

Strategies for Supporting Diversity in Mathematics Departments

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Outline

- Introduction
- Barriers and biases
- A case study
- Seek feedback, listen, act. Rinse and repeat.
- Where to start?

Introduction

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- Departments of math, applied math and statistics, and school of education, are all distinct and do not interact much.
- I was hired in a teaching position with advising and mentoring duties, and a special project: build community among (pure) math majors.

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To fulfill our mission to educate the citizens and citizen leaders of tomorrow. Mathematics, and STEM fields, are more and more important in our technological society, and we don't want — in fact we can't afford — anyone to be left behind.

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You will be asked to share with everyone if you don't mind.

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- Few students or faculty who identify (publicly) as part of the LGBTQ community
- First generation college students often don't know the “tricks” to succeed in college. Actually, they are not the only ones (more on this later).
- Very low numbers of underrepresented minorities majoring in math, who feel like they don't belong, have no support network, etc. Even fewer in grading positions.
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Let's not forget the greater context in which we live: attacks on black lives, immigrants, trans and queer people, women...

Barriers — Take 2

What additional barriers do certain populations face at your institution?

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- Info event on applying to graduate school, the GRE, etc.
- A mini-website on how to ask for a recommendation letter.

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So students turn to their connections.

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- One or more of their parents or family members have been to college or even graduate school, or have connections for internships and summer work;
- They came well-prepared academically, from a strong high school;
- They have acquired college or grad school survival skills (from teachers, parents): collaborating on homework, going to office hours, talking to professors, applying to scholarships and internships;
- Graduate students and professors will talk to them, give them advice, encourage them forward, tell them about opportunities;
- They are surrounded by similar students and faculty, in terms of: race or ethnicity, gender identity, religion, background, socio-economic status, etc. This can make it easier to connect with people, make friends and mentors, etc.

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See “Unpacking the Invisible Knapsack” by Peggy McIntosh.

Leveling the playing field

We want to level the playing field for our students, so all have access as much as possible to the information and advice they need to succeed.

All our informational events are aimed at making members (or prospective members) of the department feel like they are welcome; like they can participate fully; like they can find the support they need like their peers do — even though they might not have the social and support network that their peers have.

To do or not to do?

Some barriers are brought *down* when we choose to act (as in the example of making information more accessible to all).

Others are put *up* when we act.

Case studies can help illuminate some unwelcome behaviors and microaggressions.

PS: Case studies and diversity trainings will not solve (any?) all your problems, and probably should not be made mandatory.

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The Process

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- Read the situation on your own, including the reflection questions.
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Ground Rules

- We all have different view points, we may not all agree, but we need to respect each other.
- Also be respectful of the people in the case study, whatever their circumstances.
- We are here to think together about these issues, and learn.
- Assume positive intentions from everyone!
- **Can you think of anything else?**

Case study — takeaways?

- To know more about unconscious or implicit bias, check out the website implicit.harvard.edu, and the work of Mahzarin Banaji and many others.
- Listen.
- Look up “The Four I’s of Oppression”: Ideological, Institutional, Interpersonal, and Internalized.

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- 1 ~~You can't do right by students if you don't get feedback from them.~~
Try to do right by students.
- 2 ~~You will not receive feedback from students if they do not trust you.~~
They will start to trust you. A little.
- 3 ~~Students will not trust you if you do not do right by them.~~
Seek their feedback, listen, and adjust as needed.
- 4 Repeat steps 1-4.

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Sometimes though, things can be changed! And students might have excellent ideas about how to change things.

“Gripe sessions” are highly recommended if you are willing to listen (not to defend yourself), if you take it seriously, and if you get back to students about it.

What about (underrepresented) graduate students?

- Info sessions on qualifying exams and writing a dissertation?
- Do students get advice on how to find an adviser / research project?
- Available advice on what are good things to do: go to conferences, present posters or give talks, connect with colleagues who have similar interests, apply for scholarships... Is that information getting to them? How? Do students all get the same amount and quality of advice?
- Are graduate students asked to do service, and if so, how is that shared between them? Who makes these decisions?
- Is “extra service work” sometimes needed? Who is asked to do it? Do mostly the same people bear that burden again and again?
- Are teaching assignment decisions clear? Can students state preferences? Do some students find a more sympathetic ear than others on their preferences?
- What are some issues that graduate students face? Is there a way for them to communicate that? Is there someone listening?

What about (underrepresented) faculty?

- Are expectations made clear to tenure-track faculty about how to get tenure, what the tenure committee is looking for? Is that information made uniformly available, or does it depend on who talks to who? Is the review process opaque or open?
- Are service and teaching expectations clearly communicated? Does everyone share the burden equally? How can faculty say yes or no, can they state preferences? What happens if someone does not perform well in their service? In their teaching?
- (This applies to graduate students too:) How do you recruit for tenure-track and post-doc positions? Who applies? Who does not apply?

Other techniques on increasing and supporting diversity

- Teaching techniques (active learning, inquiry-based learning, project learning, teamwork).
- “Emerging Scholars” types of programs, to support STEM-intending underrepresented minorities.
- Curriculum adaptations or changes, or supporting teachers in that.
- More mentoring opportunities: summer, weekend or day programs for underrepresented minorities, ongoing seminars. Research Experience Opportunities (REUs).
- Interventions on students: addressing or reducing stereotype threat, decision gaps, fixed mindset (vs growth mindset).
- Interventions on faculty: trainings on biases and implicit biases, diversity trainings, reading groups.
- Building a “social net” for underrepresented groups, and math people in general.
- Showcasing alumni, especially ones with non-traditional paths or careers. (Written or video interviews?)

The money stuff

- MAA (Mathematical Association of America):
 - ▶ Tensor-SUMMA (Strengthening Underrepresented Minority Mathematics Achievement) grants.
 - ▶ NREUP (National Research Experience for Undergraduates Program).
 - ▶ Check out the MAA website, under “Programs” then “Under-represented Groups” for more resources, for faculty and students.
- AWM (Association for Women in Mathematics) can help student chapters bring speakers in.
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Note: it might be harder to find time, colleagues and students to work with on this, than it is to find money.

So, where do I start?

- Add a blurb to your personal homepage about how you support diversity. (See my website for example and links.)
- Get someone to do a training in your department! Ask around for a few colleagues who will commit to come, then invite the whole department.
- Talk to students. Seek them out. Interview graduating seniors or graduate students.
- Ask students what they want or need, and ask them to help you make this happen. Seek their input and help. (“Gripe session”.)
- Attend student events, if they are ok with it. Support students in organizing what they want to organize.
- Start a discussion group ! Or even just read one thing with a few colleagues. Find a way to spark discussions. You never know who your allies might turn out to be.

Some key take-aways

- Find collaborators, allies at all levels: undergrads, grads, post-docs, faculty.
- Find barriers and biases.
- Listen for feedback. Really.
- Find more barriers and biases.
- Start with one thing, then another, then another. See where this takes you.

You might find this “checklist” useful in brainstorming? Let me know!
<https://scholar.harvard.edu/rbr/diversity>

Who will commit to doing one thing
to support diversity
during the next academic year?