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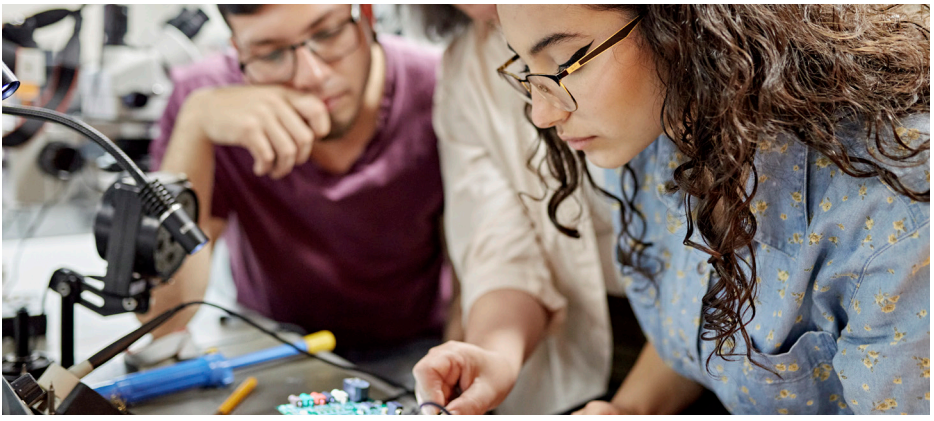

Optimizing Teacher Residencies in Texas: Considerations for Secondary STEM Candidates

2024 Report from the Secondary STEM Teaching Residency Advisory Group

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Secondary STEM Teaching Residency Advisory Group
We appreciate the contributions of the members of the Secondary STEM Teaching Residency Advisory Group who were convened during the 2023–2024 academic year to provide input and expertise in response to questions around the benefits and challenges related to residency pathways to prepare secondary STEM teacher candidates.

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I. EXECUTIVE SUMMARY

Texas faces a critical shortage of well-prepared teachers, worsened by high attrition rates and an increasing reliance on teachers with no prior public education experience. Over half of new teachers start with minimal or no preparation, leading to lower retention rates and reduced student achievement. In recent years, the longtime shortage of high-quality STEM teachers has only worsened.

In Texas, teachers prepared by universities produce greater student learning gains and are retained at higher rates than those not prepared by universities. Despite this higher teacher quality, production of university-prepared teachers in STEM across the state has declined by more than 40% over the past decade. For-profit, alternative certification programs produce the majority of certified STEM teachers in Texas.

The state of Texas is increasingly prioritizing teacher residency pathways as one potential approach to improving teacher quality. The introduction of the enhanced residency certificate, the first of its kind in the nation, underscores the state's commitment to promoting residency programs. The evidence of effectiveness of teacher residencies is mixed. While they have been shown to attract and retain culturally diverse teachers, they have not consistently proved superior to other pathways when it comes to teacher practice and student achievement. And the research points to a host of challenges related to costs, coordinating governance, and ensuring high-quality classroom mentoring and support for research-based pedagogical approaches. Residency requirements can present unique challenges for college students seeking secondary teaching certification alongside content degrees.

This study employed surveys and interviews of Texas higher education and K–12 stakeholders preparing and supporting STEM teachers to investigate the perceived value of residency approaches, the prevalence of research-based and best-practice program features, and challenges faced by candidates and educator preparation programs (EPPs) in implementing residency structures. Data were collected through a survey administered to higher education EPPs, interviews of K–12 district stakeholders, and Advisory Group meeting discussion notes.

FINDINGS

Through this study, we found that both K–12 and higher education stakeholders valued the high-quality preparation provided by residency approaches to teacher preparation. They recognized the strength of connection that candidates develop with the school community, easing the transition into full-time teaching responsibilities and potentially improving retention in the classroom. They also placed a premium on university and K–12 district partnership and shared governance. Stakeholders also acknowledged that too few STEM candidates are being prepared through residencies. They agreed on challenges to implementing residency approaches for secondary STEM teacher development and identified needs for strengthening residency approaches. Significant challenges arise in preparing undergraduate disciplinary STEM majors to become teachers through residencies. While STEM majors represent the largest pool from which to recruit future STEM teachers in higher education settings, a year-long teaching residency is often not possible to accomplish without adding time and cost to degree due to required coursework.

Funding was also highlighted as a persistent concern, both related to providing residents with sufficient funding to forgo other employment during the residency year and to provide for the additional staffing and administrative resources required to effectively implement residencies in K–12 and higher education contexts. In particular, the value of specific Texas state residency requirements for minimum hours of clinical teaching and co-teaching were questioned by study participants.

RECOMMENDATIONS

In addition to providing sufficient funding to make residency pathways a viable option for more pre-service candidates, policymakers should revisit the specific requirements for clinical experience to allow more flexibility, enabling secondary STEM candidates to attend necessary classes that may overlap with year-long residency requirements. Even further flexibility in residency requirements is unlikely to make them a viable option for all pre-service teacher candidates. For this reason, policymakers should support and invest in all high-quality, clinically intense preparation pathways in Texas.

While residency pathways may provide high-quality teacher preparation, logistical and financial barriers can hinder interest in and completion of these programs — particularly for secondary STEM candidates — potentially exacerbating teacher shortages in critical areas over time. Given the current context of teacher shortages and high attrition rates, care should be given to any decisions that lead to prioritizing the inputs of residency programs over their outputs. Future research should aim to identify the specific components of residency programs that most significantly impact teacher recruitment, production, quality, and retention. Ongoing collection and analysis of data related to the numbers of teacher residents prepared and retained, disaggregated by teaching subjects and grade levels, would provide information on the degree to which these pathways adequately address shortages and serve the pre-service population of candidates.