Table of Contents

[Acknowledgements 4](#_Toc163210695)

[Dedication 4](#_Toc163210696)

[Disclaimer 4](#_Toc163210697)

[Definitions 5](#_Toc163210698)

[Acronyms 5](#_Toc163210699)

[Executive Summary 6](#_Toc163210700)

[Introduction 7](#_Toc163210701)

[Problem Statement 7](#_Toc163210702)

[Client Overview 7](#_Toc163210703)

[Background on the Problem 8](#_Toc163210704)

[The Standard Story of Teacher Preparation in Texas 8](#_Toc163210705)

[The Shift Away from the Traditional Teacher Pathway 10](#_Toc163210706)

[Historical Trends 10](#_Toc163210707)

[Let’s Pause to Go Over the Basics 12](#_Toc163210708)

[The Impacts of the Increasing Amounts of Unprepared Teachers 13](#_Toc163210709)

[Where Texas Stands Now 15](#_Toc163210710)

[Evidence on the Potential Solutions to the Problem 15](#_Toc163210711)

[Quality of Education Preparation Programs 16](#_Toc163210712)

[Surveys 16](#_Toc163210713)

[Teacher Performance Assessments (TPA’s) 17](#_Toc163210714)

[Mentorship 18](#_Toc163210715)

[Expansion of Different Types of EPP’s 19](#_Toc163210716)

[Teacher Residencies 19](#_Toc163210717)

[Grow Your Own (GYO) Programs 20](#_Toc163210718)

[Apprenticeship Programs 21](#_Toc163210719)

[Alternatives 21](#_Toc163210720)

[Alternative 1: Maintaining Status Quo 21](#_Toc163210721)

[Alternative 2: State Definition of Apprenticeship Programs and Pilot Program 22](#_Toc163210722)

[Alternative 3: Create a New Teacher Performance Assessment (TPA) 23](#_Toc163210723)

[Criteria 24](#_Toc163210724)

[Cost 24](#_Toc163210725)

[Effectiveness 24](#_Toc163210726)

[Accessibility to People of Color 24](#_Toc163210727)

[Political Feasibility 25](#_Toc163210728)

[Evaluation 26](#_Toc163210729)

[Alternative 1: Status Quo 26](#_Toc163210730)

[Alternative 2: Create State Definition of Apprenticeship Programs and Create Pilot Program 27](#_Toc163210731)

[Alternative 3: Create a New Texas Teacher Performance Assessment (TPA) 28](#_Toc163210732)

[Outcomes Matrix 31](#_Toc163210733)

[Recommendation 31](#_Toc163210734)

[Implementation 32](#_Toc163210735)

[Conclusion 35](#_Toc163210736)

[Appendix A: Cost of Alternatives 36](#_Toc163210737)

[References 38](#_Toc163210738)

# Acknowledgements

This report was a result of a lot of collaboration between many different partners. Most importantly, I would like to thank Jonathan Feinstein, Director of Education Trust Texas, for taking on this project with me. We have an aligned passion for helping teachers and students in Texas and he has helped me navigate the problem with patience, knowledge, and curiosity. I would also like to thank Nathan Kriha, a P-12 Policy Analyst at EdTrust, for partnering with me on the 50-state scan of apprenticeship programs. Professor Lucy Bassett was a crucial piece of the puzzle as she advised me throughout this entire project with encouragement and care. Lastly, I would like to thank the many people who took the time to have conversations with me about this project: Calvin Stocker with TPI US, Stevi Norris with Region 11, Dr. Patricia Alvarez McHatton with Branch Alliance, Dr. Susan Kemper Patrick with Learning Policy Institute, Natalie Brown with Teach Plus, and Kate Hoffman with Commit Partnership.

My family and friends have always supported me in everything I do, so thank you to them for standing by my side. A special thanks to my sister, Elizabeth, for being my rock during my MPP, and to my Aunt Cathy for her never ending support and guidance.

# Dedication

This report means a lot to me because of my time in the classroom. To my former colleagues still fighting the good fight, this is for you. To my former education professors at TCU and mentors at BMS, thank you for preparing me to teach.

# Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degrees. The judgements and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

*Honor Pledge*

A black background with white text

Description automatically generatedOn my honor as a student, I have not given nor received unauthorized aid on this assignment.

# Definitions

A screenshot of a computer screen

Description automatically generated

# Acronyms

A table of information

Description automatically generated

# Executive Summary

In Texas, there are too few well-prepared teachers entering the K-12 teacher workforce because there are not enough clear, affordable, and high-quality pathways into the profession. As more teachers enter the workforce through Alternate Certification Programs or with emergency permits through Districts of Innovation they are, ultimately, unprepared. They are not able to effectively teach given the high demands of the job. Without an effective teacher in the classroom, learning gaps for students will only continue to increase, especially for historically underserved populations who experience the most severe impacts. Because teachers enter the classroom unprepared, attrition rates are at an all-time high, with 50,000 teachers leaving the classroom every year in Texas. The process of replacing these teachers is costly to districts, teachers, and student learning.

In 2022, Governor Greg Abbott created a Teacher Vacancy Task Force (TVTF) to investigate teacher retention and recruitment challenges across Texas. In 2023, the TVTF identified three areas of concern: compensation, training and support, and working conditions. However, in the 88th legislative session in 2023, no legislation was passed to support the Texas teacher workforce as recommended by TVTF. Urgent action is necessary to expand high-quality pathways that are both affordable and accessible.

This report assesses three alternatives on each’s ability to increase the number of well-prepared teachers entering the K-12 teacher workforce and therefore, decrease attrition rates:

1. Maintain Status Quo

2. State Definition of Apprenticeship Programs and Pilot Program

3. New Certification Assessment: Texas Teacher Performance Assessment

I evaluated each alternative based on cost, effectiveness, degree of accessibility to people of color, and feasibility. I calculated the cost using existing costs to school districts, the state, and comparable state programs. I calculated the effectiveness of each using increases and decreases of attrition rates of current conditions and existing programs. I evaluated the accessibility to people of color based on the likelihood of the alternative being accessible to teacher candidates of color who want to enter the profession. Lastly, because of the political climate of the 88th legislative session and present-day State Board of Education meetings, I evaluated feasibility to assess the likelihood of an alternative moving forward.

This analysis recommends pursuing a state definition of “apprenticeship programs” and a pilot program of state sponsorship. This alternative is a strategic staffing measure that would be used to recruit staff already working for a school district who do not have a bachelor’s degrees. An apprenticeship definition should include a partnership between an Education Preparation Program and a school district with a paid teacher residency that lasts minimum one year. To implement this alternative, a 50-state scan needs to be conducted of apprenticeship programs to review best practices in other states. EdTrust will be working with advocacy partners, TEA, and existing apprenticeship programs in the state to provide research to policymakers before the 89th legislative session.

# Introduction

A new teacher steps into a 7th grade math classroom for her first day of teaching. She must know the Texas Essential Knowledge and Skills (TEKS) the students need to master before the end of the year, how to teach the standards, and how to teach them to students with disabilities, English Language Learners, and students with behavior issues. She also must create a safe and encouraging learning environment for her students, design lessons, collaborate with a team of teachers, and communicate with parents. The amount of preparation that goes into teaching is enormous and stressful, but with effective training and mentorship, a teacher can connect with her students, build relationships, support student learning, and follow her passion for teaching for many years to come. The difference between being prepared and unprepared in that 7th grade classroom has a direct impact on student outcomes and their future. Students of color and low socioeconomic status (SES) areas are impacted the most because the schools are considered hard to staff areas. By looking at quality of Education Preparation Programs (EPP) and expanding different types of EPPs, this paper will seek to support the Education Trust as they recommend actionable items to the Texas Legislature to get more prepared teachers into the K-12 classrooms.

## Problem Statement

**There are too few well-prepared teachers entering the K-12 teacher workforce in Texas because there are not enough clear, affordable, and high-quality pathways into the profession.** One in three new teachers do not have a teaching certificate and more than half of new teachers hold a probationary teaching certificate. As a result, attrition is at an all-time high with 41% of new teachers in Texas leaving before five years in the profession (*House Select Committee, 2023*). Without an effective teacher in the classroom, learning gaps for students will only continue to increase, especially for historically underserved populations.

## Client Overview

The Education Trust (EdTrust) is a national non-profit with a mission and commitment to “advancing policies and practices that dismantle the racial and economic barriers embedded in the American education system” (*Who We Are - the Education Trust*, 2023). EdTrust is active at the national level and at the state level in 7 states, including Texas and California, the two biggest education systems in the nation. My client is Jonathan Feinstein, State Director for Texas, but I have also collaborated with the national team.

EdTrust in Texas is advocating for an equitable education for historically underserved students across the state, especially students of color and lower income students. They influence policy by engaging and equipping stakeholders across Texas to drive conversations, draw attention to inequities using data, equip partners with actionable tools, and learn from the community (*The Education Trust in Texas - the Education Trust*, 2023; Feinstein, 2023). EdTrust can play a role in this policy conversation with multiple stakeholders, including the Texas Education Agency, the legislature, and other advocacy groups in Texas such as Commit Partnership, Teach Plus, Communities Foundation of Texas, and Texas 2036.

**After the 2022-2023 school year 49, 782 left the profession, which was a 1.87 percentage-point increase from the previous year’s attrition** (Landa, 2023b). Because teachers are leaving the profession at an alarming rate in Texas, student learning is being harmed. The students who are the most impacted are students of color and low SES students. EdTrust is in a unique position to collaborate and provide evidence-based research and innovative strategies to help mitigate this problem.

# Background on the Problem

## The Standard Story of Teacher Preparation in Texas

Before the 1980’s, teachers were only prepared and certified through Institutions of Higher Education (IHE), which is what we know today as the traditional teacher preparation pathway. This traditional pathway includes a teacher candidate receiving their bachelor’s degree in education through a program that has been approved by the State Board of Educator Certification (SBEC), which is within the Texas Education Agency (TEA). The teacher candidate completes 300 hours of coursework on pedagogy, teaching methods, and content knowledge through the IHE (Will, 2024). Coursework is aligned with the Texas Essential Knowledge and Skills (TEKS), the statewide public-school curriculum in Texas (Texas Education Agency, 2020). During the teacher candidates last semester at the IHE, they complete a clinical experience, known as student teaching (*Texas Administrative Code*, 2023). The teacher candidate is placed at a local K-12 school in a classroom with a mentor teacher who is the teacher of record, meaning they are ultimately responsible for the students in the classroom. Once the teacher has completed their coursework, clinical experience, and graduated from the IHE with a bachelor’s degree, they take their certification exams, one for pedagogy and one for content. When they pass these exams, they are deemed qualified to be the teacher of record.

The Texas Education Agency (TEA) has a commitment to “ensuring quality educator preparation programs that recruit and prepare qualified educators who meet the needs of all learners in today’s and tomorrow’s Texas classrooms” (Texas Education Agency, 2023a). This defined commitment is important because it discusses: 1) the need for quality educator preparation programs, 2) the need for qualified educators, and 3) what a qualified teacher should be able to do in the classroom.

Figure 1 shows how Chapter 19 of the Texas Administrative Code (TAC) defines the teaching standards for what a teacher in Texas should be able to do (*Texas Administrative Code*, 2024).

*Figure 1*

Texas Teacher Standards

A close-up of a list of text

Description automatically generated

Teacher candidates learn these skills through their IHE traditional pathway program *before* entering the classroom as the teacher of record. To be able to perform the standards outlined in the TAC, teachers need to be well-prepared to do so. In 2000, The National Center for Education Statistics (NCES) defined a well-prepared teacher as being able to maintain order and discipline in the classroom, implement new methods of teaching, implement curriculum and performance standards, use student performance assessment techniques, address the needs of students with disabilities, integrate educational technology into the classroom, and address the needs of students with limited English proficiency or from diverse cultural backgrounds (Teachers’ Feelings of Preparedness, 2000). This definition was based on surveys sent to teachers across the nation on their feelings of preparedness in the classroom. NCES has indicated that feeling well-prepared is a major factor in being a high-quality teacher.

## The Shift Away from the Traditional Teacher Pathway

In 1985, Texas was the first state to allow an Alternate Certification Program (ACP) in Houston Independent School District to help alleviate teacher shortages (*Alternative Certification for Teachers in Texas*, 2024). An ACP still requires a teacher candidate to have a bachelor’s degree, but majority of the course work and the clinical teaching occur while the candidate is the teacher of record, allowing teachers to enter the classroom now with a probationary certification, and get their standard certification later. By the early 2000’s, teacher shortages were increasing in Texas, creating a boom in the number of ACP’s available and the number of candidates using them to enter the classroom (Horn et al., 2021). Now, close to 60% of teachers are certified through ACP’s in Texas. Texas responded to teacher shortages by lowering the requirements to become a teacher.

An increasing teacher shortage throughout the pandemic in combination with increasing student populations has also called for teachers leaving their preparation program early or not signing up for one at all to go into the classroom with an emergency permit (Teacher Vacancy Task Force Final Report, 2023). Studies indicate that educators entering the profession without full preparation are, on average, less effective and more prone to departure (Ed Trust, 2023). This contributes to elevated attrition rates, ultimately undermining student achievement at the school level (Bland et al., 2023). The teachers that are most affected by the high attrition rates are novice teachers, that is those with 0-5 years of experience. **When teachers are not properly trained and quickly rushed into a full-time teaching role, they are often overwhelmed and unable to meet the needs of all of their students (Richman & Trisha Powell Crain, 2022; Bland et al., 2023)**

A recent Learning Policy Institute (LPI) report on the increasing teacher shortages in Texas cities shows they are stemming from: growing need for additional teachers, high levels of teacher attrition that are compounded by the effects of the pandemic, increasing reliance on alternate certification programs that have low program completion rates and high attrition rates from the teaching profession, a shrinking pool of fully credentialed new teachers, and increasing reliance on interns and, more recently, on uncertified teachers (Bland et al., 2023). As teacher shortages in Texas continue to grow because teachers are leaving the profession, new teachers continue to enter the classroom quickly and without full certification, meaning they are not fully or well-prepared.

## Historical Trends

Decades of research has shown that having a highly qualified teacher in the K-12 classroom is the single most important factor in student outcomes (Darling-Hammond, 1999; Ladd & Sorensen, 2016; Barlow, 2021). Rates at which teachers have been leaving the classroom have steadily been around 10% in Texas since the 2010-2011 school year. In the 2019-2020 school year, rates began to rise at an alarming rate and landed at 13.4% in the 2022-2023 school year (Landa, 2023a). This 3 percentage point increase accounts for an additional 13,000 teachers across the state of Texas leaving the classroom this year compared to before the Covid-19 pandemic, as Figure 2 shows. Not only are teachers leaving the profession at a higher rate, the total enrollment in Texas public schools increased by 442,592 students, or 8.7%, over the last 10 years (Yi et al., 2023; *Enrollment in Texas Public Schools 2022-23*, 2023).

*Figure 2*

Historical Trends of Teacher Attrition

A graph with a line and numbers

Description automatically generated

Sources:

Employed Teacher Attrition and New Hires, Texas Education Agency, 2011-12 through 2022-2023. Teacher Retention by Preparation Route, Texas Education Agency, 2011-2012 through 2021-2022. Educate Texas, 2023.

## Let’s Pause to Go Over the Basics

It is important to understand the certification process in Texas as well as the three types of Educator Preparation Programs (EPPs). *Figure 3* shows both the process and the types of EPP’s (Texas Education Agency, 2023b). According to the Texas Administrative Code, within an EPP, teacher candidates must complete “coursework and/or training to adequately prepare candidates for educator certification and ensure the educator is effective in the classroom” (*Texas Administrative Code*, 2023). The coursework is set to be rigorous, candidate-focused, and performance-based and should be completed prior to standard certification. 30 clock hours of training in the field (with a teacher of record) are required within each EPP, but traditional pathways provide upwards of 700 hours or more. EPP’s are required to provide at least 300 clock hours of coursework on top of the field work training (*Texas Administrative Code*, 2023).

*Figure 3*

A diagram of a course

Description automatically generatedTexas Teacher Certification Process

The notable difference between EPP’s is when the clinical experience/field work is completed and how it is done. For traditional and post baccalaureate pathways, the pre-service teacher candidate is not the teacher of record while they complete their clinical experience. For alternate certification, most of the time they are the teacher of record, meaning they are in the classroom alone vs. with a mentor teacher. With an ACP, candidates apply for a probationary teaching certificate until they complete their EPP and take the standard certification exams for pedagogy and content when they complete the program. ACPs require the completion of 150 hours of coursework and 30 hours of field work, 15 of which can be done online, prior to entering the classroom as the teacher of record, which is significantly less than the other two routes *(Texas Administrative Code*, 2023).

**The attrition rate for teachers that use an alternate certification program as their education preparation program is 8 percentage points higher than teachers that use a traditional program as their EPP (Landa, 2023b)**.

# The Impacts of the Increasing Amounts of Unprepared Teachers

The Education Trust advocates for a more diverse teacher workforce, but Black teachers who are trained through an alternative certification program leave the profession at a much higher rate than Black teachers who obtain their certification through a comprehensive, traditional program (Bland et al., 2023). Students of color make up roughly 72% of students in the state of Texas while only 41% of teachers are teachers of color (Ed Trust, 2022). Likewise, students of color in Texas are also more likely to have a novice teacher compared to white students (Ed Trust, 2023). Not only do students of color benefit from having a teacher of color, but research also shows all students benefit (Wells et al., 2016; Ed Trust, 2022). While high rates of teacher attrition affect all students in Texas, they are hurting the most vulnerable student populations the most. By constantly having novice teachers, mostly prepared by an alternate certification program, student test scores are behind their white peers (Marder et al., 2022). Data shows that high-quality teachers who are well-prepared are linked to student achievement during their K-12 education and beyond, as shown in *Figure 4* (Chetty et al., 2014; *Where We Stand on Teacher Workforce*, 2022).

Because of the teacher shortage, more emergency teachers need to be hired, several of which are novice teachers, meaning 20% of new teachers do not have a certification, probationary or standard (Teacher Vacancy Task Force Final Report, 2023). The only reason this is allowed is because of House Bill 1842, passed in 2015, which created Districts of Innovation (DOI) (Texas Education Agency, 2023d). Districts in Texas can apply to be a District of Innovation which affords them: local control, customization for a level of school, autonomy through a DOI plan to the commissioner of education, and flexibility from school start date all the way to teacher certification and appraisal requirements (Districts of Innovation, 2023). While research shows “innovation in schools” is effective at ensuring student outcomes (Liebman With et al., n.d.; Castro & Edwards, 2021), it is imperative that districts using innovation have autonomy, accountability, and active learning and support for educators (Ouchi, 2009). Researchers at UT Austin have found cause for concern with the lack of accountability DOI offers, especially for teacher certification, as now more than 85% of Texas public school are considered Districts of Innovation. (Childs, 2018; Guthery & Richard, 2020; Menchaca, 2023). Emergency permits can allow the teacher to start teaching as long as they have obtained a bachelor’s degree. They need to sign up for a registered EPP and can only use an emergency permit for one year (Texas Administrative Code, 2023).

A study from the University of Texas at Austin, seen in *Figure 4*, shows statistically significant differences in student outcomes with a teacher from an Institution of Higher Education versus an Alternate Certification Program (Marder et al., 2022; Bland et al., 2023). There is not data on the impacts on student learning outcomes who have had teachers with emergency permits, but it can be assumed the impacts will be even more detrimental that ACPs.

*Figure 4*

A graph of a number of students

Description automatically generated with medium confidence

Source: Marder, M., Reyes, P., Marshall, J., Alexander, C., Martinez, C.R., & Maloch, B. (2022). Texas educator preparation pathways study: Developing and sustaining the Texas educator workforce. (p. 15). University of Texas at Austin College of Education.

# Where Texas Stands Now

Due to the rising teacher attrition rate in 2021, Governor Greg Abbott created a Teacher Vacancy Task Force in 2022 to investigate teacher retention and recruitment challenges across Texas. In 2023, the Task Force (TVTF) identified 3 areas of concern which point to the contributing factors that are exacerbating the problem: (1) Compensation, (2) Training and Support, and (3) Working Conditions. TVTF noted the hard-to-staff areas of bilingual education and special education have struggled even more since the pandemic because their compensation does not match their level of professional skill and care. This points to the problem of recruiting and the problem of retaining. Improving upon preparation programs puts an emphasis on the teacher residency, a year-long clinical experience with a teacher of record, because this is what most alternative certification programs lack, in turn putting unprepared teachers into a classroom as the teacher of record (Teacher Vacancy Task Force Final Report, 2023). TVFT highlights that teacher mentorship through the preparation period is essential to teacher growth throughout their first years of teaching. But the reality is that to receive mentorship through preparation, many teachers need a living wage, which a traditional preparation program does not provide. Paid teacher apprenticeship and teacher residency programs, which include at least one year of mentorship, have shown great hope for the future of Texas teachers, and it is where the FVTF encourages the legislature to focus (Teacher Vacancy Task Force Final Report, 2023).

The four special sessions of the 88th legislature, where anticipated legislation was proposed again, along with testimony, to increase teacher compensation and expand teacher preparation pathways, did not go the way FVTF hoped (Lopez, 2023). After the 88th legislature ended, Lieutenant Governor Dan Patrick asked advocacy groups, including EdTrust, for their interim charges for the 89th Legislative session in 2025 (Despart, 2023). These interim charges are aligned with the TVTF report and new research items, like apprenticeship programs. The SBOE, on the other hand, is currently getting ready to vote on the approval of adding teacher residency definitions within the Texas Administrative Code (Texas Education Agency, 2023c). The vote is taking place on April 12th, 2023. The vote also includes increasing accountability for EPPs, which is not favored by many voting members of the Board.

# Evidence on the Potential Solutions to the Problem

This evidence review will provide an overview of types of interventions to get more well-prepared teachers into the K-12 classroom. The types of interventions have been broken up into two areas: (1) Ways to improve existing EPP quality and (2) Expansion of EPP types. Overall, the literature finds EPP Quality to be more of an effective approach than expanding different types of EPP’s because of cost, even though the different types of EPPs have proven to be effective. With more funding, this could be made possible in which guardrails for the different types of EPPs would need to be prepared. A feasible place for intervention would be through the Texas Administrative Code.

## Quality of Education Preparation Programs

The teacher shortage is a nationwide issue that has been a big contributor to the increasing early career teacher attrition rates (Mitani et al., 2022). To understand how the state of Texas can respond to its high attrition rate, it is necessary to see how other states have responded. A common theme in the research is to examine the quality of the current EPPs in the state. A breadth of research concludes an effective and high-quality EPP prepares teacher candidates to effectively instruct diverse learners (including English Learners and students with disabilities), directly links preparation to practice through observation and feedback activities, and ensures candidates are prepared in the knowledge, skills, dispositions (including intentional teaching), and instructional design needed to teach (Boyd et al., 2023; Cummins & Asempapa, 2013; Emerson et al., 2018; Goldhaber & Liddle, 2023; Salinger et al., 2023; Darling-Hammond & Hyler, 2020).

EPP accreditation and evaluation is not the same in every state, nor is it easy to understand. Each state has a different Administrative Code with state specific requirements for EPP approval, including coursework hours, field-work hours, and certification exam requirements. Not only do states differ on EPP requirements, but they also differ on EPP evaluation. However, all states are required to report information on the performance of their program in accordance with Title II (Section 205) of the Higher Education Act to the U.S. Department of Education (Teacher Preparation Policies and Issues in the Higher Education Act, 2018). Different states have taken different approaches to mitigate the teacher attrition problem by focusing on the quality and evaluation of EPPs.

### Surveys

Many states send surveys to recent graduates of EPP programs for evaluation of their EPP. What is in the surveys and how the data is used varies by state. There is scarce research on the effectiveness of surveys, but there is a growing body of literature about how they can be used by states to improve the quality of EPP’s (Darling‐Hammond, 2020; Barrientos, 2022; Teacher Recruitment and Retention, 2023). A new report from The Learning Policy Institute (LPI) aims to do just that for the California Commission on Teacher Credentialing (CTC), to strengthen their standards for EPPs and build in-depth surveys all new teachers in the state are required to take (Patrick, et al., 2023). For example, the surveys have shown that 56% of student teachers/residents, comparable to Texas’s traditional or baccalaureate pathways, rated their EPPs as *very effective* compared to 48% of completers who participated in probationary/emergency certification, comparable to the state of Texas’s ACP’s. This gives strong evidence to the state of California that they should change their clinical practice requirements for accredited EPPs in the state to include some sort of clinical experience before being the teacher of record (Patrick, et. al, 2023). This also corroborates research showing teachers’ certification type and initial school setting are statistically significant predictors of new teacher attrition with a traditional pathway proving to be more effective mainly because of the clear benefits of mentorship with a teacher of record during clinical teaching (Guthery & Bailes, 2019; Mitani et al., 2022).

Another advocacy group in Texas, Educate Texas, gave an overview of what we know and what we should know about teacher preparation data in Texas in 2017. The report notes that 11 states, not including Texas, collect longitudinal data that are directly connected to student outcomes of EPP graduates, but only Florida and Massachusetts have utilized the data to make changes and improvements to courses and/or programs (Pfannenstiel, 2017). EPPs in Virginia have come together to create the Virginia Education Assessment Collaborative (VEAC) that sends out surveys to completers and employers for three years after the student graduated from a traditional or baccalaureate pathway. The surveys are disaggregated, and data is sent to EPPs as well as to the Virginia Department of Education (VDOE) for program improvement and accountability (VEAC, 2021).

Like Virginia, Texas has the foundation to create longitudinal data systems because they already collect data for requirements under the Higher Education Act and for state accountability. Texas does send surveys to first year teachers about their EPP experience, but it is unclear how the data is used by EPPs. To enhance program efficacy, the TEA and SBEC have broadened their data collection efforts to encompass evaluations of teacher performance through the Texas appraisal system, EPP exit survey findings, and feedback from principals. Nevertheless, there is a lack of disaggregation in these data analysis processes, hindering the ability of EPPs to pinpoint specific areas for course or program enhancements (Pfannenstiel, 2017).

### Teacher Performance Assessments (TPA’s)

To obtain a teaching certificate, teacher candidates must take and pass certification exams. One type of exam is a TPA which assesses the pedagogical skills and content knowledge of a teacher candidate through a portfolio of their work (*State of the States*, 2022). Types of TPA’s have been highly debated in the U.S. because of the vague definition of “highly qualified teacher” and increasing amounts of uncertified incoming teachers to the classroom (Cochran-Smith et al., 2016; Hood et al., 2022). States have implemented new TPA’s because of the positive effects if executed well, meaning teachers are able to show that they are well-prepared to enter the classroom through a portfolio of their work because they have been supported through their program with relevant coursework, mentors, and instructional design activities (Barron, 2015). But as time has told, there is not significant evidence of an effect of these new assessments on student outcomes or on teacher preparedness (Blieberg, et. al, 2021; Miller et. al, 2015; Chung et al., 2021).

For example, EdTPA is a widely used subject-based assessment of teaching performance that is completed by teacher candidates to demonstrate their readiness for full-time classroom teaching assignment (Education, 2023). The EdTPA is a portfolio, consisting of lesson plans and videos, instead of a multiple-choice exam. Texas, and several other states, implemented it within the last 5 years as a pilot, but have not seen a change in teacher retention and are, therefore, looking for different assessments (*Texas EdTPA, 2022*; Cochran-Smith et al., 2016; Potter, 2020). Not only are they not effective for lowering teacher attrition, but they are also arguably inequitable for teachers of color because it costs nearly $200 more than the other TPA’s (Peck & Zhang, 2021; Chung et al., 2021). One caveat of note to this evidence is that it was in tandem with the Covid-19 Pandemic. Massachusetts is piloting alternatives to their MTEL assessments, which can be equivocated to Texas’s Pedagogy and Professional Responsibilities (PPR) exam and content exams, for teacher candidates. Massachusetts is seeing an increase in the number of teacher candidates of color who are passing the tests, which is promising for the recruitment and retention of teachers of color, but unknown as to the retention of those teachers (Griswold, 2023). Giving a range of options for a certification exam is increasing access to the teaching profession in Massachusetts.

A growing body of research is calling for better TPA’s across the nation that not only remove barriers to entry but assess teacher candidates based on preparedness from their EPP. The idea of “teaching to the test” is prevalent within certification exams, which is why a portfolio assessment, like EdTPA, could be effective, but would need more accurate scoring measures outside of the 5-point system that is currently in place (Texas EdTPA, 2022; NCTQ, 2023). The MTEL-Flex in Massachusetts allows for submitting an additional portion of a portfolio instead of having to re-take the test if a passing grade is not received. Not only is it cheaper, but it also helps those within one standard deviation of passing, prove their preparedness (*MTEL-Flex*, n.d.). TPA’s that are accurately assessing preparedness will require EPP’s to better prepare their candidates.

### Mentorship

Speaking from experience, having a mentor as a first-year teacher is career changing. The National Center for Education Statistics (NCES) observed five waves of data that followed 155, 600 new teachers in the U.S. They found that 80% of teachers who were assigned a mentor during their first year of teaching taught all 5 years of the study compared to only 64% of those who were not assigned a mentor staying all 5 years of the study Raue & Gray, 2015). In Ohio and New York, early induction mentoring programs reduced attrition by more than two-thirds in urban districts (Woods, 2016). Policies requiring early career mentorship are seen across multiple states, such as Kentucky and North Carolina who require 70 hours of working time together and three years of mentoring, respectively. Additionally, Illinois has standards in place for mentoring and South Carolina has guidelines and criteria in place (Woods, 2016). Another study in a rural area of a midwestern state included 147 new teachers and 87 mentors, yielding positive benefits for both the mentor and the mentee including improved instruction, classroom management, collaboration, reflection of teaching, and adjustment of instruction to meet the needs of all students (Schwan et al., 2020). Alaska employs retired teachers as full-time mentors, a model from the New Teacher Center, which demonstrated success in improving the retention of early career teachers (Mcdole & Francies, 2022).

## Expansion of Different Types of EPP’s

Each of the three teacher preparation routes (traditional, post-baccalaureate, and alternative certification programs) contain a vast range of program types within them. But there are three types within traditional and post-baccalaureate pathways that have growing bodies of research and evidence of success surrounding them that are worth diving into. All three program types have a focus on clinical teaching/fieldwork in a K-12 classroom *before* entering the classroom as the teacher of record: (1) Teacher Residencies, (2) Grow Your Own Programs, and (3) Apprenticeship Programs. As a reminder, in Texas, the requirements to become a teacher include 300 hours of coursework and 30 hours of field-experience, 15 of which can be done online (*Texas Administrative Code*, 2023). States have leveraged federal pandemic relief funds to investigate these three avenues aimed at assisting their struggling teacher workforce (Worley & Zerbino, 2023).

*Figure 5*

*A close-up of a sign

Description automatically generated*

Source: https://americasucceeds.org/wpcontent/uploads/2019/02/Teacher\_Prep\_Toolkit.pdf

### Teacher Residencies

Teacher residencies are partnerships between Institutions of Higher Education and school districts, typically within a post-baccalaureate or undergraduate program, where candidates are paired with a mentor teacher of record for one year (Afacan, 2022). Oftentimes they come with a scholarship or grant, but the pay is not anywhere near a teacher salary. California allocated $350 million over five years to fund teacher residency programs but struggled to enroll candidates because of the small cost-of-living stipends (State of the States 2023: Policies to Increase Teacher Diversity, 2023). But those that choose to do teacher residencies receive at least 900 hours of pre-service field work preparation under the wing of an experienced teacher of record compared to the 30 hours for profit alternative certification programs provide, a significant means of preparedness to combat high attrition rates as resulting consequences (Guha et al., 2017).

Multiple studies have shown promising results for increased retention and decreased retention, including a program in Virginia that showed an increase in retention within the first two years of the program (Guha et al., 2017, Jaciw et al., 2021, Burstein et. al, 2023; Napoli et al., 2023; White & Garcia, 2019; Worley & Zerbino, 2023). In a study of residency programs in Texas from 2016-2020, the Education Policy Initiative at Carolina (EPIC) found that those who completed a yearlong residency were 7 percentage points more likely than teachers prepared in a traditional preparation program (92.2% vs 85.0%) and nearly 11 percentage points more likely than teachers prepared in an alternative certification program (92.2% vs 81.5%) to return for a 3rd year of teaching in Texas public schools (US Prep, 2023). Retention was used as an indicator and measurement of teacher preparedness in all the studies since retention is tied to teachers’ feelings of preparedness.

### Grow Your Own (GYO) Programs

GYO Programs take a “grassroots” approach of recruiting within the community with the goal of recruiting and retaining teachers of color as well as teachers in small or rural schools (Valenzuela, 2017). GYO programs are oftentimes tied to GYO grants which are given to school districts with the choice of two pathways (Couch, 2021). In Texas, “Pathway 1 focuses on the recruitment of future educators by offering Education and Training courses, including those offered for dual credit, to current high school students. Pathway 2 focuses on the recruitment and support of paraprofessionals, instructional aides, and long-term substitutes currently employed by the district to transition to certified, full-time teaching roles within the district” (Texas Education Agency, 2021).

26 states have funded GYO programs at the state level with the intention of diversifying the teacher workforce (*State of the States*, 2023). A Community College in Oregon successfully partnered with school districts for dual-credit courses to recruit teachers of color into the profession (Monto, 2019). Another GYO program currently enrolls nearly 300 high school students who come from more than 45 high schools in Connecticut, Massachusetts, New York, and Virginia. The program also enrolls more than 300 college students who attend 21 partner institutions (Perkins, 2016). GYO programs are equity based, but there is not a lot of research to show they increase teacher preparedness or decrease attrition rates because the literature is so new. Limitations are that they are expensive because they need a large data infrastructure to understand completion and persistence data for candidates, disaggregated by race, ethnicity, and linguistic status, as well as outcomes for students (*State of the States*, 2023). GYO programs have been used to recruit bilingual candidates as well as special education teachers.

### Apprenticeship Programs

Teacher apprenticeship programs are starting to emerge in the U.S. as the U.S. Department of Labor approved 22 programs in 2022, the first in Tennessee, and now there are programs in 31 states (White & Garcia, 2019; Melnick, 2024). Apprenticeship programs are interesting because they have aspects of residency and Grow Your Own programs within them, making them an umbrella over the two. An apprenticeship program is a paid residency with a mentor teacher typically for paraprofessionals, teacher aides, and long-term substitutes with or without a bachelor’s degree, but an apprentice can start as early as high school through early career dual credit. It is a partnership with a school district and an approved EPP where credit hours are given, and teacher candidates are paired with high-quality mentor teachers *before* becoming the teacher of record (Lopez, 2023). Teaching apprenticeships are like nursing apprenticeships, with hands on learning and the ability to fill hard to staff roles quicker and more cost efficiently to the candidate (White & Garcia, 2019). Since the first vetted programs were just approved, there is no evidence that they help with student learning outcomes or get more well-prepared teachers into the classroom. But, because they include teacher residencies within them, we can then assume based on the data, they will increase teacher retention because the teachers feel more prepared.

Apprenticeship programs have been around for a long time in the building trades, and there a few ways they can be done: time-based, competency-based, or a hybrid of the two. A time-based program is a certain set of hours to be completed in hands-on training and then tests are taken for certification. A competency-based program “measures skill acquisition through the individual apprentice’s successful demonstration of acquired skills and knowledge, as verified by the sponsor.” A hybrid program uses a combination of the two in which a range of hours to complete the program is provided and prior experience is also evaluated (Gardiner, 2023). The Department of Labor suggest 144 hours of instruction per year within an apprenticeship program. Within the competency-based model, a point of intrigue is “apprentices can move at different paces through the program depending on their own learning style and previous experience. If an apprentice enters the program with relevant skills, the apprentice could reduce the time it takes to complete the program and employers may provide credit for previous experience if apprentices can complete the competency” (Gardiner, 2023). The U.S. Department of Education’s definition of a credit hour does not include “seat-time”, allowing for flexibility in how credit hours are measured (U.S. Department of Education, 2023).

# Alternatives

## Alternative 1: Maintaining Status Quo

Currently, Texas is battling teacher shortages due to high teacher attrition rates and other factors, including the Covid-19 pandemic and low salary. As the 88th legislature ended and the state gears up for the 89th legislature in 2025, the status quo includes the state not doing anything to address the problem. The Teacher Vacancy Task Force (TVTF) and advocacy groups have given their reports and interim charges, and residency programs are about to be voted on by the State Board of Education (SBOE). Advocacy groups, think tanks, school districts, teachers, and students have all voiced actionable options to improve the Texas teacher workforce, but the present trend is that Texas has a standstill in the legislature because of the fight over education savings accounts. Education savings accounts are dominating the dialogue and preventing other conversations from occurring. This means teachers continue to enter the classroom unprepared because they are forced into alternative certification programs or emergency permits as a cheaper and quicker option.

It is uncertain what the 89th legislative session will entail, but Governor Abbott has said he is going to continue to push for education savings accounts, meaning other conversations will continue to be overshadowed (Fink, 2023). New data from the impact of the Covid-19 pandemic will emerge after the 2023-2024 school year, bringing more uncertainty for the direction of K-12 education in Texas. If Texas were to maintain the status quo, residencies could be defined in the TAC, early career teacher attrition rates could decrease in the wake of the Covid-19 pandemic, and Education Preparation Programs (EPP) could produce more well-prepared teachers (US Prep, 2023). But, at the same time, continuing with the current trend, residencies will not be defined, attrition rates are likely to will stay consistent or increase, and EPPs will continue to produce teachers that are not prepared.

## Alternative 2: State Definition of Apprenticeship Programs and Pilot Program

A diagram of a company

Description automatically generatedA growing body of literature shows a positive impact of strategic staffing through apprenticeship programs across multiple different sectors as well as improvements to labor markets seen through employment rates and salaries (Page et. al, 2020; Amesti & Claro, 2021; Brecht Neyt et al., 2020). What makes it strategic is that the apprentice is already employed by the school district. This alternative would be time-based. Texas already has a handful of apprenticeship programs approved by the Department of Labor (DOL), who is the registration agency, but this alternative would make Texas the registration agency and the sponsor. The Texas Tri-Agency Workforce Initiative, as explained in *Figure 6*, needs to come to an agreement on the definition of “teacher apprenticeship” in order to register programs in the state of Texas. The State Board of Education (SBOE) and State Board of Educator Certification (SBEC) need to include guidelines and policies for what qualifies as an apprenticeship program in Chapter 228 of the TAC. The definition would determine what a teacher apprentice is, the duration of the program, and the partnership details between an EPP and school district. When apprenticeship programs are registered, EPP partners and candidates can access the local workforce funds as well as federal apprenticeship grants through the U.S. Department of Labor (DOL). These definitions need to be presented and approved by the State Board of Education (SBOE) *before* the 89th Legislative session in 2025 in order for legislation for a pilot program to be authored and make it to the floor.

## Alternative 3: Create a New Teacher Performance Assessment (TPA)

To obtain a teaching certificate, a teacher candidate must take and pass certification exams. Currently, Texas uses the TExES Professional Pedagogy and Responsibility (PPR) exam. The exam is a 90-question multiple choice test that is divided into four domains: 1) designing instruction and assessment to promote student learning, 2) creating a productive classroom environment, 3) implementing effective, responsive instruction and assessment, and 4) fulfilling professional roles and responsibilities. The cost of the exam is $116, and a candidate has to make a score of 240, which is a scaled score between 100 and 300, or higher to pass (What Is the PPR Exam? How to Prepare and Master the PPR Exam 2024, 2020). In 2019, Texas began to pilot a new exam, EdTPA, with a focus on improving educator preparation in Texas to ensure that beginning teachers have demonstrated their readiness to positively affect student learning. After years of the pilot, the mean score across race/ethnicities was almost exactly the same, while the mean score of the PPR had a 16 percentage-point gap in pass rates between Black and White candidates (*Texas EdTPA Implementation Information: Spring 2022*). But the EdTPA costs more than double what the PPR exam does and in 2023, the SBEC chose to discontinue the pilot program (Lopez & McGee, 2022).

The state of Texas needs to add an exam, similar to how Massachusetts is piloting alternatives to their MTEL assessment, that doesn’t create higher barriers to entry into the teaching profession because of cost, like EdTPA does. Massachusetts is seeing an increase in the number of teacher candidates of color who are passing the tests (Griswold, 2023). A growing body of research is calling for better TPA’s across the nation that assess teacher candidates based on preparedness from their EPP and their competency to be a high-quality teacher, TPA’s that are accurately assessing preparedness will require EPP’s to better prepare their candidates.

## Criteria

### Cost

The cost criterion will evaluate the costs associated with implementing each alternative over 5 years. Since the Education Trust does not actually implement or change legislation, costs will be calculated for the Texas Education Agency and the school districts. Total costs are estimated to the extent possible using average costs, estimated costs, and parallel program costs. For status quo, the current status of districts hiring new teachers is being considered because of the high teacher attrition rates as a result of teachers coming into the classroom unprepared. Teacher attrition means they are leaving the field of education. For apprenticeship programs, costs will come from pilot programs that other states have put into place as well as two of the existing programs in Texas. For example, Tennessee, Florida, and Ohio all have programs in place that can be used as a measure for cost to Texas. For creating a new TPA, the cost is based on the development and piloting of the EdTPA. All costs will be given as 2024-dollar amounts discounted over the 5-year time period using a 2% social discount rate (*Valuing the Future: Revision to the Social Discount Rate Means Appropriately Assessing Benefits and Costs | CEA | the White House*, 2024). For robustness, a 3% discount rate was also calculated. All cost calculations are shown in Appendix A.

### Effectiveness

The effectiveness criterion will be a measure of the estimated decreased attrition rate within 0-5 years of teaching for new teachers over the course of 5 years. The overall attrition rate for teachers, the attrition rate for new hires, and the attrition rate by race are made public by TEA, but specific data on beginning teachers is not made public. This information is held at data centers at universities around the state and requires an extensive process to gain access to. For this project, an estimate will be used based on other states as well as current trends in Texas. The effectiveness will be given as a percentage point increase or decrease of attrition rates.

### Accessibility to People of Color

*Accessibility to people of color* is the most important component, as it is deeply tied to Education Trust’s values and mission. As of 2023 only 41% of teachers in Texas are teachers of color (Ed Trust, 2022). Even in the face of challenges unique to teachers of color, Black and Latino educators in Texas exhibit a higher likelihood of staying in the profession when compared to their White colleagues (Trust, 2023; Landa, 2023). Increasing the number of teachers of color in Texas is essential, but there must be access to affordable pathways that will prepare them for the profession. Each alternative will be measured based on the following question: to what degree do people of color have access to the alternative? To determine the degree of accessibility, evidence from TEA, other states, current programs, and pilot programs will be used.

Ranking Rubric:

A blue and white text on a blue and white background

Description automatically generated with medium confidence

### Political Feasibility

Any policy that EdTrust pursues must be politically feasible. I will consider the political climate of the Tri-Agency, SBOE, and the legislature. I will look at past proposals, such as residency programs and grow your own programs, to see the degree to which there was support for these programs through these entities. I will also consider the past legislative session and the climate for the 89th legislative session. I will measure this on a 1-5 scale, 1 being not very politically feasible, a 3 being moderately politically feasible, and a 5 being highly politically feasible. I will first report the scores as numbers, but will associate them with low, moderate, and high in the outcomes matrix for easier readability and analysis.

Ranking Rubric: A blue and white box with text

Description automatically generated

# Evaluation

To determine which program EdTrust should pursue, this section will evaluate the three alternatives already described. This section will first detail how each alternative was scored on the criteria listed above. Then, it will present a matrix summarizing the results of this detailed analysis.

## Alternative 1: Status Quo

**Total Cost: $4.5 billion**

The current cost of unprepared teachers entering the classroom and then quickly leaving because they are unprepared is extremely high. Not only do we see impacts on students’ learning, but also school districts are bearing the costs of hiring and training new teachers each year. In a rural school district, the cost to hire a new teacher is approximately $9,000. In an urban or suburban school district, the cost to hire a new teacher is approximately $21,000. Since only 16% of teachers in Texas are in rural areas, a weighted average of approximately $19,000 was used to calculate the cost of hiring a new teacher in Texas (*What’s the Cost of Teacher Turnover?*, 2022). This cost includes training, mentoring, professional development, supplies, and more for the beginning teacher. Over the course of 5 years, the cost totals approximately 4.5 billion. All costing calculations can be found in Appendix A.

**Effectiveness: 5 percentage point increase in teacher attrition**

According to TEA, the teacher attrition rate for Texas increased by 1.87 percentage points between 2022 and 2023 (Landa, 2023a). This rate will continue to rise if the status quo is maintained because teachers will continue to enter the classroom unprepared and leave within the first few years. Considering the impact of the Covid-19 pandemic on top of other factors, it can be assumed this will be a steady increase over the next 5 years but using the 1.87 percentage point increase for one year, it could increase by at least 5 percentage points in that time.

**Accessibility to People of Color: Low**

Considering less than half of teachers are people of color, the access for people of color to the profession will stay the same if the status quo is maintained. This gives maintaining the status quo an accessibility to people of color score of low.

**Political Feasibility: 4 (moderate-high)**

The 88th legislative session was very telling of where the political feasibility is for the current status quo because of what they spent most of their time on. Considering the Teacher Vacancy Task Force (TVTF) suggestions were not taken into consideration for legislation, the political feasibility of the status quo remaining in the legislature is high. However, because the tri-agency, TEA, and SBOE are pushing for change on state definitions to include residency programs, the degree of high support is factored into the political feasibility score because it would require a change in the status quo. The political feasibility of keeping things the same is a 4, with 1 point being deducted for the support of a change in definition within the TAC.

## Alternative 2: Create State Definition of Apprenticeship Programs and Create Pilot Program

**Total Cost: $34.1 million**

*State of Texas: $22.5 million*

*School Districts and EPP’s: $11.5 million*

The cost is estimated for a 5-year pilot program and apprenticeship definition. Since adding the definition into the TAC would be implemented through the normal SBOE and SBEC meetings, the cost is assumed to be $0. To calculate the cost of a pilot program, I used Tennessee’s Apprenticeship program and the current Department of Labor approved apprenticeship program in Texas between Dallas College and Richardson Independent School District (ISD). The Tennessee Department of Education and the Tennessee Grow Your Own Center, which is the sponsor for the programs, are giving $5,000,000 in subgrants to EPP’s in the state for apprenticeship programs (*Tennessee Awards over $5 Million*, 2023). Assuming this will continue for the next 5 years, the cost was discounted over 5 years to find the cost of $34.1 million. All cost calculations can be found in Appendix A.

**Effectiveness: 2.9 percentage point decrease in teacher attrition**

The Education Policy Initiative at Carolina (EPIC) undertook an investigation into the retention rates of beginning teachers who participated in a yearlong residency program in Texas. This study examined four cohorts of first-year educators in Texas public schools, covering the academic years from 2016-17 to 2019-20. The analysis aimed to determine the likelihood of these beginning teachers returning for a third year in the profession. They found that if beginning teachers who completed a traditional or alternative certification program had the same retention rates as those who completed a yearlong residency, Texas would have seen 2,000 fewer teachers leave the profession per year (US Prep, 2023). Since a teacher apprentice completes at least a yearlong residency, we can assume the same results.

If Texas had 2,000 fewer teachers leave the profession per year, the attrition rate would fall from 13.44% to 12.8%. This was calculated using the teacher attrition data available on the TEA website. The number of teachers who left the profession in the 2022-2023 school year was 49,782, but I calculated the new attrition rate assuming that 2,000 fewer teachers left the profession in that year, for a total of only 47,782 leaving (Landa, 2023a). If this decrease in the number of teachers leaving the profession each year continued for 5 years, the attrition rate could decrease by 2.9 percentage points, from 13.44% to 10.54%. The attrition rate in the 2019-2020 school year was 10.16%, so Texas would be close to pre-Covid rates in 5 years’ time.

**Accessibility to People of Color: High**

The racial/ethnic breakdown of the current paraprofessional workforce in Texas is not made available to the public. But a large body of research states that paraprofessionals are more likely to be diverse than teachers (Swisher, 2023; Hoxworth, 2024; Will, 2022). Since apprenticeship programs are available to paraprofessionals who are more likely to be people of color, this would mean people of color have better access to the alternative. The accessibility to people of color score for teacher apprenticeship programs is high.

**Political Feasibility: 3 (moderate)**

Governor Greg Abbott created the Teacher Vacancy Task Force, meaning he understands there is a high need for a solution to the teacher workforce problem. Other states that are similar to Texas politically have implemented or are in the process of implementing apprenticeship programs where the state is the sponsor, not the DOL: Florida, Tennessee, Ohio, Indiana, Iowa, and Kentucky are a few. California and New York, while not the same politically, are both similar sizes to Texas with similar teacher workforce issues and they are in the process of creating apprenticeship programs as well. This increases the political feasibility because Texas often implements policies and programs after other states have, such as comprehensive privacy laws and education savings accounts (Kourinian & Thomson, 2023).

The amount of money apprenticeship programs could save Texas school districts is also a good indicator that it is politically feasible because it will receive support from many representatives and school boards. However, all that to say, the 88th legislative session did not show the legislature’s support for Texas public schools, in turn not showing support for Texas public school teachers. The feasibility score is brought down by 2 points because of the likelihood that the 89th legislative session is similar to the 88th. Because this is just a pilot program and adding a definition to the TAC, the change is not significant, which could foster as much support as states like Florida and Tennessee have seen by their governors. This brings the political feasibility score to a 3 because the money it could save and the potential decrease to attrition rates are promising, but the political climate of the voting bodies is discouraging.

## Alternative 3: Create a New Texas Teacher Performance Assessment (TPA)

**Total Cost: $2 million**

To find the cost of creating a new TPA, the process of the creation and piloting of EdTPA was used. EdTPA was created by professors at Stanford University and piloted by 12,000 teachers (*Stanford Graduate School of Education*, 2013). After discussions with TEA, the state of Texas is looking for its own TPA called TexasTPA. To determine the cost, it was assumed that this would be a collaborative effort between university professors and a consulting agency. Two grants will be made available to College and University Professors. This can be a cross-university collaboration, but one of the grants will be for traditional universities and one will be for minority serving institutions (MSI’s) (Boland, 2017). Additionally, the cost to pilot the test was calculated by assuming the cost of the test will be similar to the current PPR. The total cost is $2 million. All cost calculations can be found in Appendix A.

**Effectiveness:1.75 percentage point decrease in teacher attrition**

Since the TexasTPA will create a more equitable exam and better access for teacher candidates of color, the effectiveness was measured based on attrition rates by race. The 5-year attrition rate for Black teachers is 3 percentage points lower than White teachers, while the attrition rate for Hispanic teachers is 10 percentage points lower than White teachers (Landa, 2023). Just looking at the 2021-2022 school year to 2022-2023 school year change, the average attrition rate for people of color is 9.7% (Landa, 2023). I will assume that there would be an increase of 2,000 teacher candidates of color taking the exam to stay consistent with Alternative 2: Apprenticeship Programs. Applying the current average attrition rate of 9.7% for teachers of color, only 194 of them would leave teaching after one year. These additional 2,000 teachers entering the profession would lower the attrition rate from 13.44% to 13.37% in one year. Over the course of five years, this attrition rate would decrease by 1.75 percentage points. But it can be assumed that over five years, more than 2,000 additional teacher candidates of color will have access to the TexasTPA per year meaning the attrition rate will decrease even more.

**Accessibility to People of Color: Moderate-High**

With a more rigorous exam, specifically a portfolio process, like EdTPA, instead of a 90-question multiple choice test, more teacher candidates of color will have access to an equitable opportunity to become a certified teacher. This competency and performance-based assessment allows teacher candidates of color to show they know how to teach as opposed to trying to answer questions about an “ideal classroom” that most likely is not what their classroom will look like. According to data from Texas of the EdTPA, test scores for teachers of color rose significantly, which is promising for a Texas TPA. From personal experience, the PPR exam is built for the “ideal classroom” and is not a realistic measure. Classrooms do not look the same everywhere, especially with more diverse populations, and in turn, teachers do not teach the same in every environment (*Cultural Diversity in the Classroom*, 2024).

One caveat that has been presented against an EdTPA type test in Texas is the fact that a majority of teachers are entering the classroom on a probationary certification or an emergency certification. They are the teacher of record for an entire year before they take their certification exam. If the exam is turned into a portfolio assessment, it could put more of a burden on first year teachers (*SBOE Rejects Controversial New Teacher Certification Exam*, 2024). Since this is across all demographic groups, this will bring the accessibility to people of color score down to moderate-high because it could deter people of color from trying to access the certification.

**Political Feasibility: 2 (Moderate/Low)**

The tri-agency, SBOE, and TEA were ready to move forward with EdTPA in the fall of 2023 until equity concerns were raised by several advocacy partners because of the cost of the exam. Even though TEA released positive impacts on test scores in the spring of 2022 about EdTPA, the SBOE voted against it, 13-1 (*Texas EdTPA Implementation Information*, 2022). By voting against it, the SBOE feels they are putting pressure on SBEC and TEA to increase accountability for education preparation programs and look for other alternatives to PPR that do not create more barriers to entry (*SBOE Rejects Controversial New Teacher Certification Exam*, 2024; Lopez & McGee, 2022). The three entities are likely to pursue a TexasTPA or other alternative to the PPR, but the political climate of the 89th legislature could cause a problem for multiple reasons. Because a majority of teachers are certified through ACP’s and emergency permits, this new certification test would only make sense for a small fraction of new teachers. Additionally, funding for a new test is not likely because of the focus on education savings accounts, which Governor Abbott has said he is going to continue to pursue (Fink, 2023). The conflict between the SBOE and SBEC brings the political feasibility score down by 1, the concern that appropriations will not be passed for anything other than education savings accounts brings the political feasibility score down by 1, and it would lose 1 point because not all governing bodies are wanting change for teacher preparation programs or certification. The overall political feasibility score is a 2.

# Outcomes Matrix

**A screen shot of a chart

Description automatically generated**

# Recommendation

I recommend the state of Texas pursue apprenticeship programs within their state TAC definition as well as create/implement a pilot program. The Education Trust will be an influential resource with research, evidence, and implementation options. While apprenticeship programs are not the cheapest option, they are the most effective and the most equitable. The costing was modeled off other states that have used state funds in addition to Department of Labor funds, but the $5,000,000 given by the state of Texas can be taken out of the costing for a smaller pilot program or no pilot program to decrease the cost, which would increase the political feasibility. The status quo is not an option because of the drastic increase in attrition rate and the low accessibility to people of color score. While the cost is the sum to individual districts, the billions of dollars spent on constantly hiring new teachers to feed the cycle is incredibly concerning. Plus, since teacher attrition is higher in lower income areas, money that could be spent on student resources is being spent on unprepared teachers leaving the classroom. Apprenticeship programs and TexasTPA are both moderate in terms of political feasibility because both show a desire for change by the governing bodies in change. Increasing access for people of color to become well-prepared teachers is essential to this policy analysis, which apprenticeship programs clearly provide.

# Implementation

When well-prepared teachers enter the classroom, they are more likely to stay in the classroom for longer than 3 to 5 years, and students have better learning outcomes (Ed Trust, 2023). A way to get these better prepared teachers into the classroom is to expand the number of clear, affordable, and high-quality pathways into the profession. Apprenticeship programs are clear pathways for teacher candidates working within districts who get paid for at least a year long residency where they are paired with a mentor teacher and obtain a bachelor’s degree at the same time. The implementation begins with understanding how other states, school districts, and EPPs have successfully built infrastructures to support apprenticeship programs. Once a clear understanding of the different ways to write definitions and guidelines is established, funding streams need to be identified. Lastly, the Education Trust needs to be prepared to help TEA propose a state definition of apprenticeship programs. This process could take a year or more depending on the SBOE and the political climate.

The implementation of apprenticeship programs is focused on the role of TEA, not school districts. The Education Trust can assist TEA with all phases of implementation, but they will not be doing the final implementation themselves.

**Phase 1**- Understand how other states, school districts, and EPPs have implemented apprenticeship programs.

While Texas does have a few apprenticeship programs that have been approved by the U.S. Department of Labor (DOL), the state is not the sponsor. What is especially unique is that one, Brazosport ISD, has the school district as the sponsor, and the others, like Dallas College, have the EPP as the sponsor. Refer to *Figure 7* for an overview of sponsorship and registration agency information.

*Figure 7*

A diagram of steps to a specific program

Description automatically generated with medium confidence

Source: Melnick, H. (2024). How states can support teacher apprenticeship: The case of Tennessee. Learning Policy Institute & The Pathways Alliance. https://learningpolicyinstitute.org/product/tennessees-teacher-apprenticeship-program-brief

While both Brazosport ISD and Dallas College are seen as inventive and successful by the Pathways Alliance, once a state definition is put into place, Brazosport ISD could lose the ability to be the sponsor of their program or have to change their program depending on the rules and regulations set by the state (Apprenticeship Models Compendium, 2019). The state could choose EPPs to be the sponsor, set rules around an apprentice having to be an educational aide, or require a certain payment structure. This presents a challenge and is something for the state to consider carefully as they craft their definition. Several other states, like Alabama, Colorado, and Delaware, have written into their definition that either the state, an EPP, or a district can be the sponsor (Delaware Legislature, 2024; Turner, 2023; *Teacher Degree Apprenticeship Program | Colorado General Assembly*, 2024). Most states that have written guidelines or legislation have modeled them from the national guidelines released by the U.S. Department of Labor in collaboration with Pathways Alliance (*Reports | Pathways Alliance*, 2023).

Jonathan Feinstein, Director of Education Trust Texas, has organized a small team to work on phase 1. I have started with a 50-state scan of apprenticeship programs so that Education Trust can share with TEA and other state agencies looking to implement apprenticeship programs. New American, Education Commission of the States, and Education Trust have done multiple 50-state scans in the past that have proved helpful to writing legislation and understanding the landscape across the country of a new program or policy issue (Garcia, 2019; *50-State Comparison Archives*, 2024; *Teacher Diversity & Equity Policy Scan - the Education Trust*, 2023). I am answering multiple questions about states with apprenticeship programs: 1) Is the state the sponsor instead of an LEA or EPP? If so, what entity?, 2) Which candidates are eligible?, 3) Are there state guidelines, rules, or legislation? 4) Does it include a residency? How do states define residency/program?, 5) Is the state appropriating funds, and 6) What is the current status?

Next steps will be looking across different states for similarities and differences in implementation, definitions, and funding. For example, some states are much further along than others which could prove to be helpful for TEA. Once similarities and differences are found, a one-pager needs to be constructed of state agencies similar to Texas, like Florida, California, Tennessee, and New York, of how they have implemented these programs. This needs to be completed within the next month.

**Phase 2**- Funding streams.

While a state definition is important for continuity and accountability, it is also important for funding and sustainability. It is extremely difficult to figure out how apprenticeship programs can access the DOL apprenticeship dollars and the different braided funding structures they have set up (*Education, Labor Departments*, 2023). Brazosport ISD uses braided funding models by accessing local workforce funds, private sponsors, and other streams (Lopez, 2023). The Tennessee apprenticeship model uses Federal funds through the DOL, Workforce Innovation and Opportunity Act (WIOA) funds through local workforce boards, and TN GYO Center funds, which receives funding from the state's education budget (*Grow Your Own*, 2021). The Education Trust needs to work with school district sponsors and state agency sponsors to figure out how to setup funding structures in Texas (Holdheide et al., 2023). Jonathan Feinstein and the national K-12 team working on apprenticeship programs would need to start this work in the next 3-4 months as it could take several months to understand the funding models necessary for sustainability, especially in lower income areas.

The challenge of sustainability without legislation is at the forefront of this implementation. If school districts are paying for 1/3 of the apprenticeship programs, the Education Trust will need to help find ways for them to receive funding. One option worth looking into is the Educational Aide Exemptions, which provides 90% of the tuition costs for employees of school districts trying to obtain a bachelor’s degree (Texas Higher Education Coordinating Board, 2022). Jonathan and his team need to work with Commissioner Keller on the Coordinating Board, the Texas Workforce Commission, contacts at TEA, the Texas Association of College Technical Educators (TACTE), IHE’s, and school districts to discuss funding strategies.

**Phase 3**- Work towards defining teacher apprenticeship programs in Chapter 228 in the Texas Administrative Code.

This definition will clearly define what an apprenticeship is in Texas, who the sponsor can be, funding guidelines, and how programs will align to the national apprenticeship standards set by DOL and the state EPP standards. This cannot be done until phases 1 and 2 are complete, which could take up to 6 months. TEA and SBEC will propose and put forth the definition for the SBOE to vote on once it makes it through a pre-committee. Jonathan and his team need to work on drafting the definition so that TEA is prepared to present it to SBEC who will vote and give it to SBOE. On the April SBOE agenda, members will be voting on whether to include residency programs in the TAC. According to a meeting with other advocacy partners in Texas, IHE’s, EPP’s, and teacher unions are strongly opposed to the proposed changes because the changes increase preservice teacher requirements (Texas Education Agency, 2024). If residency programs do get codified, this will push the timeline for phase 3 back several months. Residency programs are still abundantly present in Texas without being in the code, which is a positive sign for apprenticeship programs.

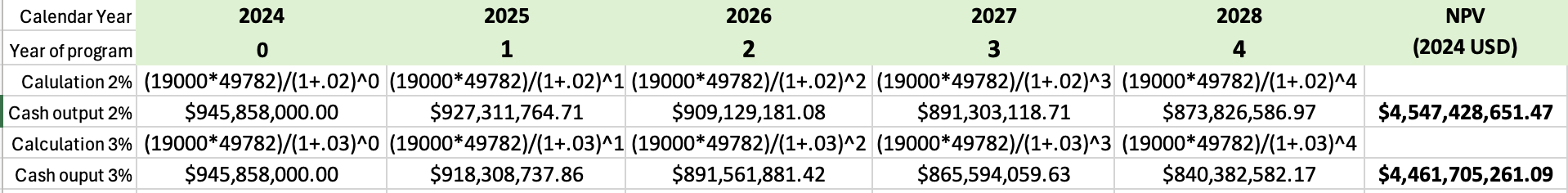
For all three phases, to reduce risk and challenges, the Education Trust needs to ask questions to other states and school districts to learn best practices. They also need to talk to current apprentices about challenges, barriers, and successes. Challenges will present themselves along the way so having an open line of communication with these entities will be essential to the success of the implementation. The apprenticeship definition needs to be as specific as possible for sustainability and accountability and the pilot program needs to be prepared for when the legislature is ready to discuss it.

# Conclusion

With 5.4 million students in Texas and 370,000 teachers, it is imperative that Texas implements a strategy to get more well-prepared teachers into the classroom. Every student deserves an effective, supportive, and well-trained teacher. The high attrition rate of novice teachers, especially in areas with high percentages of students of color, can be mitigated by expanding pathways into the profession through apprenticeship programs. The Education Trust is a dependable resource to many in Texas because of its evidence-based research, innovative ideas, and the want to make sure that every child has an effective teacher. Apprenticeship programs are clear, affordable, and high-quality pathways into the teaching profession (Holdheide et al., 2023). With a robust understanding of apprenticeship programs across the nation, and how Texas can implement them, the Education Trust can propose concise research and guidelines to the Texas Education Agency. Through enhancing preparation, we're diminishing the need for uncertified teachers in Texas, allowing well-prepared teachers to enter the classroom and stay there.

# Appendix A: Cost of Alternatives

Alternative 1: Status Quo

According to the 2022-2023 school year data from TEA, 49, 782 teachers were no longer employed by any LEA, but were the previous year. This would mean they need to be replaced. A discount rate of 2% and 3% were applied and the calculations are as follows:

Alternative 2: Apprenticeship Programs

The cost to districts comes from a few different calculations:

Using the Dallas College and Richardson ISD model, each apprentice teacher is paid $30,000 a year (Scruggs, 2024). An apprentice candidate has to be a paraprofessional in Richardson ISD. This means they will have an associate degree. To obtain a teaching certificate, a candidate would need to finish their bachelor’s degree, which the district would pay for under the apprenticeship model. The average cost of college in Texas is $8,016 per year (Cost, 2021). Therefore, the total cost to a school district will be $38,016 per year, per candidate.

The U.S. Department of Labor is awarding the Texas Workforce Commission $2,196,000 to be used specifically for teacher apprenticeship programs (*Department of Labor*, 2023). Assuming this will be consistent, it is assumed to be repeated for each fiscal year. In order for this to be a shared partnership between EPP’s and school districts, they will split cost 1/3 and 2/3, respectively. Assuming the money from the Texas Workforce Commission and the Texas Education Agency ($5,000,000 through the legislator) would be split between EPP’s and school districts, a total of 189 students a year could be funded.

A screenshot of a computer

Description automatically generatedA discount rate of 2% and 3% were applied and the calculations are as follows.

Alternative 3: TexasTPA

Two grants will be made available, both of the value of $300,000. This can be a cross-university collaboration, but one of the grants will be for traditional universities and one will be for minority serving institutions (MSI’s). Additionally, the cost to pilot the test was calculated by assuming the cost of the test will be similar to the current PPR at $116 and will be piloted by 12,000 teacher candidates across Texas, just as EdTPA was in California. This brings the total cost to $1,992,000.

|  |  |  |
| --- | --- | --- |
| Item | Formula | Cost |
| Grant 1 |  | $300,000 |
| Grant 2 |  | $300,000 |
| Pilot Program | 12,000 x 116 | $1,392,000 |
| **Total** |  | $1,992,000 |

# References

*50-State Comparison Archives*. (2024). Education Commission of the States. https://www.ecs.org/doctype/50-state-comparison/

Afacan, Kemal. *Teacher Residency as an Alternative Teacher Preparation Program: A Program Review*. 2022.

*Alternative Certification for Teachers in Texas*. (2024). Online-Distance-Learning-Education.com. https://www.online-distance-learning-education.com/alternative-certification.html#:~:text=The%20state%20of%20Texas%20was,alleviate%20the%20teacher%20shortage%20crisis.

Amesti, J. de, & Claro, S. (2021). Effects of Apprenticeship on the Short-Term Educational Outcomes of Vocational High-School Students. *Journal of Research on Educational Effectiveness*, *14*(3), 598–616. https://doi.org/10.1080/19345747.2021.1917026

Apprenticeship Models Compendium.pdf. (2019). *Apprenticeship Models Compendium.pdf*. Google Docs. https://drive.google.com/file/d/18Bpl\_qRKYNAoXqRDu\_92TdEUXbvzuKq4/view

Barlow, Chris. “Teacher Attrition: A Critical Problem for America’s Schools.” *Schoolmint.com*, 2021, blog.schoolmint.com/teacher-attrition-a-critical-problem-for-americas-schools. Accessed 29 Oct. 2023.

Barrientos, Janet. “50-State Comparison: Teacher Recruitment and Retention.” *Education Commission of the States*, Dec. 2022, www.ecs.org/50-state-comparison-teacher-recruitment-and-retention-2022/. Accessed 29 Oct. 2023.

Barron, L. (2015). Preparing preservice teachers for performance assessments. Journal of Interdisciplinary Studies in Education,3(2), 68–75.

Bland, J. A., Wojcikiewicz, S. K., Darling-Hammond, L., & Wei, W. (2023). Strengthening pathways into the teaching profession in Texas: Challenges and opportunities [Policy brief]. Learning Policy Institute. https://learningpolicyinstitute.org/product/pathways-into-teaching-profession-texas-brief

Bleiberg, J., Brunner, E., Harbatkin, E., Kraft, M. A., & Springer, M. (2021). The Effect of Teacher Evaluation on Achievement and Attainment: Evidence from Statewide Reforms. (EdWorkingPaper: 21-496). Retrieved from Annenberg Institute at Brown University:

Boland, W. C. (2017, February). *An Unstoppable Tidal Wave of Progress: Minority Serving Institutions in Texas*. Vt.edu; The Center for Minority Serving Institutions at the University of Pennsylvania. https://vtechworks.lib.vt.edu/items/f07d2718-f171-4496-a915-1b8ac452e0a2

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2023). *Teacher Preparation and Student Achievement. Working Paper 20.* National Center for Analysis of Longitudinal Data in Education Research; National Center for Analysis of Longitudinal Data in Education Research. The Urban Institute, 2100 M Street NW, Washington, DC 20037. Tel: 202-261-5739; Fax: 202-833-2477; e-mail: inquiry@caldercenter.org; Web site: http://www.caldercenter.org. https://eric.ed.gov/?id=ED509670

Brecht Neyt, Dieter Verhaest, & Baert, S. (2020). The impact of dual apprenticeship programmes on early labour market outcomes: A dynamic approach. *Economics of Education Review*, *78*, 102022–102022. https://doi.org/10.1016/j.econedurev.2020.102022

Burstein, N., Sears, S., & Wilcoxen, A. (2023). Examining the Effectiveness of a Special Eduation Residency Program in Increasing the Recruitment and Retention of Teachers in Urban Schools.*Teacher Education Quarterly, 50*(1), 28-52. https://proxy1.library.virginia.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fscholarly-journals%2Fexamining-effectiveness-special-eduation%2Fdocview%2F2793115328%2Fse-2%3Faccountid%3D14678

Castro, A. J., & Edwards, W. (2021). Innovation to what end? Exploring the dynamic landscape of Texas teacher preparation pathways. *Education Policy Analysis Archives*, *29*, 63–63. https://doi.org/10.14507/epaa.29.6217

Chetty, R., Friedman, J. N., & Rockoff, J. E. (2014). Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood. *the American Economic Review*, *104*(9), 2633–2679. https://doi.org/10.1257/aer.104.9.2633

Childs, J. (2018). Districts of Innovation: Combating a Wicked Problem in Education. *Voices of Reform: Educational Research to Inform and Reform*, *1*(1), 23–40. https://doi.org/10.32623/1.00004

Chung, B., Zou, J., Bernhardt, D., Blair, P., Bruno, R., Larsen, B., Marx, B., Marks, M., Powers, E., & Timmons, E. (2021). *Teacher Licensing, Teacher Supply, and Student Achievement: Nationwide Implementation of edTPA \**.

Cochran-Smith, M., Stern, R., Sánchez, J. G., Miller, A., Keefe, E. S., Beatriz, F. M., Chang, W.-C., Carney, M. C., Burton, S., & Baker, M. (2016, March 16). *Holding Teacher Preparation Accountable: A Review of Claims and Evidence*. National Education Policy Center; NEPC. https://nepc.colorado.edu/publication/teacher-prep

Cost, A. (2021). *Average Cost of College by State [2023]: Tuition + Fees*. Education Data Initiative. https://educationdata.org/average-cost-of-college-by-state

Couch, Emily. *A Multiple-Case Study Examining the Experiences of Culturally a Multiple-Case Study Examining the Experiences of Culturally and Linguistically Diverse Teachers in Grow Your Own Programs and Linguistically Diverse Teachers in Grow Your Own Programs*. 2021.

*Cultural Diversity in the Classroom | GoGuardian*. (2024). Goguardian.com. https://www.goguardian.com/blog/diversity-in-the-classroom

Cummins, L., & Asempapa, B. (2013). Fostering Teacher Candidate Dispositions in Teacher Education Programs. *Journal of the Scholarship of Teaching and Learning*, *13*(3), 99–119. https://eric.ed.gov/?id=EJ1017120

Darling-Hammond, L. (1999). “Teacher quality and student achievement.” Education Policy Analysis Archives, 8, 1.

Darling-Hammond, L., & Hyler, M. E. (2020). Preparing Educators for the Time of COVID…and Beyond. *European Journal of Teacher Education*, *43*(4), 457–465. https://eric.ed.gov/?id=EJ1271356

Delaware Legislature. (2024). *Delaware Code Online*. Delaware.gov. https://delcode.delaware.gov/title14/c046/index.html

*Department of Labor awards $65M to help states increase, expand access to Registered Apprenticeships in high-growth, high-demand industries*. (2023). DOL. https://www.dol.gov/newsroom/releases/eta/eta20230719

Despart, Z. (2023, December 5). *Texas Legislature adjourns fourth special session*. The Texas Tribune; The Texas Tribune. https://www.texastribune.org/2023/12/05/texas-house-adjourns-special-legislative-session/

*Districts of Innovation*. (2023). Tasb.org. https://www.tasb.org/services/legal-services/tasb-school-law-esource/governance/districts-of-innovation.aspx

Ed Trust. (2022, December 8). *Educator Diversity State Profile: Texas - The Education Trust*. The Education Trust. https://edtrust.org/resource/educator-diversity-state-profile-texas/

Ed Trust. (2023, January 31). *It’s Time to Invest in High-Quality Teacher Preparation - The Education Trust*. The Education Trust. https://edtrust.org/the-equity-line/its-time-to-invest-in-high-quality-teacher-preparation/

*Education, Labor Departments Announce New Efforts to Advance Teacher Preparation Programs and Expand Registered Apprenticeships for Educators | U.S. Department of Education*. (2023). Ed.gov. https://www.ed.gov/news/press-releases/education-labor-departments-announce-new-efforts-to-advance-teacher-preparation-programs-and-expand-registered-apprenticeships-educators

Education. “Teacher Performance Assessment (EdTPA) – Education.” *Stolaf.edu*, Education, 2023, wp.stolaf.edu/education/sttpa/#:~:text=The%20edTPA%20is%20a%20national,full%2Dtime%20classroom%20teaching%20assignment. Accessed 29 Oct. 2023.

Emerson, J. M., Clarke, P. J., & Moldavan, A. M. (2018). Bridging Pedagogy and Practice: From Coursework to Field Experiences in a Teacher Preparation Program. *Georgia Educational Researcher*, *14*(2), 24–35. https://eric.ed.gov/?id=EJ1194569

*Enrollment in Texas Public Schools 2022-23*. (2023). https://tea.texas.gov/reports-and-data/school-performance/accountability-research/enroll-2022-23.pdf

Feinstein, J. (2023). *EdTrust.org/texas The Education Trust in Texas advocates for an equitable education for Black and Latino students, and students from low-income backgrounds, who, for far too long, have gone underserved. We believe in centering the voices of Texas students and families, especially those most impacted by educational inequity, as we work alongside them for the better future they deserve*. https://edtrust.org/wp-content/uploads/2014/09/About-The-Education-Trust-in-Texas.pdf

Fink, J. (2023, November 28). *Gov. Abbott says, “stay tuned” as Texas lawmakers consider next options on education savings accounts*. Cbsnews.com; CBS Texas. https://www.cbsnews.com/texas/news/gov-abbott-says-stay-tuned-as-texas-lawmakers-consider-next-options-on-education-savings-accounts/

Garcia, A. (2019). *A 50-State Scan of Grow Your Own Teacher Policies and Programs*. New America. https://www.newamerica.org/education-policy/reports/grow-your-own-teachers/

Gardiner, G. (2023). Corroboration. *American Philosophical Quarterly*, *60*(2), 131–148. https://doi.org/10.5406/21521123.60.2.03

Goldhaber, D., & Liddle, S. (2023). *The Gateway to the Profession: Assessing Teacher Preparation Programs Based on Student Achievement. Working Paper 65.* National Center for Analysis of Longitudinal Data in Education Research; National Center for Analysis of Longitudinal Data in Education Research. American Institutes for Research, 1000 Thomas Jefferson Street NW, Washington, DC 20007. Tel: 202-403-5000; Fax: 202-403-5454; e-mail: inquiry@caldercenter.org; Web site: http://www.caldercenter.org. https://eric.ed.gov/?id=ED529165

Griswold, Niki. “Report: More Teachers of Color Pass Alternative Teacher Licensing Assessments in Pilot Program - the Boston Globe.” *BostonGlobe.com*, 2023, www.bostonglobe.com/2023/10/24/metro/massachusetts-mtel-pilot-program-alternative-assessments-teacher-educator-licensure/. Accessed 29 Oct. 2023.

*Grow Your Own*. (2021). Tn.gov. https://www.tn.gov/education/grow-your-own.html

Guha, Roneeta, et al. “The Teacher Residency.” *American Federation of Teachers*, 2017, www.aft.org/ae/spring2017/guha\_hyler\_darling-hammond. Accessed 29 Oct. 2023.

Guthery, S., & Richard, M. P. (2020). *The Expansion of Exemption: Texas’ Districts of Innovation*. Utexas.edu; Texas Education Review. https://repositories.lib.utexas.edu/items/1df1bd4d-4251-46e6-a6d4-5690b5add731

Guthery, Sarah, and Lauren P. Bailes. “Patterns of Teacher Attrition by Preparation Pathway and Initial School Type.” *Educational Policy*, vol. 36, no. 2, 15 Sept. 2019, p.

Holdheide, L., Jirous-Rapp, J., James, W., & King, J. (2023). *Take a Seat at the Table The Role of Educator Preparation Programs in Teacher Registered Apprenticeship Programs*. https://www.air.org/sites/default/files/2023-04/EPP-Role-in-Apprenticeship-Brief-AACTE-GTL-Center-CEEDAR-April-2023.pdf

Hood, S. L., Dilworth, M. E., & Lindsay, C. A. (2022). Landscape of Teacher Preparation Program Evaluation Policies and Progress. *Evaluating and Improving Teacher Preparation Programs*. https://doi.org/10.31094/2021/3/5

Horn, C., Burnett, C., Lowery, S., & White, C. (2021). *Texas Teacher Workforce Report*. University of Houston College of Education. https://www.uh.edu/education/research/institutes-centers/erc/reports-publications/ryht-report-20211.pdf

House Select Committee . (2023). INITIAL INTERIM REPORT HOUSE SELECT COMMITTEE ON EDUCATIONAL OPPORTUNITY AND ENRICHMENT. In *Initial Interim Report to the Eighty-Eighth Texas Legislature*. https://www.house.texas.gov/\_media/pdf/committees/reports/88interim/House-Select-Committee-on-Educational-Opportunity-and-Enrichment-August-2023.pdf

Hoxworth, L. (2024, February 14). *UVA’s “Grow Your Own” Teacher Programs Provide Valuable Pathways into the Classroom*. Virginia.edu. https://education.virginia.edu/news-stories/uvas-grow-your-own-teacher-programs-provide-valuable-pathways-classroom#:~:text=Paraprofessionals%20tend%20to%20be%20a,to%20the%20traditional%20online%20program.

Jaciw, Andrew P, et al. “Final Report of the I3 Evaluation of the Collaboration and Reflection to Enhance Atlanta Teacher Effectiveness (CREATE) Teacher Residency Program: A Quasi-Experiment in Georgia.” *Grantee Submission*, 2021, eric.ed.gov/?id=ED611802. Accessed 29 Oct. 2023.

Kourinian, A., & Thomson, A. (2023, June 26). *Texas Joins Other States in Passing a Comprehensive Privacy Law*. Mayerbrown.com. https://www.mayerbrown.com/en/insights/publications/2023/06/texas-joins-other-states-in-passing-a-comprehensive-privacy-law

Ladd, H. F., & Sorensen, L. C. (2016). “Returns to teacher experience: Student achievement and motivation in middle school.” Education Finance and Policy, 12(2), pp. 241–279.

Landa, J. (2023a). *Sources: PEIMS and ECOS Employed Teacher Attrition and New Hires 2011-12 through 2022-23*. https://tea.texas.gov/reports-and-data/educator-data/employed-teacher-attrition-and-new-hires.pdf

Landa, J. (2023b). *Preparation Route First Year of Teaching Total 1 Year 2 Year 3 Year 4 Year 5 Year Number Percent Number Percent Number Percent Number Percent Number Percent Alternative*. *854*, 362. https://tea.texas.gov/reports-and-data/educator-data/teacher-retention-by-preparation-route.pdf

Landa, J. (2023). *Sources: PEIMS and ECOS*. https://tea.texas.gov/reports-and-data/educator-data/teacher-retention-by-demographic-group.pdf

Liebman With, J., Alter, J., Begeman, S., Ghaznavi, Z., Goldiner, A., Grossman, J., & Wilds, C. (n.d.). *Texas Innovation Schools: A Pathway to Success for Autonomous Schools in Texas*. Retrieved December 6, 2023, from https://www.raiseyourhandtexas.org/wp-content/uploads/2015/09/Texas-Innovation-Schools\_ResearchReport.pdf

Lopez, B. (2023, July 18). *Brazosport ISD program might be model to address Texas’ teacher shortage*. The Texas Tribune; The Texas Tribune. https://www.texastribune.org/2023/07/18/brazosport-isd-residency-texas-teacher-shortage/

Lopez, B., & McGee, K. (2022, June 17). *Texas rejects edTPA teacher certification exam*. The Texas Tribune; The Texas Tribune. https://www.texastribune.org/2022/06/17/texas-teacher-certification/

Marder, M., Reyes, P., Marshall, J., Alexander, C., Martinez Jr., C. R., & Maloch, B. (2022). *The Tipping Point: Developing and Sustaining the Texas Educator Workforce*. The University of Texas at Austin, College of Education. https://issuu.com/texaseducation/docs/texas\_educator\_prep\_pathways\_study\_issuu

Mcdole, Tiffany, and Cassidy Francies. *State Policy Levers to Address Teacher Shortages*. June 2022.

Melnick, H. (2024, March 27). *Tennessee’s Teacher Apprenticeship Program: Role of State Agencies*. Learning Policy Institute. https://learningpolicyinstitute.org/product/tennessees-teacher-apprenticeship-program-brief

Menchaca, M. (2023, September 16). *Texas school districts use innovation status to bypass state laws*. Houston Chronicle; Houston Chronicle. https://www.houstonchronicle.com/news/houston-texas/education/article/texas-district-innovation-plan-start-times-18366513.php

Miller, M., Carroll, D., Jancic, M., & Markworth, K. (2015).Developing a culture of learning around the edTPA: One university’s journey. The New Educator,11(1), 37–59. doi:10.1080/157688X.2014.966401.

Mitani, H., Fuller, E. J., & Hollingworth, L. (2022). Attrition and Turnover Among Beginning Teachers in Texas by Preparation Program. *Teachers College Record: The Voice of Scholarship in Education*, *124*(4), 3–34. https://doi.org/10.1177/01614681221093011

Monto, C.  (2019): Increasing Diversity in Teacher Candidates: An Oregon Model Using a Community College Pathway into Teacher Education, Community College Journal of Research and Practice, DOI: 10.1080/10668926.2019.1640144

*MTEL-Flex - Massachusetts Tests for Educator Licensure (MTEL)*. (n.d.). Www.doe.mass.edu. Retrieved December 7, 2023, from https://www.doe.mass.edu/mtel/alt-assess/mtel-flex.html

Napoli, D., Kuti, L., & Spires, B. (2023). *Leveraging Existing Policy for a University/K-12 Partnership: Using a Teacher Residency and Induction Model to Address a Teacher Shortage in Virginia, USA*. 27–40. https://doi.org/10.1007/978-981-99-0807-3\_3

NCTQ. (2023, April 3). *Texas: Using licensure tests to build a strong, diverse teacher workforce*. NCTQ. https://passrates.nctq.org/state/texas/#:~:text=The%20average%20best%2Dattempt%20pass,from%2029%25%20to%20100%25.

Ouchi, W. G. (2009). *The Secret of TSL*. Simon and Schuster.

Page, L., Narel, R., & Belgio, E. (2020). Skills Gap Challenge: How Apprenticeship Programs Address Skill Building and Educational Advancement. *Journal of Organizational Psychology*, *20*(6). https://articlearchives.co/index.php/JOP/article/view/4668

Patrick, S. K., Darling-Hammond, L., & Kini, T. (2023). Educating teachers in California: What matters for teacher preparedness? Learning Policy Institute. https://doi.org/10.54300/956.678

Peck, Charles A., and Wenqi Zhang. “Using Teaching Performance Assessments for Program Evaluation and Improvement in Teacher Education.” *Evaluating and Improving Teacher Preparation Programs*, 2021, naeducation.org/wp-content/uploads/2021/11/Revised-Final-pp-for-NAEd-EITPP-Paper-6-Peck\_Young\_Zhang.pdf, https://doi.org/10.31094/2021/3/3

Perkins, B. (2016). Growing the next generation: A program encourages students of color to become teachers. American Educator, 40(3), 12-16.

Pfannenstiel, Kathleen. *TEACHER PREPARATION DATA What Do We Know? What Should We Know?* 2017.

Potter, David. “(In)Visible Power: A Critical Policy Analysis of EdTPA.” *Arts Education Policy Review*, vol. 122, no. 2, 25 Mar. 2020, pp. 101–114, www.tandfonline.com/doi/epdf/10.1080/10632913.2020.1744053?needAccess=true, https://doi.org/10.1080/10632913.2020.1744053. Accessed 29 Oct. 2023.

Raue, K., & Gray, L. (2015). Career Paths of Beginning Public School Teachers. Stats in Brief. U.S. Department of Education. https://nces.ed.gov/pubs2015/2015196.pdf

*Reports | Pathways Alliance*. (2023). Pathways Alliance. https://www.thepathwaysalliance.org/reports

Richman, T., & Trisha Powell Crain. (2022, October 13). *Uncertified teachers filling holes in schools across the South*. The Hechinger Report; The Hechinger Report. https://hechingerreport.org/uncertified-teachers-filling-holes-in-schools-across-the-south/

Salinger, T., Mueller, L., Song, M., Jin, Y., Zmach, C., Toplitz, M., Partridge, M., & Bickford, A. (2023). *Study of Teacher Preparation in Early Reading Instruction. NCEE 2010-4036.* National Center for Education Evaluation and Regional Assistance; National Center for Education Evaluation and Regional Assistance. Available from: ED Pubs. P.O. Box 1398, Jessup, MD 20794-1398. Tel: 877-433-7827; Web site: http://ies.ed.gov/ncee/. https://eric.ed.gov/?id=ED512150

*SBOE rejects controversial new teacher certification exam*. (2024). TCTA. https://www.tcta.org/latest-education-news/sboe-rejects-controversial-new-teacher-certification-exam

Schwan, Anna, et al. *Mentor and New Teacher Self-Perceptions Regarding the Effectiveness of a Statewide Mentoring Program*. 2020.

Scruggs, L. (2024). *Dallas College News Update*. Dallas College. https://www.dallascollege.edu/news/pages/newsitem.aspx?ArticleId=146

*Stanford Graduate School of Education*. (2013, December 4). Stanford Graduate School of Education. https://ed.stanford.edu/in-the-media/performance-based-test-teachers-rolls-out-features-gse-developed-assessment

“State of the States 2022: Teacher and Principal Evaluation Policies.” *National Council on Teacher Quality (NCTQ)*, 2022, www.nctq.org/publications/State-of-the-States-2022:-Teacher-and-Principal-Evaluation-Policies#:~:text=%5Bteacher%5D-,Teacher%20evaluation,laid%20out%20by%20the%20state. Accessed 29 Oct. 2023.

“State of the States 2023: Policies to Increase Teacher Diversity.” *National Council on Teacher Quality (NCTQ)*, 2023, www.nctq.org/publications/State-of-the-States-2023:-Policies-to-Increase-Teacher-Diversity#:~:text=To%20increase%20their%20overall%20teacher,on%20high%20school%20pipeline%20programs. Accessed 29 Oct. 2023.

Swisher, A. (2023). *Paraprofessionals: understudied, undercompensated, and in short supply*. National Council on Teacher Quality (NCTQ). https://www.nctq.org/blog/Paraprofessionals:-Understudied,-undercompensated,-and-in-short-supply-

*Teacher Degree Apprenticeship Program | Colorado General Assembly*. (2024). Colorado.gov; Colorado General Assembly. https://leg.colorado.gov/bills/sb23-087

*Teacher Diversity & Equity Policy Scan - The Education Trust*. (2023, June 23). The Education Trust. https://edtrust.org/educator-diversity/

*Teacher Preparation Policies and Issues in the Higher Education Act*. 2018.

“Teacher Recruitment and Retention 2022  - Education Commission of the States.” *Ecs.org*, 2023, reports.ecs.org/comparisons/teacher-recruitment-and-retention-2022-03. Accessed 29 Oct. 2023.

*Teachers’ feelings of preparedness*. (2000). https://nces.ed.gov/pubs2000/2000003.pdf

‌ *Teacher Vacancy Task Force Final Report | Developing a Thriving Teacher Workforce in Texas*. (2023). https://tea.texas.gov/texas-schools/health-safety-discipline/tvtf-final-report.pdf

*Tennessee Awards Over $5 Million in Grow Your Own Subgrants for Teacher Apprenticeship Programs*. (2023). Tn.gov. https://www.tn.gov/education/news/2023/2/21/tennessee-awards-over--5-million-in-grow-your-own-subgrants-for-teacher-apprenticeship-programs-.html

*Texas Administrative Code*. (2023). State.tx.us. https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p\_dir=&p\_rloc=&p\_tloc=&p\_ploc=&pg=1&p\_tac=&ti=19&pt=7&ch=228&rl=35

*Texas Administrative Code*. (2024). State.tx.us. https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p\_dir=&p\_rloc=&p\_tloc=&p\_ploc=&pg=1&p\_tac=&ti=19&pt=2&ch=149&rl=1001

*Texas edTPA Implementation Information: Spring 2022*. (2022). https://tea.texas.gov/texas-educators/certification/educator-testing/tx-edtpa-implement-info-spring-22.pdf

Texas Education Agency. (2020, October 30). *Approved Educator Standards | Texas Education Agency*. Texas.gov. https://tea.texas.gov/texas-educators/preparation-and-continuing-education/approved-educator-standards#:~:text=The%20State%20Board%20for%20Educator,required%20statewide%20public%20school%20curriculum.

Texas Education Agency. (2021, March 10). *2021-2023 Grow Your Own Grant Program, Cycle 4 | Texas Education Agency*. Texas.gov. https://tea.texas.gov/finance-and-grants/grants/grants-administration/grants-awarded/2021-2023-grow-your-own-grant-program-cycle-4

Texas Education Agency. (2023a, May). *Preparation and Continuing Education | Texas Education Agency*. Texas.gov. https://tea.texas.gov/texas-educators/preparation-and-continuing-education

Texas Education Agency. (2023b, June 30). *19 TAC Chapter 230 | Texas Education Agency*. Texas.gov. https://tea.texas.gov/about-tea/laws-and-rules/sbec-rules-tac/sbec-tac-currently-in-effect/19-tac-chapter-230

Texas Education Agency. (2023c, November 30). *December 7-8, 2023 SBEC Meeting Agenda | Texas Education Agency*. Texas.gov. https://tea.texas.gov/about-tea/leadership/state-board-for-educator-certification/sbec-meetings/sbec-2023/sbec-december-2023/december-7-8-2023-sbec-meeting-agenda

Texas Education Agency. (2023d, December 4). *Districts of Innovation | Texas Education Agency*. Texas.gov. https://tea.texas.gov/texas-schools/district-initiatives/districts-of-innovation

Texas Education Agency. (2024, January 22). *January-February 2024 SBOE Agenda | Texas Education Agency*. Texas.gov. https://tea.texas.gov/about-tea/leadership/state-board-of-education/sboe-2024/sboe-2024-january/january-february-2024-sboe-agenda

Texas Higher Education Coordinating Board. (2022). *Educational Aide Exemption (EAE) Program Frequently Asked Questions* . https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/educational-aide-exemption-student-frequently-asked-questions/

“The Education Trust in Texas - the Education Trust.” *The Education Trust*, 10 Oct. 2023, edtrust.org/texas/. Accessed 29 Oct. 2023.

*Tri Agency Commission | Tri Agency Initiative*. (2016). Texas.gov. https://triagency.texas.gov/

Trust, E. (2023, January 19). *Want More High-Quality Teachers in Texas? Focus on Teacher Diversity - The Education Trust*. The Education Trust. https://edtrust.org/resource/want-more-high-quality-teachers-in-texas-focus-on-teacher-diversity/#:~:text=Focus%20on%20Teacher%20Diversity,-Share%20this%20article&text=About%2073%25%20of%20Texas%20students,a%20strong%2C%20diverse%20teacher%20workforce.

Turner, A. (2023, January 18). *Executive Order 732 - Office of the Governor of Alabama*. Office of the Governor of Alabama. https://governor.alabama.gov/newsroom/2023/01/executive-order-732/

U.S. Department of Education. (2023). Program Integrity Questions and Answers - Credit Hour. *Ed.gov*. http://www.ed.gov/policy/highered/reg/hearulemaking/2009/credit.html

US Prep (2023): Why Teacher Residencies Need to be the Standard. Retrieved from US PREP National Center. https://irp.cdn-website.com/30f69313/files/uploaded/US%20PREP%20Residency%20Impact%20Pub%20FINAL\_1LFmmKdnRxS5RcFn2RbK.pdf

Valenzuela, A. (2017). *Grow Your Own Educator Programs A Review of the Literature with an Emphasis on Equity-based Approaches Literature Review*. https://files.eric.ed.gov/fulltext/ED582731.pdf

*Valuing the Future: Revision to the Social Discount Rate Means Appropriately Assessing Benefits and Costs | CEA | The White House*. (2024, February 27). The White House; The White House. https://www.whitehouse.gov/cea/written-materials/2024/02/27/valuing-the-future-revision-to-the-social-discount-rate-means-appropriately-assessing-benefits-and-costs/

VEAC. (2021). *Virginia Education Assessment Collaborative*. Virginia Education Assessment Collaborative. https://projectveac.org/

Wells, A., Fox, L., & Cordova-Cobo, D. (2016). *HOW RACIALLY DIVERSE SCHOOLS AND CLASSROOMS CAN BENEFIT ALL STUDENTS*. https://production-tcf.imgix.net/app/uploads/2016/02/09142501/HowRaciallyDiverse\_AmyStuartWells-11.pdf

*What is the PPR Exam? How to Prepare and Master the PPR Exam 2024*. (2020, May 7). Texas Teachers. https://www.teachersoftomorrow.org/texas/teacher-resources/teaching-in-texas-blog/mastering-ppr/

*What’s the Cost of Teacher Turnover?* (2022, September 7). Learning Policy Institute. https://learningpolicyinstitute.org/product/the-cost-of-teacher-turnover

*Where We Stand on Teacher Workforce*. (2022, December 15). Raise Your Hand Texas. https://www.raiseyourhandtexas.org/policy/where-we-stand-on-teacher-workforce/

White, T., & Garcia, A. (2019). *Teacher Apprenticeship: What Is It and Why Now?* New America. https://www.newamerica.org/education-policy/edcentral/teacher-apprenticeship-what-is-it-and-why-now/

*Who We Are - The Education Trust*. (2023, August 3). The Education Trust. https://edtrust.org/who-we-are/

Will, M. (2022, June 15). *Paraprofessionals: As the “Backbones” of the Classroom, They Get Low Pay, Little Support*. Education Week. https://www.edweek.org/leadership/paraprofessionals-as-the-backbones-of-the-classroom-they-get-low-pay-little-support/2022/06

Will, M. (2024, January 10). *Teacher Preparation, Explained: Alternative Routes, Enrollment Trends, and More*. Education Week. https://www.edweek.org/teaching-learning/teacher-preparation-explained-alternative-routes-enrollment-trends-and-more/2024/01

Woods, Julie. *Mitigating Teacher Shortages: Induction and Mentorship*. 2016.

Worley, L., & Zerbino, N. (2023, May 22). *Teacher residencies offer compelling solution to staffing shortages, although at a large investment*. Brookings. https://www.brookings.edu/articles/teacher-residencies-offer-compelling-solution-to-staffing-shortages-although-at-a-large-cost/

Yi, W., Veronica, P., & Freya, G. (2023). *Enrollment in Texas Public Schools 2022-23*. https://tea.texas.gov/reports-and-data/school-performance/accountability-research/enroll-2022-23.pdf