Create an Environment Where ALL Students Learn Rigorous Mathematics

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Overview

A disproportionate number of underrepresented minority students enroll in developmental mathematics courses with the vast majority of these students enrolled in two-year colleges. This session will focus on questions related to some of the factors that contribute to underrepresentation of minority groups in mathematics. Audience expertise and discourse will be incorporated to suggest possible solutions to address the factors.
Some Sobering Statistics (2010)

Of the students referred to Development Mathematics courses in two-year colleges:

- 20% never enroll in a developmental education course.
- 40% enroll in a sequence by do not finish the sequence.
- 33% complete the developmental mathematics sequence and are eligible to enroll in a college-level mathematics course.

NOTE: Of all students enrolled in mathematics at two-year colleges, 57% are enrolled in developmental mathematics.
Factors

- Opportunity Gap
- Stereotype Threat
- Lack of Excellence and Equity Pedagogy
Opportunity Gap

- Who teaches the developmental courses?
- What mathematics content and pedagogical content knowledge is necessary to support underrepresented minority students in developmental mathematics courses?
- Is there a perception that some students can’t learn high cognitive demanding mathematics?
Opportunity Gap

- Are there low expectations of certain groups of underrepresented minority students?
- Is there significant structural support from the institution?
- How might an institution increase the opportunity for students to become successful in developmental mathematics courses?
Opportunity Gap: Creating Environment

- Discuss the questions posed as it relates to your institution, your department, and your developmental courses. How has your institution and faculty addressed some of these questions?
- How does the content and delivery of your course support high cognitive demand and high expectations?
- Does your institution provide structural support for developmental courses in your department?
- What steps might you take to reduce or eliminate the opportunity gap?
- How would you create an environment that supports a growth mindset in students?
Stereotype Threat

- Are there societal messages that inform me that I don’t belong here?
- When I walk into a mathematics class and see a disproportionate amount of people unlike me, do I feel threatened? Do I feel safe? Is this a real safe?
- When I walk into a mathematics class and see a disproportionate amount of people like me, do I feel threatened? Do I feel safe? Is this a real safe?
Stereotype Threat

- Do I allow someone else’s view of me impact what I think of myself?

- How can I gain the confidence to excel in mathematics if I am constantly faced with negative stereotypes?

- My family encourages me to work hard and not bother the teacher. How can I inform the teacher that I do care even if I don’t ask for help?
Stereotype Threat: Creating Environment

- What environment do you establish in your class to inform students that they belong and not feel threatened in your class?
- How can instructors address the stereotypes that students face?
- How do you engage all of your students?
Lack of Excellence and Equity Pedagogy

- What is the quality of the mathematics taught and how are the students taught?
- Are the mathematics standards lowered in order for students to pass the course (low level curriculum for students in developmental mathematics)? Why or why not?
- What attempts are made to determine what the students’ mathematical and affective needs are?
Lack of Excellence and Equity Pedagogy

- What mechanisms are used to determine how students learn mathematics? What appropriate instructional strategies enhance that learning?
- What extensive support systems and scaffolds are in place to increase the learning of students who have traditionally been unsuccessful?
- Does “more of the same” work? Why or why not?
Lack of Excellence and Equity Pedagogy (and Support)

- What models of support are used at your institution?
- Do they include out of classroom support? One-on-one tutoring? Peer tutoring? Group learning?
- What types of support are available for English learners?
- Do students seek the services? Why or why not?
- What might be done to increase students’ awareness of the services available to them at your institution?
What Is Needed?

- Human Capital
- Social Capital
- Material Resources
- Structural Support
Equity and Excellence

We want to provide access to ALL students. We also want ALL students to make sense of rigorous, high quality, and cognitively demanding mathematics. We want them to approach the zone of proximal development, not the zone of minimal effort. We want equity AND excellence.

Equity without excellence is meaningless. Excellence without equity is unjust. We must always ask ourselves, what can we do to incorporate both?
Summary

- You’ve had the opportunity to discuss your situation and share with others. What will you be taking away from this session to share with others at your institution? What are your next steps?

- What might you and your institution do to address some of these issues?

- What are some of your next steps to increase the success of underrepresented minority students in developmental mathematics courses?

- How might the rhetoric change from a deficit view of students to an asset view of students in developmental mathematics?
TODOS 2016 Conference
Ensuring Equity and Excellence in Mathematics For ALL

June 23-25, 2016
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Participants will leave with important tools, strategies, ideas, and models for their own settings so they can advocate for and enact mathematics teaching that increases Equity, Access, and Achievement for ALL students through rigorous and coherent mathematics.

http://www.todos-math.org

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