Developing the Developers

Lessons learned from work to support providers of professional development for graduate teaching assistants

Sandra Laursen, U. Colorado Boulder *Shandy Hauk, WestEd* *Natasha Speer, U. Maine* *Jessica Deshler, West Virginia U.*

with Jack Bookman, Emily Braley, Doug Ensley, Robin Gottlieb, Zachary Haberler, David Kung, Susan Lynds, TJ Murphy, & Sarah Schott

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The Problem

Mathematics graduate teaching assistants (GTAs) teach thousands of undergraduates, often in lower-division courses. Few start with experience, skills, and models of high-quality teaching. Yet strong, teaching-focused GTA preparation improves student experiences and retention in early college math courses.[1] Preparing GTAs to teach thus offers a dual opportunity to improve STEM teaching:

✧ influencing courses taught by GTAs today, and

✧ shaping the beliefs and practices of future faculty.

CoMInDS' Approach

The College Mathematics Instructor Development Source seeks to strengthen preparation of GTAs as teachers, by supporting people who provide professional development (PD) on teaching to GTAs in mathematics departments.

CoMInDS has offered

✧ Summer & online workshops for GTA PD providers

✧ An online resource suite of materials useful to providers

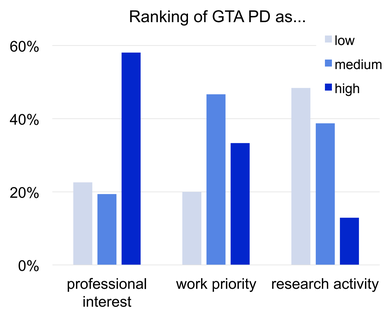
✧ Regional mentoring communities

✧ A community for researchers who study GTA PD.

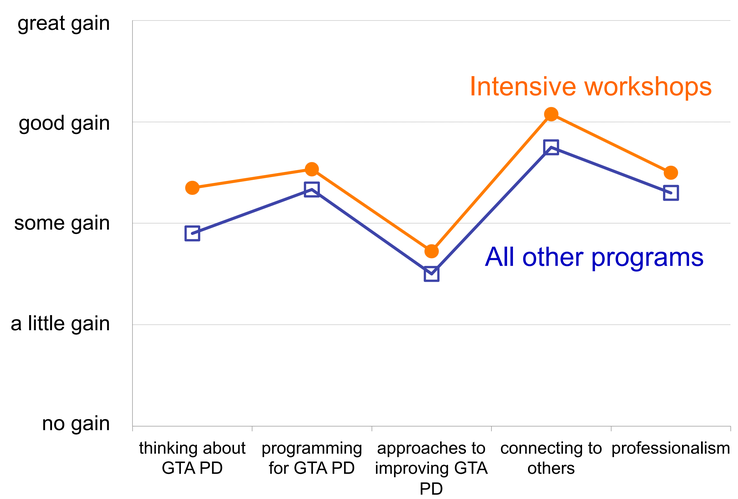
We share what we have learned from these activities about the needs, opportunities, and future of GTA PD. As sources of evidence, we draw upon evaluation data and focus group discussions with project leaders.

Who are the GTA PD providers?

Most are women (65%) who have many other work duties. GTA PD is a keen interest, but not a priority for their time.



GTA PD Providers & Programs



How do CoMInDS programs serve providers?

Participants' self-reported gains are similar in nature across program types but stronger for intensive activities. Providers report feeling isolated and thus benefit from connecting to other providers, recognizing themselves as members of a shared profession, and reality-checking their situations against others'—but most do not have bandwidth to maintain connections or pursue community-building.

Participant comment: *"I want to maintain the relationships forged, but day-to-day commitments make this challenging."*

How do providers think about GTA PD?

For many, the workshop is a first exposure to systematic thinking about goals for their GTA PD program. Many are still developing a vision of the kind of teaching they'd like to see GTAs practice; they may not feel their vision is supported by their department. Not all embrace active learning, but an emphasis on building GTAs' skills in probing and using student thinking[2] seems to be acceptable framing for most.

Participant comment: *"Why do we say PD and not teaching? This was all very teaching-focused."*

Lessons & Implications

✧ Most providers report good support for GTA PD from chairs and TAs, and moderate support from math faculty. However, they report weak department norms for active or non-lecture teaching. Their own use of active teaching approaches ranges widely. Even for experienced mathematics teachers, new models of instruction may be needed to set learning goals for GTA PD or lead discussions among GTAs, an epistemological context that is distinct from mathematics teaching.
Working with providers involves PD on evidence-based teaching as well as PD on preparing GTAs.

✧ Providers identify needs for practical resources, more PD for themselves, and help navigating structural and cultural challenges at their institutions. They express a range of clarity about goals, vision, and possible models. Provider roles require teaching, leadership and advocacy skills that not all have developed.
Efforts to support providers must address their institutional positionality.

"It can be pretty discouraging to think I'm making any sort of a difference, because our structures don't reward good teaching."

✧ Compared to approaches that focus on future faculty themselves (e.g., CIRTL[3]), CoMInDS' focus on providers has advantages of scale—each provider reaches many TAs—but faces bottlenecks if providers themselves are not skilled teachers of and advocates for GTA PD.
PD for GTA PD providers is not a quick fix.

References Cited

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