

## **A Pre-Semester Professional Development Workshop for New Teaching Assistants**

**Prof. Jill K Nelson, George Mason University**

Jill Nelson is an associate professor in the Department of Electrical and Computer Engineering at George Mason University. She earned a BS in Electrical Engineering and a BA in Economics from Rice University in 1998. She attended the University of Illinois

**Jessica Rosenberg**

**Dr. Mark Huntington Snyder, George Mason University**

## A Professional Development Workshop for New Teaching Assistants

Jill K. Nelson, Jessica Rosenberg, Mark Snyder, and Robert Sachs

*George Mason University, Fairfax, VA*

### Abstract

This paper considers a training workshop for new graduate teaching assistants (GTAs) at a public Research-1 institution. It describes the workshop structure and discusses the perceptions of GTAs who participated in the workshop. The workshop is part of a larger effort to encourage evidence-based practices in gateway courses and was designed to give GTAs a basic understanding of active learning, student engagement, and related topics. Workshop participants were asked to complete a survey that asked them to rate each of the workshop sessions, indicate how well the workshop supported their understanding of the targeted learning outcomes, describe their confidence in and likelihood of using active learning, and share their main takeaways from the workshop. This paper reports on the results of the survey and describes next steps for GTA professional development at the institution where the workshop took place.

### Keywords

Graduate teaching assistants, professional development, evidence-based practices

### Overview

This paper describes the implementation and preliminary results of a training workshop for new graduate teaching assistants (GTAs), piloted in August 2022 at a public Research-1 institution. It discusses the workshop structure and content and the perceptions of the GTAs who participated. The workshop was designed to give GTAs a basic understanding of active learning, inclusive classroom practices and community building, strategies for student engagement, formative and summative assessment, and rubric-based grading. GTAs were also introduced to academic resources on campus that may be helpful for students in their courses. The workshop format was designed to be interactive with participants engaging in sample inquiry-based learning activities and reflecting on their own experiences with inclusive (or not) classrooms.

The GTA training workshop described in this paper is part of a larger project that aims to make active learning the default method of instruction in highly enrolled gateway courses and to develop a departmental (and university) culture that values evidence-based teaching practices. The project builds on existing work on grassroots change in higher education<sup>1</sup> and seeks to study the effect of communities of practice on changing teaching culture. It uses course-based communities of practice<sup>2</sup> in which instructors of the targeted, highly enrolled courses collaborate to broaden the adoption of evidence-based practices. This community of practice model is supported by the findings of the Science Education Initiative (SEI), specifically that academic departments are critical to supporting pedagogical change<sup>3</sup>. At the course level, instructors, GTAs, and undergraduate learning assistants (LAs) work to move towards increased use of evidence-based teaching practices.

GTAs play a vital role in the implementation of active learning, largely because of their key roles in the targeted large enrollment courses. GTAs lead recitations and labs in which smaller enrollments and the learning goals of the sessions are well aligned with active and hands-on learning. Initial project plans included regular (weekly or bi-weekly) seminars for GTAs. A formal seminar has been implemented for physics GTAs and more informal meetings about teaching recitations for math GTAs. While these seminars and meetings build community and provide an opportunity to introduce pedagogical topics, they begin after the semester has started and do not provide new GTAs with any training before they dive into their teaching responsibilities. Feedback from GTAs has repeatedly indicated a need for more instruction on pedagogy and classroom management earlier in their GTA career. The workshop was designed to provide professional development for GTAs prior to the start of their first semester teaching. At the same time, it was designed to build a network of GTAs within and across departments and to pilot a training model that could be expanded to other STEM departments.

### **GTA Workshop Details**

The GTA training workshop was held over two full days during the week before the fall semester before department specific GTA training and graduate student orientation activities later. Attendance was required for new GTAs in each of the three participating departments: mathematics, physics, and computer science. Forty-three GTAs participated in the workshop.

Five learning outcomes were defined for the workshop:

- Form a basic understanding of what active learning is, and its value
- Understand of the importance of community-building in the classroom
- Create a plan for engaging with students and building community
- Form a basic understanding of formative and summative assessment and how they operate
- Form a basic understanding of grading rubrics and their use in evaluating student work

Workshop leaders recognized that new GTAs would arrive with different levels of familiarity with evidence-based practices and teaching experience, so workshop activities were designed to help them grow from their starting points in the areas defined by the learning objectives.

The workshop was structured as a series of short (30 – 60 minute) sessions on topics relevant to GTAs. Sessions were led by the faculty members leading the pedagogical change effort in each of the participating departments. The workshop began with a session introducing active learning through an activity in which participants worked in teams to play a math game. Workshop leaders acted as facilitators during the activity, demonstrating how GTAs can facilitate and support active learning. The rest of day one included sessions focused on building community in the classroom, defining and addressing learning objectives, and planning for the first day of class. Sessions were designed to include active elements such as brainstorming sessions, sample exercises, and development of first-day plans. Workshop leaders wanted to ensure that participants left the workshop with resources they could use immediately in their GTA roles.

To begin day two of the workshop, GTAs were introduced to campus resources such as the disability resources office and the counseling and psychological services office through conversations with staff from these offices. Following the campus resources session, GTAs

engaged in sessions on developing and using grading rubrics, using questioning in the classroom (and in office hours and other settings), and an introduction to formative and summative assessment. Day two also included a panel session in which returning GTAs shared their tips for success and described what they wish they had known when they started their GTA positions. Toward the end of day two, GTAs were asked to outline a mini classroom session that included active learning elements. The day ended with reflection and a discussion of what support GTAs would need as they moved forward in their roles.

## Data Collection

At the end of the workshop, participants were asked to complete a survey to give feedback on each of the workshop sessions, as well as on their attainment of workshop learning outcomes, main takeaways, and questions/suggestions. Thirty GTAs (70% of workshop participants) completed the survey. Specific questions we consider in this paper are summarized below:

- Please rate workshop program components and sessions with respect to their usefulness and value for thinking about active learning and your participation in it. (Options: A five-point Likert scale on components being useful and valuable)
- Below are the learning outcomes for the two days of sessions. Please indicate the extent to which you agree that the workshop sessions supported your growth related to each outcome. (Options: A five-point Likert scale on level of agreement)
- What are your main takeaways from the workshop overall? In a complete sentence or two, summarize the main ideas you took away from the workshop.
- Do you have any concerns or questions about implementing active learning in your class this semester?
- What recommendations do you have for strengthening the workshop?

## Results

When asked to rate the individual sessions included in the workshop, at least 50% of respondents reported that each session was extremely or very useful and valuable. The session perceived as most valuable was on planning for the first day, with 90% of respondents rating it as extremely or very useful and valuable. The opening session demonstrating active learning, as well as the sessions on building community were also among the most helpful for GTAs, with over 85% of respondents rating them as extremely or very useful and valuable. One of the sessions perceived as less helpful (though still with more than 50% of respondents rating it as extremely or very useful and valuable) was the discussion of formative and summative assessment.

Respondents were also asked to provide feedback on how well the workshop supported their growth with respect to the five learning outcomes. All respondents either strongly agreed or agreed that the workshops supported their growth in understanding the importance of community-building in the classroom and in creating a plan for engaging with students and building community. For all learning outcomes, more than 80% of respondents either strongly agreed or agreed that the workshop had supported their growth in the relevant area. It is notable that only 30% of respondents strongly agreed that the workshop helped them form a basic understanding of formative and summative assessment, while strongly agree percentages were at

least 60% for the other learning outcomes. This may indicate that formative and summative assessment require longer-term professional development that builds on GTAs' teaching experiences throughout the semester and/or that the design of that session needs to be revisited.

In response to the open-ended question about the main takeaways from the workshop, 14 of the 30 respondents mentioned the importance of classroom environment in teaching. Of those 14, five directly mentioned community building, and three directly mentioned student engagement. These results align well with respondents' strong positive response about the usefulness of sessions on community building and student engagement. When asked if they had additional questions or concerns about implementing active learning as part of their GTA role, seven of the 30 shared questions/concerns. Of those seven, four shared concerns about getting started and being flexible in real time, noting that their class or lab sessions may not go as anticipated and they would need to "think on their feet." Interestingly, one respondent asked whether courses would revert to traditional formats when the external funding for this project ends.

Finally, respondents were asked what recommendations they had for strengthening the workshop. Several mentioned schedule and time including comments that the full days were too long and they would have preferred shorter days with more time for informal interaction with fellow GTAs. Respondents appreciated the interactive elements of the workshop and suggested that all sessions should be highly interactive, perhaps an indication that they valued active learning. An additional theme in the suggestions was to provide specific active learning strategies GTAs could take into their classes and to tie the workshop to their specific GTA roles.

## **Next Steps**

The GTA workshop was well received, and the project team aims to continue holding it in future years. Based on feedback from survey respondents, several modifications will be considered. These include schedules that allow for shorter days with more informal networking. In addition, the workshop will incorporate more concrete active learning examples and hands-on activities. We will consider whether to modify or remove the session on formative and summative assessment. Several survey respondents mentioned a need to tie the workshop content more closely to their GTA roles. One challenge encountered was that not all departments had assigned GTAs to specific courses and roles before the workshop took place and hence participants could not engage in targeted sessions. In the future, leaders will work with departments to have as much information about GTA assignments as possible before the workshop is held. In addition, efforts will be made to better engage the faculty who interact with GTAs (course instructors and lab coordinators) so that the workshop is better tied to the needs of the courses in which the GTAs are working. In all participating departments, regular GTA meetings throughout the semester will continue for ongoing support.

A main goal of the overall project is to develop a culture that views active learning as the default mode of teaching for highly enrolled gateway courses. In support of this goal, leaders aim to institutionalize this pre-semester GTA professional development to support GTAs in implementing active learning. Project leaders are sharing the outcomes of this year's pilot workshop with administration in the relevant units on campus and working to develop funding and staffing models to sustain the workshop in future years and to allow it to expand to include GTAs across all STEM departments at the institution.

## References

- 1 Kezar, Adrianna J. and Jaime Lester, *Enhancing Campus Capacity for Leadership: An Examination of Grassroots Leaders in Higher Education*, Stanford University Press, Stanford, CA, 2011.
- 2 Wenger, Etienne, *Communities of Practice: Learning, Meaning, and Identity*, Cambridge University Press, New York, NY, 2000.
- 3 Wieman, Carl, *Improving How Universities Teach Science: Lessons from the Science Education Initiative*, Harvard University Press, Cambridge, MA, 2017.