

Successes, Struggles, Surprises, and Short-term Goals of Mathematics Graduate Student Instructors Teaching for the First Time

Johan Benedict Cristobal, University of Nebraska – Lincoln

As the last presentation in this session...

Research Context

- One semester (Fall 2023) at a mid-Western US, large, public research-intensive university.
- 3 mathematics graduate student instructors (GSIs) teaching for the first time as the main instructor of a course:
 - Intermediate algebra, college algebra, or math for liberal arts.
- I was concerned about what GSIs experienced during their first semester of teaching.
 - As I viewed it, experiences that “stand out” are the ones that go on to inform their future actions in this classroom and future classrooms.

More on Data

- **Larger study:**
 - Weekly observations,
 - Interviews,
 - Reflections in journal form, and
 - Semester review activities.
- This presentation focuses only on the journals.

Research Question

What experiences/themes are salient in novice GSIs' written reflections of teaching?

Journal reflections were organized into the Four S's:
Successes, **S**truggles, **S**urprises, and **S**hort-term goals.

Rationale for the Four S's

	From the perspective of the Researcher/PD leader, _____ could point to	From the perspective of the Instructor, writing about _____ urges instructors to ...
Successes	Experiences can build confidence in teaching	Think about teaching events that they're doing well in and find confidence from
Struggles	Aspects of teaching which professional development programs can preemptively address before the start of a new semester	Mentally unload and unpack negative teaching situations which may be putting undue stress on their shoulders
Surprises	What situations are unexpected to (new) instructors and could be demystified ahead of time.	Take note of their own expectations surrounding teaching and reconcile these with the realities of teaching.
Short-term Goals	What instructors valorize and attend to for their development as instructors	Set up goals to achieve in the short-term which hold them accountable to their own development as instructors.

RESULTS

*Salient Themes in GSIs Journals (24 entries)
which surfaced through a constant comparative
inductive analysis*

Success

- **Evidence of student learning:** when students are engaged, they're discussing problems in the table groups. Being able to see students answer problems in class and in office hour.
- **External validation:** being told that they did a good job or did the same thing another instructor did.
- **Time management:** good pacing of content and not running out of time.

Struggle

- **Feelings of inadequacy:** whether it is in helping students in the classroom (resulting in students feeling frustrated) or having a student drop the course before they could intervene
- **Time management issues:** some pacing issues and not getting through planned content due to their current teaching style or technology failure in the classroom
- **Uninterest students:** rowdy students talking over instructor, coupled with the instructor not knowing what to do in response as they don't want to appear rude, and students leaving early.

Surprise

- **Students:** conflate concepts, get overloaded with information, do not remember concept they saw recently, and not as interested in the material as expected.
 - Students actually preferred to be lectured at than doing group work.
- **Teaching:** learning something differently than the students (e.g., $a \div b$ vs a/b), and definitions are difficult to explain
 - Does not want to appear unprepared or not knowing the material
 - Attending a lot more to language than they anticipated.

Short-term goals

- **For students:** Be more useful to students' learning through using more intuitive language or examples, by adjusting to students' background and comfort with mathematics
 - Have more one-on-one interactions
 - Have more opportunities to review
- Encourage student participation and collaboration
- Improve on pacing and time management
- Keep students engaged
 - “be less boring”

Limitations

- Only three graduate students because this is part of a larger narrative study which chose to collect data from a small group of students.
- What people share in journals *most likely* differ depending on if it's private or will be looked at by someone else (researcher).
- Analysis only used the reflections, there are still observation and interview data for these GSIs which will probably square and complicate these salient themes.

Implications/Takeaways for the Audience

- My participants were all GSIs of one mathematics department that has its own set of community norms and culture.
 - That said, the Four S's is general enough to be used by PD or Department leaders to “check the climate” of teaching and act accordingly.
- Awareness of these themes may help the transition of new instructors into the role of teaching at your specific local and cultural contexts.

Thank you for your attention!

- Thank you to the organizers of MAA MathFest and this RUME session for letting me present my work.
- I hope you all had a great MAA MathFest 2024!
- Email: jcristobal2@unl.edu
- Website: www.johanmath.com