Higher Education Landscape: Mathematics Teacher Preparation

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Why Mathematics Teacher Preparation Is an Important Part of the Landscape

The success of efforts to improve mathematics pathways from K-12 to postsecondary mathematics depends on the teachers we are preparing.

These future mathematics teachers are a product of the K-12 to postsecondary mathematics pathways.
The U.S. faces a continuing shortage of well-prepared secondary mathematics teachers, among the worst of any subject (Malkus, Hoyer, & Sparks, 2015).

Nearly 1 in 7 beginning mathematics teachers leave the profession after their first year (Ingersoll, Merrill, & May, 2012).

The quality of teacher preparation, particularly related to pedagogical practice, significantly impacts new teacher attrition (Ingersoll, Merrill, and May, 2014).
The Mathematics Teacher Education Partnership (MTE-Partnership)

A networked improvement community organized by the Association of Public and Land-grant Universities (APLU) to address the supply and quality of new mathematics teachers.

40 teams across 31 states that include universities and their school partners

Aligned with the Standards for Preparing Teachers of Mathematics (AMTE, 2017)
Four Major Challenges in Secondary Mathematics Teacher Preparation (Martin & Strutchens, 2014)

- Common vision across stakeholders
- Clinical experiences
- Mathematics content preparation of teacher candidates
- Recruitment and retention
Challenge #1: Common Vision

Everyone involved in preparing mathematics teachers needs to have a common commitment to improving mathematics teaching and learning:

- Teacher educators
- Mathematicians
- K-12 partners
- Other stakeholders
Challenge #2: Clinical Experiences

Need effective mentor teachers who model effective instructional practices

Bidirectional relationships with school partners
- We can't send mixed messages!

New models for clinical experiences (e.g., paired placements)
**Challenge #3: Mathematics Content Preparation**

Experiences with Active Learning in their university mathematics classes, especially calculus

- Increases candidates’ success in mathematics
- Provides first-hand experiences with effective pedagogy, supporting what they are told is effective

Experiences designed to particularly develop candidates' content knowledge for teaching
Challenge #4: Recruitment and Retention

Marketing mathematics teaching as an exciting profession
- Requires involvement of mathematicians and K-12 partners

Supporting successful progress through the program

Retaining them in the profession after graduation
Creating a "gold standard" Programs document that their graduates are capable of providing the ambitious instruction and deep learning compelled by rigorous state standards, based on benchmarks developed by the MTE-Partnership.

More and better new teachers To increase the number of graduating secondary mathematics teachers 40% by 2020, with an emphasis on increasing diversity.

Creating a Vision Creating a common vision of and commitment to SMTP among stakeholders

Clinical Preparation Developing and supporting mentor teachers who can provide field experiences that support candidates' development of instructional practices.

Content Knowledge Developing candidates' knowledge of mathematics needed to support student learning of content and practices.

Recruitment and Retention Attract and maintain an adequate supply of secondary mathematics teachers

EQUITY AND SOCIAL JUSTICE

www.MTE-Partnership.org