

# **The State of Retention and Recruitment of Middle and Secondary Mathematics Teachers in the United States: Analysis and Tangible Actions**

## ***Executive Summary: A White Paper for the Conference Board of Mathematical Sciences***

Schools across the United States are experiencing dire challenges to fill vacancies with qualified teachers, with acute shortages in areas such as special education, elementary education and mathematics (United States Department of Education, 2023; Schmitt & deCourcy, 2022). In mathematics, numerous reports indicate that states across the country are experiencing difficulties recruiting and retaining qualified teachers (Zeichner et al., 2024). The shortage of mathematics, science and elementary school teachers is a major concern in high-poverty districts (Diliberti & Schwartz, 2023). This crisis is widespread and has grown worse following the Covid-19 pandemic.

In this report we detail the state of the mathematics teacher shortage across the United States and call for tangible actions to improve the recruitment and retention of qualified mathematics teachers. We have used five questions to guide our analysis of current research and data:

1. Who is teaching mathematics?
2. What is the state of the mathematics teacher shortage?
3. What is the state of mathematics teacher entry and certification?
4. What are retention rates of mathematics teachers in United States public schools?
5. What are promising practices for recruiting and retaining mathematics teachers?

There are significant inconsistencies from state to state in terms of protocols used for reporting data such as teacher demographics, entries, and vacancies, definitions of key terms such as shortage, recruitment, and retention, and requirements for certification. These inconsistencies make finding and comparing data between states challenging, but we have done our best to gather, analyze, and synthesize data from a variety of sources across the nation. The examples and illustrations we present from different geographical regions, as well as from rural, urban, and suburban areas, provide a revealing picture of the mathematics teacher shortage across the nation.

Our analysis makes it clear that there are widespread teacher shortages in mathematics but suggests that there are multiple factors that account for how the shortage varies across the United States. It also is evident that there is a shift in the way mathematics teachers are obtaining their credentials. Alternative certification programs are becoming more popular, while the overall number of individuals entering university mathematics education degree programs is decreasing. Most importantly, the overall production of certified mathematics teachers is not rising to meet demand.

We identify promising practices such as teacher residency and grow your own programs for recruitment and retention that are grounded in developing partnerships across varying stakeholders and institutions that support K-12 education. Teachers need to feel supported through robust professional development; connections across institutions may facilitate that support. Resources such as [\*Get the Facts Out\*](#) can help combat harmful myths about the teaching profession. Coordinated efforts to retain and sustain teachers in the profession are critical.

We make recommendations for policymakers, colleges and universities, mathematics teacher educators, and school and district leaders to address the mathematics teacher shortage. These are aimed at addressing the mathematics teacher pipeline---including traditional educator preparation and alternative certification programs---and to support the retention of qualified mathematics educators. Our recommendations are:

- 1. The mathematics teacher shortage exists, is widespread and needs to be addressed.**
- 2. Uniform data reporting protocols and a common vocabulary need to be developed.**
- 3. Partnerships hold promise and need to be encouraged.**
- 4. Funding to support the mathematics teaching profession needs to be robust and sustained.**

The mathematics teacher shortage is pronounced and prevalent across the United States. With fewer individuals entering the mathematics teacher pipeline and low retention rates, we should all be concerned about the United States' long-term ability to provide all students with high-quality mathematics instruction. Addressing this crisis will require a collective commitment to increase and sustain the mathematics teacher workforce.