Creating Pathways Into the Profession While Building Diversity With Registered Teacher Apprenticeship Programs[1]

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Teacher shortages are a national concern today. In some locales (e.g., rural areas) and in specific certification areas (e.g., STEM, special education), teacher shortages have reached an acute crisis stage (Cowen et al., 2012; Lankford, Loeb, & Wyckoff, 2002). We have a compounding crisis, with ever increasing shortages and decreased production of teachers through traditional and even alternative educator preparation programs (EPPs; U.S. Department of Education, 2022). To address this crisis, state education agencies (SEAs), local education agencies (LEAs; i.e., districts) , and EPPs are turning to creative, localized "grow your own" strategies. One such strategy is designing and launching registered teacher apprenticeship (R-TAP) programs (U.S. Department of Education, 2023). Apprenticeships, common across many industries, are industry-driven career pathways through which employers can develop and prepare their future workforce. Through registered apprenticeships, individuals can obtain paid work experience, on-the-job training, and a nationally recognized credential.

Drilling down into the teacher shortage data, the lack of ethnoracial diversity in the profession is even more troubling, a situation partially caused by inequitable policies, practices, and programs (Lachlan-Haché et al., 2023). Students who are racially marginalized are rarely taught

by teachers who look like them. For example, during the 2020–21 school year, approximately 20% of all teachers were from racially marginalized backgrounds, yet almost 50% of all students nationally were racially marginalized (NCES, 2020). This disparity has adverse effects on students. Research suggests that race matching of students and teachers is associated with short- and long-term student achievement outcomes, including improved graduation rates and college matriculation (Gersheson et al., 2021).

Intentional actions throughout the design and implementation of R-TAPs provide the potential to increase teacher ethnoracial diversity in the workforce. This information brief is for organizations such as EPPs, SEAs, LEAs, or those serving as industry intermediaries, interested in (a) exploring R-TAPs as a strategy to address ethnoracial diversity gaps and (b) expanding or improving existing R-TAPs to prioritize diversification of the teacher workforce. This information brief shares considerations for data analysis, partnerships, funding, program elements, and continuous improvement that may be useful when designing and implementing R-TAPs.
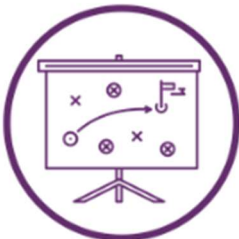
I. Grounding in Data

Addressing shortages and diversifying the teacher workforce through R-TAPs requires grounding the design and development of programs in data and tracking teacher ethnoracial diversity (Lachlan-Haché et al., 2023). The Center on Great Teachers and Leaders' (GTL Center) *Data Tool* and the Branch Alliance for Educator Diversity (BranchED) *Vacancy Tool for EPPs and District Partners* are examples of tools that help teams analyze data, conduct a root cause analysis, and consider strategies to address those causes that will not only increase the number of teachers entering the profession and attract a more ethnoracially diversity pool of teachers. Ideally, SEAs, LEAs, and EPPs—together with diverse voices from other stakeholders—should analyze data, identify root causes, and select strategies using a shared process.

Step 1. Data Analysis   Step 2. Root Cause Analysis   Step 3. Evidence-based Strategy Selection

Data Analysis Tools for Identifying Diversity Gaps

- [Insights on Diversifying the Educator Workforce: Data Tool for Practitioners](#) (GTL Center) is designed to help agencies identify key trends in teacher workforce data. SEA, LEA, and EPP teams can use the tool to identify where diversity gaps emerge within phases of the teacher recruitment and preparation pipeline (e.g., licensure and certification, mentoring and induction).

- The [Vacancy Data Tool for EPPs and Partner Districts](#) (BranchED) may be useful in helping EPPs and their district partners align teacher staffing needs and program completer certification areas and co-create targeted recruitment efforts to meet those needs. The data tool allows teams to look at three consecutive years of candidate data. EPP and district data are entered directly into an Excel workbook, which automatically generates visualizations that highlight gaps and surpluses in selected concentration areas.

TOOL HIGHLIGHT: Geographic information system (GIS) maps are data visualization and analysis tools that can illustrate geographic location of teachers by race as compared to the distribution of students by race in a region. A GIS map can provide meaningful insights into where ethnoracial gaps exist in a district, region, or state. GIS maps also can help SEA-LEA-EPP teams make place-based decisions.

For example, this Colorado map captures essential data elements, such as teacher-student diversity gaps and parity ratios that the Colorado Department of Education analyzed in addressing educator shortage challenges: https://experience.arcgis.com/experience/405f12d9c2744386921b1b2a2f4b94aa/page/Page/?views=Working-Conditions

For more information about GIS maps, contact the GTL Center (gtlcenter@air.org).

Root Cause Analysis Process

After choosing a tool to gather and input data, teams should look at student and teacher race and ethnicity data and specifically look at racial parity and racial gaps. In other words, rather than looking at the raw numbers, look at the differences and ratios (Hansen & Quintero, 2017). The following critical questions may be helpful in the root cause analysis process:

- In which phases of the pipeline do you observe the greatest disparities?

- Where do the gaps expand?

- Where do they get smaller?

- What specific teaching gaps (e.g., special education, bilingual education) need to be filled?

After determining what specific gaps exist, create a list of some potential causes for these gaps. The goal is to create an exhaustive list of to consider in designing potential solutions. After considering potential causes for gaps identified in the data analysis, ask your team why it is a problem. Write a reason(s), even if you do not know for sure. Keep asking why until the team names all the potential causes for the identified problem. Use the data and root cause analysis to inform efforts as you consider the best pathway program, and as your team works to design and implement R-TAPs to build a diverse workforce. If you're interested in learning more about conducting a root cause analysis process, view the *Root Cause Analysis Workbook* from the Center on Great Teachers and Leaders.

Select Specific Strategies Aligned to Root Causes

The next step is to select specific strategies that could address a root cause related to diversity gaps. Brainstorm a list of potential strategies for educator talent development that match each root cause. For example, if the data show that candidates of color are not enrolling in R-TAPs and the root cause is that classes are offered during the workday or at an inconvenient location, then the program can select a strategy that focuses on addressing the root causes of recruitment problems. A series of selected strategies are included in *Prioritizing an Integrated Approach to Educator Shortages and Workforce Diversity, Part 2: Innovative Strategies and Examples Across the Talent Development Continuum.*

RACIAL GAPS VERSUS. RACIAL PARITY

What's the difference between measuring student-teacher race gaps and student-teacher race parity ratios? Both tell us about the status of racial diversity in a region, but each paints a little bit of a different picture.

Think about two different school areas, District A and District B. In District A, 70 out of 100 students are students of color, and 50 out of 100 teachers are teachers of color. Meanwhile, in District B, only 25 out of 100 students are students of color, and just 5 out of 100 teachers are teachers of color. Both places have a 20-percentage-point difference between the number of students of color and teachers of color. This is what we would call student-teacher race gaps, but only looking at this difference doesn't give us the full picture.

For an alternative measure we can use a student-teacher parity ratio. This measure helps check if every student gets a fair chance to learn from teachers who are like them, regardless of how many students of color are in that area. Instead of just showing a gap, this new measure uses a ratio. The measure divides the numbers to get this ratio. For example, District A has a 1.4 parity ratio, and District B has a 5 parity ratio. The closer to 1, the more parity exists.

II. Look at the Partners

For an R-TAP to be successful, it requires engaged and sustained partnerships between community-based organizations, economic and workforce development agencies, EPPs, LEAs, state offices of apprenticeship or state apprenticeship agencies, and SEAs (U.S. Department of Labor, n.d.). Figure 1 provides a summary of key partners in R-TAPs. When addressing diversity in R-TAPs, partners are an essential way to ensure that your R-TAP program contributes to expanding diversity in the teaching profession. Partner groups may include minority-serving institutions (MSIs), tribal colleges and universities (TCUs), EPPs, and LEAs.

Figure 1. R-TAP Key Partners

Employer	Sponsor	Related Instruction Provider	Supporter
• Hires and pays apprentice. • Implements training plan, provides mentors, and on-the-job learning. • Can be school district or individual school.	• Responsible for overseeing and administering overall registered apprenticeship program. • Can be individual school, district, EPP, regional organization, or state agency or entity, etc.	• Provides related instruction coursework. • Can be employer, community college, four-year college or university, educator preparation program, etc.	• Provides supportive services to complement program design and directly support apprentices and employers. • Can be workforce center, nonprofit organization, industry intermediary, labor organization, state agency, etc.

Minority-Serving Institutions

When looking to form partnerships for an R-TAP, programs might consider partnering with MSIs because they serve Indigenous students and students of color—people who would make excellent candidates for an R-TAP. The 797 MSIs in the United States enroll approximately **26% of all students and nearly 45% of students of color attending college**. MSIs have experience with registered apprenticeships, as evidenced by the more than 80 R-TAP programs at MSIs across the country (Gasman et al., n.d.).

MSIs bring unique strengths to teacher preparation. MSIs have more scholars of color on the faculty which brings an extra dimension "of sensitivity to the needs and aspirations of...students and the barriers confronting them as people of color" including strategies for facing systemic oppression (BranchED, n.d.; Fenwick & Akua, 2023, p. 237). Additionally, MSIs have long histories of providing instructional, curricular, and motivational strategies that are devoted to candidates of

color, first generation students, and students from low-income backgrounds as well as strong networks of alumni and scholars in research and activism (Fenwick & Akua, 2023). This makes them excellent partners for R-TAPs.

Tribal Colleges and Universities

The [American Indian Higher Education Consortium](#) (AIHEC) is a 501(c)(3) that serves as a national organizing force of [35 accredited TCUs](#). Although TCUs are branches of MSIs, they are distinct because they were created and chartered by their own tribal governments or the federal government toward the sovereign, educational goals of their respective tribal nation(s). TCUs operate more than 90 campuses in 15 states and collectively educate students from more than 250 federally recognized tribes (AIHEC, n.d.). A scan of each TCU's website shows that of the 35 TCUs, 11 of them offer 26 accredited BA/BS degree programs that lead to elementary or secondary teacher certification.

Promising EPPs and Community Colleges

Additionally, consider partnering with an EPP that has a strategic goal of expanding their enrollment of teacher candidates of color. For example, Cincinnati Public Schools partnered with Miami University in Ohio to create a more diverse teacher workforce while also tackling teacher shortages. The program identifies students with an interest in education during high school, mentors them, helps the transition to the university, and then welcomes them back as teachers in the district (McEwan, 2023).

Additionally, consider partnering with community colleges that enroll a high percentage of students of color, students from low-income backgrounds, and first-generation students (Kimmel, 2022). More students of color initially enroll in community college after high school graduation than white students (Holzer & Baum, 2017). According to the Community College Research Center (2018), 55% of Hispanic, 45% of Asian-Pacific Islander, and 44% of Black college students enroll in community college. Partnering with a community college for an R-TAP is a way to ensure recruitment of candidates from ethnoracially diverse backgrounds.

Local Education Agencies

Finally, consider partnering with districts (i.e., LEAs) that are prioritizing diversification of their teacher workforce. Look for districts and schools in which a more diverse teacher workforce is needed. With the appropriate data, these districts and schools could be discovered during the data analysis phase (e.g., a school has a high number of racially marginalized students but few ethnoracially diverse teachers).

After identifying district partners, it is beneficial to explore the partnership's readiness level. BranchED developed two tools. The Residency Readiness: A Self-Assessment for Educator Preparation Programs and School District Partnerships supports the development of an understanding of the scope of work needed to develop a teacher residency, which may be a precursor to an R-TAP. Similarly, Building a Teacher Residency: Stages of Work and Critical Moves may be helpful in outlining the steps for designing and implementing a teacher residency/R-TAP that centers the needs of the partnership and lays the groundwork for long-term sustainability of the program.[2]

III. Explore Funding Opportunities

One distinguishing feature of R-TAPs is progressive wage increases for apprentices. Tuition costs and forgone wages during student teaching are a significant barrier for all teacher candidates, especially candidates of color (Carver-Thomas, 2018; Fiddiman et al., 2019). The progressive, livable wage offered by R-TAPs helps alleviate wage disparities for all students, and it can play a key role in diversifying the workforce. R-TAPs get candidates on the pathway and on the payroll faster.

When funding an R-TAP, consider creative ways to blend and braid local and federal funding sources. In addition to funding through federal U.S. Department of Education programs, R-TAPs also access funding from the U.S. Department of Labor, such as the Workforce Innovation and Opportunity Act, or any state apprenticeship grants (e.g., expansion grants).

> **Resource Highlight:** The GTL Center's A Funding Guide for Supporting a Registered Teacher Apprenticeship Program With Federal and State Funds can help support R-TAPs in accessing a variety of funding sources to support the recommended standards and design principles.

IV. Planning the Program: Induction and Mentoring

Apprenticeship programs must "provide structured on-the-job training to prepare for a successful career, which includes instruction from an experienced mentor" (ApprenticeshipUSA, 2022). Mentoring preservice teachers is essential in the development of teacher candidates (Clarke et al., 2014; Hoffman et al., 2015). Furthermore, hosting a teacher apprentice is

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[2] Access to these tools requires registering, which provides access to all BranchED resources.

associated with an increase in student achievement in the classrooms of mentor teachers in the years after the apprenticeship occurs (Goldhaber et al., 2020).

> **Resource Highlight:** If you are looking to establish a mentoring and induction program, visit the, Center on Great Teachers and Leaders' Mentoring and Induction 2.0 Toolkit for important information and free tools to help in design and implementation.

Mentoring should meet the unique needs of candidates from ethnoracial backgrounds (Kimmel et al., 2021). Mentoring in apprenticeship programs needs to match the specific needs of candidates from diverse ethnoracial backgrounds (Gist et al., 2021). Culturally responsive mentoring, in which mentors practice cultural humility by reflecting on their own biases, developing partnerships with people who advocate for others, and working to fix power imbalances, contributes to stronger mentor relationships (House, 2023). *The Power of Teacher Diversity: Fostering Inclusive Conversations Through Mentoring* provides a guide for mentors learning about culturally responsive mentoring. Similarly, Jobs for the Future has developed online learning modules for integrating diversity, equity, inclusion, and accessibility in mentoring for registered apprenticeships.

Another resource that can support the development of mentor teachers in a variety of areas (e.g., providing actionable feedback, culturally responsive mentoring) is mixed reality simulation, an innovative educational tool for the purposeful practice of essential skills and concepts in education (Smith et al., 2021). Mixed reality simulation immerses educators in lifelike scenarios, allowing them to practice what they learned, receive real-time feedback, and refine essential skills without any real-world consequences.

V. Continuous Learning, Improvement, and Evaluation

To meet the programmatic goals of increasing the number of teachers, especially ethnoracially diverse teachers, organizations should plan and embed systems and structures for continuous learning and improvement. To ensure that an organization is on track to meet its goals, it should monitor participants' experiences and journey through the teacher preparation pipeline and their background information. Important experiences to document include the amount and engagement with any training, mentoring, and field placement. Key background information includes, for example, teacher race/ethnicity, gender identity, first-generation status, and socioeconomic status.

The organization should provide resources and/or staff to keep these data accurate and up-to-date and create periodic progress reviews to make changes if necessary and course correct if the organization is not on track to meet its goals. Organizations might consider engaging with external researchers to conduct a more formal evaluation that provides an independent view of the implementation and impact of your R-TAP after the program is established.

> **Resource Highlight**: Creating a logic model can be very helpful to outline the data you need to collect. Regional Educational Laboratory Northeast & Islands offers a workshop and toolkit on Logic Models for Program Design, Implementation, and Evaluation.

It is important to verify if the R-TAPs is contributing to a more diverse workforce. Is the program producing more diversity among teacher candidates? Is the R-TAP working and for whom is it working? How are you measuring progress? Are you using evaluation data to inform changes in the program?

As you look at the evaluation and monitoring data, you might notice that the R-TAP isn't having the intended effects of reducing diversity gaps in the teacher workforce. This is an indicator that you might need to either go back to your original root cause analysis or conduct a new root causes analysis. R-TAPs might not be the right solution or the program may need adjustments.

Conclusion

Apprenticeship programs could help alleviate the symptoms of teacher shortages by contributing to a more stable and sustainable teacher workforce. However, to meet student needs and improve equity, intentional efforts to recruit, grow, and retain ethnoracially diverse teachers needs to be at the forefront of creating, implementing, and evaluating R-TAPs. With existing student-teacher race gaps, apprenticeship programs can be a strategy to increase diversity in the teacher workforce with the goal of improving the quality of education for all students.

Additional Resources

- Diversity, Equity, Inclusion, and Accessibility in Registered Apprenticeship (Jobs for the Future)

- An Untapped Opportunity: Registered Apprenticeship at Minority Serving Institutions (Jobs for the Future)

- READI Framework (GTL Center)

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