledging positive aspects and suggesting strategies to overcome challenges
- Served as a resource that could be approached for suggestions or advice, in confidence, by TAs, and served as an advocate on behalf of the TAs

Previous work has indicated that senior TAs should be part of the training program for new TAs [4, 8]. We expanded on this idea by using the TA in Residence as the exclusive trainer for new TAs. In our experience, using the TA in Residence was beneficial because he or she was better able to relate to the TAs and identify with their concerns, as well being more approachable than a faculty member. In addition, using the TA in residence to train the incoming TAs made it clear that any feedback given to the TA was strictly formative and would not be used to determine eligibility for future employment.

3 TEACHING ASSISTANT SURVEY RESULTS

A total of 42 TAs had their teaching observed by the TA in Residence during the academic year, 29 during the fall term and 13 during the winter term. At the end of each term a survey was distributed to the TAs that were observed. TAs completed the survey anonymously. A total of 19 surveys were returned, 14 from the fall term 5 from the winter term, giving an overall response rate of 45 percent. The survey asked TAs about the beginning of term training session, the TA in Residence observation sessions, and some general questions about being a TA.

3.1 Beginning of Term Training Session

Approximately half of the TAs in the program attended the optional TA training workshop at the beginning of each term. TAs that attended the workshop used a 5 point Likert scale to rate how well 7 topics were addressed, whether they used the strategies as a TA, and whether the topic should be included in future workshops. Figure 1 shows the percentage of respondents who agreed or strongly agreed that each topic was addressed.

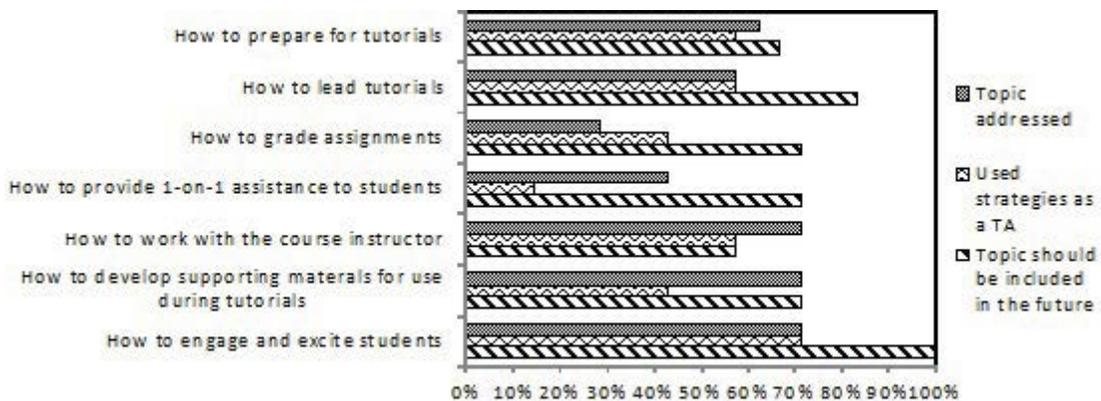


Figure 1: Topics Addressed during the Beginning of Term Training Session

Over 70 percent of respondents agreed that techniques for engaging and exciting students were addressed by the training session. Furthermore, the same proportion of respondents reported using the strategies proposed by the mentor. All respondents felt that this topic should continue to be included in future training sessions. More than half

of the respondents reported that the training sessions provided instruction on how to lead tutorials, and the same proportion of respondents reported using the strategies that were discussed. Fewer respondents felt that 1-on-1 assistance was addressed, and less than 20 percent of respondents reported using strategies suggested by the mentor when interacting with students individually. As a result, we will strengthen this aspect of the training session in subsequent years.

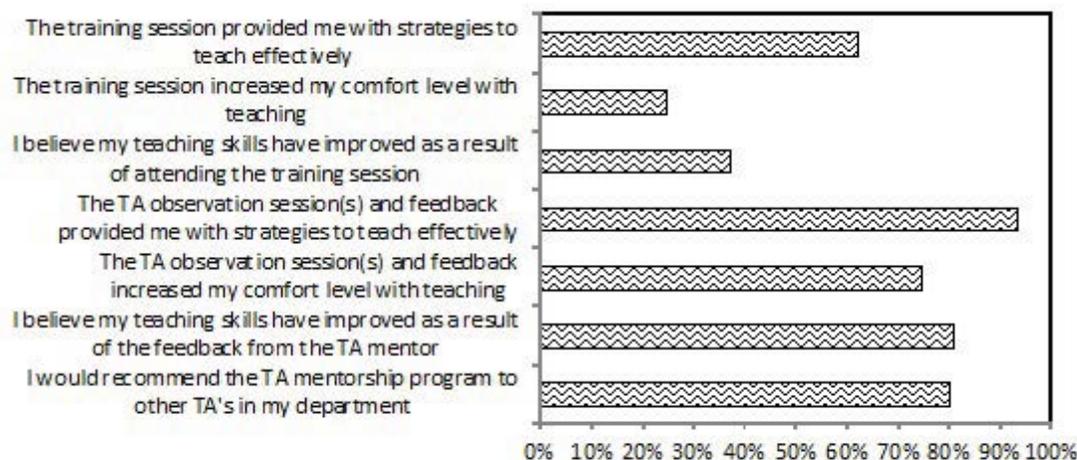


Figure 2: Training Session and Observation Session Results

In addition, we asked TAs about the impact that the training sessions had on them. These results are summarized in Figure 2, which shows the percentage of respondents who agreed with each statement. Over 60 percent of respondents indicated that the training session provided them with strategies to teach effectively. Yet only approximately a quarter of respondents indicated that the training session increased their comfort level with teaching, and just over a third believed that their teaching skills improved as a result of the training. This discrepancy could be the result of the way the training session was presented, or it could indicate that the TAs were already familiar with some of the teaching strategies that were discussed.

3.2 Observation Sessions

All 19 of the survey respondents were observed by the TA in Residence. Each TA met with the TA in Residence after his or her observation session to receive feedback and suggestions. Many TAs reported receiving suggestions to improve student engagement and some TAs also reported receiving suggestions to speak more loudly or more slowly. Almost all of the TAs reported that the suggestions that they received were useful, with only one respondent reporting a contrary opinion.

Respondents were also asked to provide 3 suggestions that would improve the mentorship program in the future. The most common suggestion was to hold informal meetings or discussions throughout the term so that questions could be addressed as they arise. Another suggestion was to provide multiple observations for more TAs, with one observation near the beginning of the semester and another near the end of the semester

as this would help track the progress of the TA and provide ideas for further improvements.

Other suggestions included improving awareness of the program, increasing the TA in Residence's advocacy role with IT, administration and course instructors, and having the TA in Residence serve as a coordinator who ensures that course materials are passed on from TAs in one semester to the next. Finally, some respondents suggested that more information related to grading, particularly ensuring consistency between multiple TAs, would be valuable.

TAs were asked to rate the impact that the observation sessions had on their teaching. Figure 2 shows that over 90 percent of respondents agreed or strongly agreed that the observation session and subsequent feedback received from the TA mentor provided strategies for teaching effectively. Approximately three quarters of respondents indicated that the observation sessions increased their comfort level with teaching, and over 80 percent of respondents believe that their skills improved as a result of working with the mentor. Overall, the results for the observation sessions are much stronger than the results for the training session. We attribute the difference to several factors including the active participation of the TA in the training, and the personalized one-on-one nature of the feedback that was provided.

3.3 General Comments about Being a TA

TAs were asked to identify the greatest challenge that they face while completing their duties. The answers to this question were varied, with the most frequent responses having to do with preparing materials for tutorials and leading tutorials. Less frequent responses included managing student expectations, especially for non-majors, and balancing TA responsibilities with their own work.

Respondents were also asked to provide advice to new TAs. The most common advice was to ensure that you are well prepared for your tutorials by knowing the material and working through the exercises before presenting them. Other advice included seeking feedback on their teaching, using different techniques to engage students, and balancing TA time and research time carefully.

Each TA rated his or her comfort level with teaching at both the beginning of the term and the end of the term. At the beginning of the term 8 out of 18 respondents (44 percent) indicated that they were comfortable or somewhat comfortable with teaching. This increased to 12 out of 16 respondents (75 percent) at the end of the term. Six of the 16 respondents did not report any change while 2 respondents reported 4 levels of change, moving from very uncomfortable to very comfortable.

Finally, the TAs that participated in the program were asked whether or not this TA training program should be continued in the future, and to justify their answer. All respondents to this question indicated that it should be continued, with several respondents indicating that it should particularly be continued for new TAs. Respondents also noted that the program provided valuable teaching skills and feedback, and provided a common set of expectations. Comments also indicated that the TAs in Residence were seen as peers to discuss concerns with rather than judges of TAs' performance.

3.4 Survey Summary

The TAs impressions of this training program were positive. While it is clear that the observation sessions were more valuable than the training session, both portions of the program provided the TAs with strategies to teach effectively and increased TA comfort level with teaching. The TAs also reported that they believe that both aspects of the training program improved their teaching skills.

4 TA IN RESIDENCE IMPRESSIONS

At the end of each term each TA in Residence wrote a report describing his or her experience. Both TAs in Residence observed several common weaknesses among the TAs such as using a lecture-based style for tutorials which limited interaction with the students, a lack of planning resulting in poor tutorial pace, and poor balance between providing the same help to many students individually versus teaching an important concept or technical detail to the entire tutorial once. These weaknesses clearly suggest areas where additional time could be spent during future TA training workshops.

Several concerns were raised by TAs when they met individually with the TA in Residence. One common concern was the amount of time that is required to perform TA duties. Some TAs felt that these time commitments were significantly underestimated by the instructors that they were assisting. Other concerns included limited feedback from students, how being assigned to a course that students don't like impacts evaluation scores, instructors who ask TAs to cover far too much material in tutorials, how to handle large volumes of student email and how to maintain authority in the classroom. The need to balance the time spent by graduate students on TA duties and their own education and research is a perpetual challenge for the department, and unfortunately, is unlikely to be solved easily. The TAs in Residence report providing pragmatic advice for the other concerns raised by the TAs.

5 RELATED WORK

Many other TA training programs have been described in the literature; so many, in fact, that it is impossible to discuss them all in the space available here. However, despite the large number of programs for training TAs, we are not aware of any other program that uses an experienced TA as the principle trainer for new TAs.

TA training initiatives at other institutions vary from a couple of hours at a single event to a substantial time commitment spread over a term or more. For example, Boman [2] describes an intensive program delivered at the University of Western Ontario over two and a half days. Additional short term programs for engineering TAs are described in [1] and [9]. Institutions that offer extended training courses include the University of California [6], the University of Illinois at Urbana-Champaign [5] and Melbourne University [7].

6 CONCLUSION

Over the past year, we implemented a TA training program designed to provide better support to teaching assistants as they perform their duties. Each term an

experienced TA was hired to fill the role of TA in Residence and mentor new TAs. The TA in Residence organized an optional TA training workshop, observed TAs as they performed their duties, and met with the observed TAs to discuss their strengths and strategies for overcoming their weaknesses. Survey results show that the TAs that participated in the program found it to be worthwhile, with respondents finding greater value in the observation sessions than the beginning of term workshop. None of the survey responses expressed any concerns about receiving training from a TA rather than from a faculty or staff member. All of the TAs that responded to the survey reported that the program should be continued in the future.

REFERENCES

- [1] Teaching assistant workshops.
http://schulich.ucalgary.ca/graduate/teaching_assistant_workshops. Accessed: 2013-08-09.
- [2] J. S. Boman. Graduate student teaching development: Evaluating the effectiveness of training in relation to graduate student characteristics. 43(1):100-114, 2013.
- [3] J. Cowper. Postgraduate tutoring: An education for all. In D. Allan, editor, *In at the Deep End: First Experiences of University Teaching*, pages 25-30. Lancaster University/Unit for Innovation in Higher Education, Lancaster, 1996.
- [4] J. Eison and M. Vanderford. Enhancing GTA training in academic departments: Some self-assessment guidelines. *To Improve the Academy*, 12:53-68, 1993.
- [5] G. L. Herman, K. Trenshaw, and L.-M. Rosu. Work in progress: Empowering teaching assistants to become agents of education reform. 2012 *Frontiers in Education Conference Proceedings*, pages 1-2, 2012.
- [6] D. G. Kay. Training computer science teaching assistants: A seminar for new TAs. In *Proceedings of the twenty-sixth SIGCSE technical symposium on Computer Science Education, SIGCSE '95*, pages 53-55, New York, NY, USA, 1995. ACM.
- [7] M. Kirley. Supporting casual tutors and demonstrators: A case study in computer science and software engineering. In *Proceedings of the 8th Australasian Conference on Computing Education - Volume 52, ACE '06*, pages 109-115, Darlinghurst, Australia, 2006. Australian Computer Society, Inc.
- [8] S. G. Lucas. Allaying graduate student fears about teaching. In W. Buskist and V. A. Benassi, editors, *Effective college and university teaching: Strategies and tactics for the new professoriate*, pages 17-25. Sage, Thousand Oaks, CA, 2010.
- [9] G. Saunders-Smiths, M. Van den Bogaard, and Y.-C. Chiang. Designing training sessions for TAs: Experiences in aerospace engineering at Delft University of Technology. In *Frontiers in Education Conference, 2009. FIE '09. 39th IEEE*, pages 1-6, 2009.

- [10] D. A. Torvi. Engineering graduate teaching assistant programs: Training tomorrow's faculty members. *Journal of Engineering Education*, 83:376-382, 1994.