

College of Education

2022 Texas Teacher Workforce Report

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An Update to the Texas Teacher Workforce Report

Prepared for the Charles Butt Foundation

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Education Research Center College of Education

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List of Acronyms Used in This Report

Alternative Certification Program (ACP)
Career and Technical Education (CTE)
Center for Research, Evaluation & Advancement of Teacher Education (CREATE)
Education Service Center (ESC)
English Language Arts (ELA)
English as a Second Language (ESL)
Educator Preparation Program (EPP)
Every Student Succeeds Act (ESSA)
Full-Time Equivalent (FTE)
Higher Education Opportunity Act (HEOA)
Independent School District (ISD)
National Center for Education Statistics (NCES)
Organization for Economic Cooperation and Development (OECD)
Public Education Information Management System (PEIMS)
State Board for Educator Certification (SBEC)
Texas Academic Performance Reports (TAPR)
Texas Administrative Code (TAC)
Texas Education Agency (TEA)
Texas Education Code (TEC)
Texas Student Data Standards (TSDS)
University of Houston Education Research Center (UH ERC)

Executive Summary

The mission of the Texas public education system is to prepare every child for success in college, a career, or the military (Texas Education Agency [TEA], 2022). The TEA's primary strategy to achieve this is to recruit, support, and retain public school educators to ensure there are effective instructional leaders capable of delivering strong classroom instruction (TEA, 2022). In short, the state has determined that a strong teacher workforce is essential to ensure all students can thrive. At the same time, Texas—along with other states—is facing unprecedented teacher shortages (Darling-Hammond et al., 2016; Kennedy, 2020; Peyton et al., 2020; Ulferts, 2016). When many teaching positions across the state are left vacant or filled with less qualified or uncertified teachers, the teacher shortages prove even more detrimental to students' academic achievement in a post-pandemic era (Nguyen et al., 2022). While some have attributed the teacher shortage to the overall decline in enrollment for teacher preparation programs (Aragon, 2016), this report provides an updated comprehensive view of the teacher workforce across the state. By doing so, this study endeavors to support policy and advocacy development that is aimed at strengthening the state's public education system by growing and retaining the pool of qualified educators needed to serve local communities.

Data and Methods

This report provides an update to the original longitudinal analysis of Texas teacher workforce trends across the state provided in the <u>Texas Teacher Workforce Report</u> (Horn et al., 2021). Generally, this update provides descriptive and longitudinal analysis of the demographics of the teacher population as well as data on teacher preparation and certification, base pay, retention, and mobility through the most recent year of data available (the 2020–21 school year). In an effort to expand the previous report, this report combines the publicly available data from the TEA, Texas Demographic Center, and National Center for Education Statistics with a new source: the individual-level statewide data repository housed at the University of Houston Education Research Center. Where the data used in the previous report was sourced from public information requests to the TEA made by the Center for Research, Evaluation & Advancement of Teacher Education (CREATE), this report instead queries the individual-level data repository directly. The primary advantage of the individual-level state repository over a public information request is more freedom to define and include key variables and to track the teacher workforce across time in a more expansive manner.

Highlights of the Study

Teacher and Student Demographic Misalignment

The findings from this report support the findings of the previous report and illuminate some changing trends in the past few years across the Texas teacher workforce. Regarding teacher diversity, in the most recent years, teachers who identify as Black or Hispanic are a large component of the increased teacher population. That demographic shift notwithstanding, the majority of the Texas teacher population identifies as White.

Increases in the number of teachers who identify as Black or Hispanic is positive for the state, as research has posited many benefits to demographics of the teacher population matching those of the student population. As noted in the previous report, when students have teachers who match their race and ethnic identity, they are more likely to succeed academically (Bristol & Martin-Fernandez, 2019; Ingersoll et al., 2019; Kettler & Hurst, 2017; Little & Bartlett, 2010; López, 2016; U.S. Department of Education, 2016).

Teacher Preparation and Certification

Like the previous report, our analysis of statewide trends in teacher certification shows that the number of initial five-year standard teacher certificates is declining. In fact, the number of initial five-year standard teacher certificates awarded in 2019–20 and 2020–21 was lower than those awarded in 2011–12. As also presented in the findings of the previous report, the decline in certification is due mainly to decreasing certifications in public and private university educator preparation programs (EPPs) and nonprofit EPPs.

Certifications produced by for-profit alternative certification programs (ACPs) have continued to increase and as of 2020–21 accounted for 58% of all initial five-year standard teacher certificates produced state-wide. This trend is concerning, as research suggests teachers who choose ACPs go into the classroom with less experience (Darling-Hammond & Podolsky, 2019) and have higher attrition rates (Carver-Thomas & Darling-Hammond, 2017).

Teacher Pay

At the center of many policy conversations regarding the teacher workforce is the relatively low compensation of teachers compared with other countries (Organization for Economic Cooperation and Development, 2020), the difference in wage premiums between states (Allegretto & Mishel, 2020), and the established linkages between higher pay and better outcomes (Akiba et al., 2012; Garcia et al., 2009; Grissom & Strunk, 2012). Our analysis found that, when viewed as constant 2021 dollars, the average base pay of teachers in 2020–21 was comparable to that of teachers in 2015–16. Teacher pay has not significantly increased over the past decade, and the wage premium for each additional year of experience in teaching has actually decreased. Understanding wage premiums for an additional year of experience is important because teacher experience has a significant, positive relationship to student achievement (Clotfelter et al., 2007; Ladd & Sorensen, 2017), and keeping the most effective teachers in the classroom is one way to influence student success.

Teacher Mobility and Retention

In agreement with the prior report, our analysis found that teacher mobility has remained very stable over the past decade—though it should be noted that our analysis extends into 2020–21, the first full school year affected by the pandemic, where 79% of all teachers remained at the same campus, an increase over 2019–20. Of those who did move, 8% left the role of teacher, 6% moved to a different campus within the same district, 4% moved to a different district in the same region, and 4% moved to a district in another region.

Confirming the assertions of the previous report and previous literature, our analysis also found that a high proportion of teachers leave after year 1 (Borman & Dowling, 2008; Guarino et al., 2006). In our analysis of the 2011–12 cohort of first-year teachers, 87% were retained into year 2, 77% into year 3, and by year 10, 41% remained in the classroom as teachers. Teachers prepared by university EPPs have higher rates of retention relative to their peers prepared through other programs (Redding & Smith, 2016; Zhang & Zeller, 2016). First-year teachers prepared by university EPPs were retained at a rate of 93% into their second year, compared with 89% of those prepared by for-profit ACPs.

As in the previous report, our analysis of teacher retention among campuses serving higher levels of students at risk of dropping out of school or economically disadvantaged students found relatively similar rates across campus types, which contradicts prior research (Darling-Hammond & Podolsky, 2019; Ingersoll et al., 2019).

COVID-19: Considerations for the Teacher Workforce

The COVID-19 pandemic has intensified economic inequality and disrupted the state educational system, leaving many Texans—especially those who are racially and economically marginalized —to experience disproportional impacts and interruptions to their life and well-being. Our analysis provides data on the 2020–21 school year, the first full school year of the pandemic.

Our analysis provides data on the 2020–21 school year, the first full school year of the pandemic. Further analysis of the longer-term impacts of the pandemic is needed. Specifically relevant to teacher certification data presented in this report are the permit and certification waivers issued by the TEA.¹ These waivers provided extended timelines for permitting and certification disrupted by the closure or limited operation of educator certification testing centers and in-person clinical experience and observations disrupted by school closures and restrictions. Further analysis of the longer-term impacts of the pandemic is needed to understand the ways in which these waivers and other pandemic-related events influenced the teacher workforce.

State Policy Recommendations

Findings from this descriptive study highlight several policy recommendations that state lawmakers might consider in continuing work to strengthen the breadth of the teacher workforce in Texas:

Increase capacity to understand the role of teacher compensation in recruitment and retention.

Expand investment in strategies that cultivate a diverse teacher workforce.

Increase capacity to understand the role of the workplace environment on teacher retention.

Expand investment in research-based EPPs that well-prepare teachers to enter and stay in the profession.

Build on the existing strengths of the state's Hispanic teacher workforce.

Expand investment in closing the gap in high-need teaching areas.

Study Limitations

An important limitation is that the University of Houston Education Research Center data are ultimately derived from the Public Education Information Management System and State Board for Educator Certification. Therefore, any data integrity issues (e.g., keystroke error on entry) would be included in this report unless otherwise corrected. Similarly, other data cannot be independently verified. Given the large amount of data—and that these are the most comprehensive data available—we do not expect this to substantively bias our findings.

Given the nature of public education, we also recognize the trends reflected in this report are influenced by numerous policies at both the state and local levels. While we address some of the larger policy shifts, there are countless other contextual features that relate to the data. This does not undermine the integrity of the findings but should be considered when interpreting the report.

¹ For more information regarding permitting and certification waivers, see the <u>COVID-19 Support: Texas Educators</u> website provided by the Texas Education Agency.

Introduction: The Texas Teacher Workforce

This report provides an update to the previous <u>Texas Teacher Workforce Report</u> (Horn et al., 2021) and is subsequently grounded in the same seminal literature regarding teachers. Teachers have long been recognized as fundamental to the educational attainment of Texans and the expansion of the state's social and economic growth (Hanushek, 2010; Hanushek, 2011). Over the past 10 years, a few issues have come to define our understanding of the challenges building and sustaining a strong teacher workforce. On the preparation side, developments in federal education policies over the past decade, including the introduction of the Every Student Succeeds Act (ESSA) and the Higher Education Opportunity Act (HEOA), have ushered

in new waves of Texas state legislation to improve, manage, and regulate educator preparation programs (EPPs) (Templeton et al., 2020; Saultz et al., 2017; ESSA, 2015; U.S. Department of Education, 2016). At the same time, retention has gathered as much attention as recruitment and preparation in conversations to address the teacher shortage and sustain a strong teacher workforce. No longer just a matter of supply, shortages of teachers in hard-to-staff subjects and gaps in racial/ethnic diversity are also attributed to the attrition of current teachers (Ingersoll & May, 2011; Sutcher et al., 2019). This updated report is provided to assist policymakers and advocates in understanding the most recent trends in teacher certification, retention, and disparate racial/ethnic representation within the Texas public education system.²

Data and Methods

Generally, this update provides descriptive and longitudinal analysis of the demographics of the teacher population as well as data on teacher preparation and certification, base pay, retention, and mobility through the most recent year of data available (2020-21 school year). In an effort to expand the previous report, this report combines the publicly available data from the Texas Education Agency (TEA), Texas Demographic Center, and National Center for Education Statistics (NCES) with a new source: the individual-level statewide data repository housed at the University of Houston Education Research Center (UH ERC). Where the data used in the previous report was sourced from public information requests to the TEA made by the Center for Research, Evaluation & Advancement of Teacher Education (CREATE), this report instead queries the individual-level data repository directly. The primary advantage of the individual-level state repository over a public information request is more freedom to define and include key variables and to track the teacher workforce across time in a more expansive manner.

This updated report is provided to assist policymakers and advocates in understanding the most recent trends in teacher certification, retention, and disparate racial/ethnic representation within the Texas public education system.

This report maintains the format of the previous report, beginning with a brief summary of the state's student and teacher demographics. It next presents findings related to teacher preparation and certification followed by teacher workforce characteristics. It concludes with a set of policy recommendations for consideration.

Key Terms

Academic Year

In figures, academic year refers to the school year. In Texas public schools, the academic year typically

² See Appendix A in the <u>Texas Teacher Workforce Report</u> (Horn et al., 2021) for fuller review of the literature related to teacher production and retention. Also see Appendix A in this report for a review of the literature on teacher working conditions.

begins in August and ends in July. In EPP programs, the academic year begins in September and ends in August.

Alternative Certification Program (ACP)

This refers to "an approved educator preparation program, delivered by entities specifically designed as an alternative to a traditional undergraduate certification program, for individuals already holding at least a bachelor's degree from an accredited institution of higher education" (Texas Administrative Code [TAC] §228.2). For the purposes of this report, data from ACPs provided by university-based preparation programs are included and grouped with university results. ACPs were identified in the State Board for Educator Certification (SBEC) data by certification route codes. Educator preparation programs were classified as ACPs based on certification route codes 4, 17, 18, 22, 23, 26, 29, 37, and 38.

Base Pay

Base pay reported for average salaries in this report is defined by the Texas Academic Performance Reports (TAPR). Base pay refers to pay for regular duties only, without supplemental pay. For teachers who also have non-teaching roles, only the portion of time and pay dedicated to classroom responsibilities is factored into the average teacher pay calculation (TEA, 2021).

Campus At-Risk

The campus at-risk level is based on the percentage of students who are at risk of dropping out of school as defined by the Texas Education Code (TEC §29.081). This study groups the campuses into three groups: Low at-risk campuses have less than or equal to 25% of students at risk of dropping out, middle at-risk campuses have more than 25% but less than or equal to 75% of students at risk of dropping out, and high at-risk campuses have more than 75% of students at risk of dropping out.

Campus Economic Need

The campus economic need level is based on the percentage of students in a campus who are experiencing economic disadvantage. The TEA defines economically disadvantaged students as those students eligible for free or reduced-price lunch or eligible for other public assistance (TEA, 2021). This study defines three groups: Low economic need campuses have less than or equal to 25% of students experiencing economic disadvantage, middle economic need campuses have more than 25% but less than or equal to 75% of students experiencing economic disadvantage, and high economic need campuses have more than 75% of students experiencing economic disadvantage.

Charter Schools

Charter schools included in this report are defined in Chapter 12 of the TEC. Specifically, they are open-enrollment charter schools (TEC 12 Subchapter D); college, university, or junior college charter schools (TEC 12 Subchapter E); and adult high school charter school programs (TEC 12 Subchapter G).

Classroom Teacher

Teachers are defined using the role assigned. Over time, teacher roles have been defined as 025, 029, and 087 by the Public Education Information Management System (PEIMS) Code Table C021 (Texas Student Data Standards [TSDS], 2021). Where noted as included, substitute teachers are defined by role ID assignment 047.

Constant 2021 Dollars

Constant-dollar values are adjusted for purchasing power and represent an effort to remove the effects of price changes from statistical series reported in dollar terms. The result is a series as it would presumably exist if the dollar had constant purchasing power (U.S. Census Bureau, 2021).

District Classification

There are nine district classification categories defined by the TEA: major urban, major suburban, other central city, other central city suburban, independent town, non-metropolitan fast growing, non-metropolitan stable, rural, and charter school districts. Definitions for each district classification can be found on the <u>TEA's website</u>.

TABLE 0.1

Educator Preparation Program (EPP) Groups

Non-University-Based EPPs	Private University EPPs	Public University EPPs
Community College (CC)	Private University Post-Baccalaureate	Public University Post-Baccalaureate
Education Service Center (ESC)	Private University Alternative Certification Program (ACP)	Public University Alternative Certification Program (ACP)
For-Profit Alternative Certification Program (ACP)	Private University Traditional Certification Program	Public University Traditional Certification Program
Independent School District (ISD)		
Charter School		
Out-of-State (TEA and SBEC *)		

Note. * The Out-of-State program group refers to certifications awarded by the State Board for Educator Certification (SBEC) and Texas Education Agency (TEA) to teachers certified in states outside of Texas, visiting international teachers, and vocational professionals.

Educator Preparation Program (EPP) Pathways

Educator preparation program (EPP) pathways refer to the pathway to teacher certification taken by an individual. EPPs are defined as "an entity that must be approved by the State Board for Educator Certification (SBEC) to recommend candidates in one or more educator certification classes" (TAC, chapter 228). There is substantial variability among the university-based and non-university-based programs. To provide clarity and transparency, this report has further divided those EPPs into for-profit EPPs and those considered nonprofit (e.g., Education Service Centers, or ESCs, and Independent School District (ISD) ACPs. Because they are bound by a similar governance context, all university programs (e.g., standard, post-baccalaureate, and alternative) group together by the university-based program.

As noted under the Non-University-Based EPP category in <u>Table 0.1</u>, state organizations (TEA and SBEC) may directly award certificates to individuals. State organizations may award an initial five-year standard teacher certificate to an individual, specifically for out-of-state teachers and for professionals awarded vocational teacher certificates. Because the overwhelming majority of initial and five-year certifications awarded directly by state organizations are awarded to out-of-state or visiting international teachers, this report refers to this pathway as out-of-state. More information on out-of-state, visiting international teachers and professional certifications awarded can be found on the <u>TEA website</u>.

EPP information used for this report was provided by the 2021 SBEC certification files in the UH ERC. The full list of organizations that have recommended candidates for or awarded initial five-year certificates between 2011–12 and 2020–21 can be found in <u>Appendix C</u>.

Experience

The experience for each individual is calculated by counting the academic years between 1999–2000 and 2020–21 in which an individual was assigned a teacher role indicated by a role ID code of 087, 025, or 029 (PEIMS Code Table C021) and include assignments across all grade levels submitted during the fall of each academic year. Only years in which individuals had at least one role ID assignment for a teacher were counted in experience, and the years of assignment were not required to be consecutive.

Full-Time Equivalent (FTE)

According to the TEA, "Full-Time Equivalents (FTEs) measure the extent to which a person (or respon-



FIGURE 0.1



Source. University of Houston Education Research Center Note. FTE = full-time equivalent

sibility) occupies a full-time position and are calculated for each staff member reported through PEIMS. FTE values are used in various staff reports as well as input to the Budget and Actual financial allocation process" (TEA, 2009). Teacher assignments are made using FTEs, and, as such, the portions of this report regarding teacher assignment are reported as FTEs. As shown in Figure 0.1, total FTE teachers and total individual teachers are very similar. For example, in the academic year 2020–21, there were 369,479 FTE teachers and 376,006 individual teachers.

Initial Five-Year Standard Teacher Certificates

This report looks at initial five-year standard teacher certificates issued to individuals and recognized by the SBEC. In order to be considered an initial five-year standard teacher certificate, the individual must have not previously been awarded a provisional lifetime teacher certificate nor a five-year standard teacher certificate in previous years. Provisional lifetime teacher certificates were awarded prior to 1996 and are considered standard five-year teacher certificates (Templeton et al., 2020). Initial five-year standard teacher certificates are presented in totality across all levels. For example, this report does not subdivide generalist certificates between Early Childhood–Grade 6 and Grade 4–8. Instead, it focuses more generally on the overall trends within a certification area.

Race and Ethnicity

The Texas public education system collects data on the race and ethnicity with which an individual identifies using seven categories (TEA, 2021). This report considers the four most prevalent racial or ethnic groups and then combines the others into one category. Therefore, the five categories are Hispanic (Latino), Black (African American), White, Asian, and identified as "another race or ethnicity" (including, unless otherwise noted, Alaska Native, American Indian, Native Hawaiian, Pacific Islander, and two or more races).

Regions

These are the 20 ESCs throughout Texas (Figure 0.2).

FIGURE 0.2

Map of the Education Service Center Regions



Retention

Teachers are considered retained based upon role code assignments in the 2010–11 through 2020–21 PEIMS employment data files from the UH ERC. Except where otherwise noted, retention refers to employment with an assigned role code of 025, 029, 087, and 047 (substitute teacher) as described in the Texas Student Data Standards (TSDS, 2021).

Student Population Served

This is derived from the population served code defined in PEIMS Code Table C030 (TSDS, 2021). Five student groups are defined: regular education, bilingual education, English as a second language (ESL), special education, and career and technical education (CTE).

Subject Area

Teaching assignments are aggregated by subject area per the Service ID for each teaching assignment. The Service ID and the subject area for each assignment are defined in PEIMS Code Table C022 (TSDS, 2021).

Teacher Mobility: Stayers, Movers, and Leavers

This study considers teacher mobility related to the classroom teacher role defined above. Teachers are considered stayers if they are assigned teacher roles in subsequent years at the same campus. Similarly, at the district-level, teachers are considered stayers if they are assigned teacher roles in subsequent years at the same district. Mobility is also represented through patterns of shift in location (across campus, district, and region) while still remaining in the field. Several figures throughout the paper also represent those who leave the teaching profession completely. Those who left might have retired, changed careers, changed

positions within the school, moved into non-teaching positions, or moved to a different state.

Urbanicity

In addition to the nine district classifications provided by the TEA (see <u>District Classification</u> above), this report also uses the four basic types of locale (city, rural, suburban, and town) from the NCES to identify the urbanicity of schools. This definition, assigned at the campus level, provides a simple method of examining characteristics of urbanicity among schools. For more information, see the <u>NCES website</u>.

Limitations

An important limitation is that the UH ERC data are ultimately derived from the PEIMS and SBEC. Therefore, any data integrity issues (e.g., keystroke error on entry) would be included in this report unless otherwise corrected. Similarly, other data cannot be independently verified. Given the large amount of data—and that these are the most comprehensive data available—we do not expect this to substantively bias our findings.

Given the nature of public education, we also recognize that the trends reflected in this report are influenced by numerous policies at both the state and local levels. While we address some of the large policy shifts, there are countless other contextual features that relate to the data. This does not undermine the integrity of the findings but should be considered when interpreting the report.

Section I: Student and Teacher Demographics

In this section, we describe the current demographic context of Texas education. Figure 1.1 displays student enrollment in Texas public schools from 2011–12 to 2020–21. From 2011–12 to 2019–20, enrollment increased, though the percentage of annual growth decreased each year from 2012–13 to 2018–19. In 2019–20, the annual growth increased 1.16%, and 5,479,173 students enrolled. In 2020–21, the Texas public school student enrollment dropped to 5,359,040 students, an annual decrease of 2.19%.

FIGURE 1.1



Texas Public School Student Enrollment and Percentage Annual Growth, 2011–12 through 2020–21

Source. Texas Academic Performance Reports, Texas Education Agency. Note. Enrollment is defined as students reported as enrolled as of the last Friday in October.

For the past decade, the Texas student population has been identified as a majority non-White students, as shown in Figure 1.2. As of 2020–21, Hispanic students remained the largest proportion of students enrolled (52.9%), with White students maintaining the second-largest group (26.5%). Black students were the third-largest group, comprising 12.7% of students; Asian students comprised 4.7% of enrolled students; and students identified as another race or ethnicity were 3.2% of the population.

FIGURE 1.2 Enrolled Students by Race/Ethnicity Another Race or Ethnicity Asian Black Hispanic White 6,000,000 5,000,000 Number of Students 4,000,000 3,000,000 2,000,000 1,000,000 o 2015–16 2016-17 2017-18 2018-19 2011-12 2012-13 2013-14 2014-15 2019-20 2020-21 Academic Year

Source. Texas Academic Performance Reports, Texas Education Agency. Note. Enrollment is defined as students reported as enrolled as of the last Friday in October.

FIGURE 1.3

Enrolled Students by Economic Disadvantage



Source. Texas Academic Performance Reports, Texas Education Agency. *Note.* Enrollment is defined as students reported as enrolled as of the last Friday in October. In 2020–21, the majority of students enrolled in the Texas public education system were from low-income or economically disadvantaged backgrounds (60.3%). The number of economically disadvantaged students has increased by 7.3% since 2011-12 (Figure 1.3).

The number of teachers in the Texas teacher workforce increased by 4% from 2011–12 to 2020–21, keeping pace with the 8% growth in student enrollment over the same time period (see Figure 1.1). Figure 1.4 demonstrates the racial and ethnic demographics of the teacher population. In 2011–12, 64% of the teachers identified as White, 24% identified as Hispanic, 9% identified as Black, 2% identified as another race or ethnicity, and 1% identified as Asian. In 2020–21, 57% of teachers identified as White, 28% identified as Hispanic, 11% identified as Black, 2% identified as Asian, and 2% identified as another race or ethnicity. From 2011–12 to 2020–21, the populations of teachers identifying as Hispanic and identifying as Black each increased 34%. Of the 45,716 additional teachers in the workforce, 25,999 (57%) were Hispanic and 11,617 (25%) were Black.

Figure 1.5 displays concurrently the racial and ethnic composition of the teacher workforce and the enrolled student population from 2011–12 to 2020–21. Over the past decade, the teacher population has increased in the percentage of teachers identifying as Black, Hispanic, and another racial or ethnic group and has decreased in the percentage of teachers identifying as White. In the student population, the percentage of students identifying as Black has remained constant (13%), while the percentages of students identifying as Hispanic or another race or ethnicity have increased. The percentage of students identifying as White has decreased.

FIGURE 1.4



Teachers by Race/Ethnicity

Source. University of Houston Education Research Center.

Note. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year.

Acaden Year	nic	Another	Race or	Ethnicit	ty	Asian	Black	Hispani Hispani	c 📕 White
2011-12	Teachers	2%	1%	9%	24%			64%	
	Students	2%	4%	13%	51%			31%	
2012-13	Teachers	2%	o%	9%	25%			63%	
5	Students	2%	4%	13%	51%			30%	
2013-14	Teachers	2%	1%	9%	25%			63%	
	Students	2%	4%	13%	52%			29%	
2014-15	Teachers	2%	1%	10%	26%			61%	
	Students	3%	4%	13%	52%			29%	
2015-16	Teachers	2%	1%	10%	26%			61%	
	Students	3%	4%	13%	52%			29%	
2016-17	Teachers	2%	2%	10%	27%			60%	
	Students	3%	4%	13%	52%			28%	
2017-18	Teachers	2%	2%	10%	27%			59%	
-	Students	3%	4%	13%	52%			28%	
2018-19	Teachers	2%	2%	11%	27%			59%	
	Students	3%	4%	13%	53%			27%	
2019-20	Teachers	2%	2%	11%	28%			58%	
	Students	3%	5%	13%	53%			27%	
2020-21	Teachers	2%	2%	11%	28%			57%	
	Students	3%	- 5%	13%	53%			26%	

FIGURE 1.5

Race/Ethnicity of Teachers and Students

Sources. University of Houston Education Research Center and Texas Academic Performance Reports, Texas Education Agency. Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Student race and ethnic categorization provided by statewide enrollment as of the fall of each academic year.

Wide gaps remain between the race and ethnicity of teachers and the students they serve. For example, in 2020–21, Black teachers made up 11% of the workforce while Black students made up 13% of public school students. The analysis reveals even wider gaps for the state's Hispanic population. In 2020-21, the percentage of Hispanic teachers (28%) was much lower than that of Hispanic students (53%). At the other extreme, White teachers made up 57% of the workforce, while just 26% of students were White.

The gap remains when viewed at the regional or district levels. Figure 1.5a shows the race and ethnicity for students and teachers aggregated by region in 2020-21.

FIGURE 1.5a

Race/Ethnicity of Teachers and Students by Region in 2020-21

Reg	ion		Anothe	er Race or	Ethnicity	Asian	Black	Hispanic	White
1	Teachers Students	<1% <1%	<1% <1%	1% 1%	91% 96%			7% 2%	
2	Teachers Students	1% 2%	<1% 1%	2% 2%	52% 76%			45% 19%	
3	Teachers Students	<1% 2%	<1% 1%	5% 8%	17% 59%			77% 31%	
4	Teachers Students	2% 3%	4% 7%	22% 19%	22% 52%			50% 20%	
5	Teachers Students	1% 4%	<1% 2%	17% 25%	6% 24%			75% 46%	
6	Teachers Students	1% 4%	<1% 3%	6% 11%	14% 38%			79% 45%	
7	Teachers Students	1% 4%	<1% <1%	10% 16%	7% 30%			82% 48%	
8	Teachers Students	1% 6%	<1% <1%	8% 19%	6% 23%			85% 52%	
9	Teachers Students	1% 6%	<1% 2%	3% 7%	7% 29%			88% 57%	
10	Teachers Students	3% 4%	3% 9%	18% 18%	18% 43%			60% 26%	
11	Teachers Students	2% 4%	1% 5%	10% 16%	14% 37%			73% 38%	
12	Teachers Students	3% 7%	1% 2%	10% 19%	11% 36%			75% 36%	
13	Teachers Students	2% 4%	2%	5% 7%	22% 47%			70% 36%	
14	Teachers Students	2% 4%	<1% 3%	4% 9%	12% 37%			81% 48%	
15	Teachers Students	<1% 2%	<1% <1%	2% 2%	27% 59%			70% 36%	
16	Teachers Students	1% 3%	<1% 3%	1% 5%	14% 48%			83% 41%	
17	Teachers Students	2% 2%	<1% 1%	2% 6%	19% 59%			77% 31%	
18	Teachers Students	1% 2%	2% 1%	4% 4%	34% 70%			59% 22%	
19	Teachers Students	<1% 1%	<1% <1%	2% 2%	82% 90%			15% 5%	
20	Teachers Students	1% 3%	<1% 2%	5% 6%	47% 68%			46% 20%	

Source. Texas Academic Performance Reports, Texas Education Agency.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Student race and ethnic categorization provided by statewide enrollment as of the fall of each academic year.

Displayed differently, Figure 1.5b shows the discrepancy between the racial and ethnic composition of teachers and students at the district level. Each point represents the percentage of students (on the x axis) and the percentage of teachers (on the y axis) within each group for all districts in 2020–21. Ideally, representation among students and teachers would be equal and all dots would fall on the straight dotted line shown on Figure 1.5b. However, during 2020–21, representation is rarely similar. The points above the dotted line indicate that the group is overrepresented among teachers and those below indicate underrepresentation. The overrepresentation of White teachers and the underrepresentation of Hispanic teachers is clear.

FIGURE 1.5b



Source. Texas Academic Performance Reports, Texas Education Agency. Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Student race and ethnic categorization provided by statewide enrollment as of the fall of each academic year. Reviewing the growth of the teacher population by race and gender as compared with 2011–12, Figure 1.6 shows that teacher populations among all races and ethnicities have increased since 2011–12. Black male teachers and Asian male teachers are the groups of teachers that have grown the most since 2011–12, and White male and female teacher populations have grown at the slowest pace. Despite the growth in Black and Asian teacher populations, these two groups are the smallest among the race and ethnicity groups of teachers (see Figure 1.4).

FIGURE 1.6

Growth in FTE Teachers by Gender and Race/Ethnicity as Change from Baseline (2011–12)



Source. Texas Academic Performance Reports, Texas Education Agency.

Notes. FTE = full-time equivalent. Teachers include all individuals with teaching assignments indicated by a role ID code of o87, o25, or o29 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year.

Section II: Teacher Preparation and Certification

In this section, we address teacher preparation and certification. First, we describe the changing landscape of educator preparation programs (EPPs) within Texas. Then we discuss teacher certifications including trends in EPP pathway and certification type.

Texas Educator Preparation

As of 2022, Texas is home to 122 approved EPPs³ that vary by preparation route (TEA, 2020). Such pathways include alternative, post-baccalaureate, and traditional programs. EPP type remains an important consideration given that a majority of Texas teachers earn their credential through alternative certification programs (ACPs) (Overschelde, 2020). Because of the substantial differences among the non-university-based programs, we have further divided those EPPs in <u>Table 2.1</u>, which shows the certification available by the type of EPP.

TABLE 2.1

Certifications Available by Educator Preparation Program (EPP) Type, 2021

	Non-University-Based EPPs		University-Based EPPs	
	For-Profit ACPs*	Nonprofit ACPs*	Public University	Private University
Alternative Certification	•	•	•	•
Traditional Certification			•	•
Post-Baccalaureate Certification			•	•

Source. University of Houston Education Research Center.

Notes. *Nonprofit Alternative Certification Programs (ACPs) include community colleges, education service centers, Independent School Districts, and charter schools.

³ The EPPs included in this report include EPPs reported for certification through the State Board for Educator Certification from 2011–12 through 2020–21. See <u>Appendix C</u> for the specific EPPs included in this report.

In-Service School Type and Educator Preparation Program Type

The route by which teachers prepare for certification differs by the type of campus at which they work. As shown in Figure 2.1, a larger proportion of teachers beginning their first year of teaching at charter schools are prepared through for-profit ACPs than those beginning at non-charter schools.

FIGURE 2.1

Educator Preparation Route by Charter School Campus Status (2011–12 Cohort of First-Year Teachers)



Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. In the 2011–12 cohort of first-year teachers, there were 15,319 teachers (1,832 in charter schools and 13,432 in non-charter schools) with teacher certificates recognized by the State Board for Educator Certification. Teachers were associated with the educator preparation program pathway listed for their first teacher certification awarded.

Statewide Trends in Teacher Certification

The remainder of this section looks at trends in teacher certification. First, we look at the number of initial certifications awarded to Texas teachers, both comprehensively and by certification pathway and program type. Then we present data on teacher certifications by subject area: bilingual and English as a second language (ESL); computer science; career and technical education (CTE); English language arts (ELA); fine arts; generalist; health and physical education; world languages; mathematics; science; social studies; and special education.

Findings from this section support the findings of the previous report. Figure 2.2 shows that the number of yearly certificates earned in Texas peaked in the year 2016–17 with 26,046. The annual number of initial five-year standard teacher certificates decreased between 2016–17 and 2020–21.

As also seen in Figure 2.2, the number of initial five-year standard certificates issued to new teachers in year 2020–21 (18,525) was lower than 10 years ago in 2011–12 (19,969). During any certification year, the number of certificates issued is greater than the number of teachers produced, as many teachers earn more than one certificate. However, limiting the certificates to just the initial ones excludes supplemental certificates and provides a closer approximation for new teachers.

FIGURE 2.2

Total Initial Five-Year Standard Teacher Certificates in Texas, 2011–12 to 2020–21



Source. University of Houston Education Research Center. *Note.* Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. Figure 2.3 presents data on initial five-year standard teacher certificates produced by pathway. The main sources of initial five-year standard teacher certificate production have shifted significantly over the past 10 years, from public universities as the largest producers to for-profit ACPs. Although in steady decline across the decade, between 2011–12 and 2013–14, public university EPPs produced the highest number of teacher certificates of all preparation program providers. The 2014–15 academic year marked an important milestone where the percentage of initial five-year standard teacher certificates produced by for-profit ACPs (33%) surpassed that of public universities (32%). Since 2014–15, a higher percentage of Texas teachers have earned certification through for-profit ACPs than any other program type (Figure 2.3). The share of initial five-year standard teacher certificates have more than doubled over the past 10 years.

FIGURE 2.3

Initial Five-Year Standard Teacher Certificates by Preparation Pathway, 2011–12 to 2020–21



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first standard teacher certificate issued to an individual. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

In Figure 2.4, the race and ethnicity of the teachers of each pathway are displayed. Over the past decade, public university EPPs have served a population of teachers composed of 54% identifying as White, 36% Hispanic, 6% Black, 2% Asian, and 2% identifying as another race or ethnicity. For-profit ACPs have historically prepared larger proportions of teachers who identify as Black (18%), and public university EPPs have historically served the largest proportion of teachers who identify as Hispanic.

FIGURE 2.4

Initial Five-Year Standard Teacher Certificates by Preparation Pathway and Teacher Race and Ethnicity, 2011–12 to 2020–21



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first standard teacher certificate issued to an individual. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

Certification Trends by Subject Area

As shown in Figure 2.5, public universities have been the largest producers of bilingual and ESL initial fiveyear standard teacher certificates for the past decade. The number of bilingual and ESL initial five-year standard teacher certificates produced decreased from 1,743 in 2011–12 to 443 in 2020–21.⁴

FIGURE 2.5

Bilingual and English as a Second Language Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Bilingual certificates include initial five-year Bilingual/English as a Second Language (PK–6), Bilingual Spanish: Grades EC–4 and Grades EC–6, and Bilingual Chinese: Grades EC–4 and Grades EC–6. ESL certificates include initial five-year English as a Second Language: Grades EC–4 and Grades EC–6. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

⁴ The changing certification requirements for bilingual generalist certification and ESL generalist certification, including the addition of supplemental certifications, have changed over time (Arroyo-Romano, 2016).

Figure 2.6 demonstrates that over the past decade, the major producer of computer science initial five-year standard teacher certificates shifted from out-of-state to for-profit ACPs. In 2011–12, 51% of all computer science initial five-year standard teacher certificates were produced out-of-state, compared with 15% in 2020–21. For-profit ACPs produced 32% of all computer science initial five-year standard teacher certificates in 2011–12 and increased to 79% in 2020–21.

FIGURE 2.6

Computer Science Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Computer science certificates include Computer Science, Computer Information Systems, Information Processing Tech I, Information Processing Tech II, Technology Applications, and Technology Education. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

In the CTE subject area (Figure 2.7), initial five-year standard teacher certificate production decreased from a peak of 695 in 2015–16 to 294 in 2020–21. For-profit ACPs increased production of CTE initial five-year standard teacher certificates, from 44% in 2011–12 to 72% in 2020–21.

FIGURE 2.7

Career and Technical Education Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Career and technical education certificates include Trade and Industrial Education, Trades and Industry-Pre-Emp Lab, Speech Communications, Speech, Office Education, ROTC, Business Education, Business-Secretarial, Business-Basic, Business-Administration, Heath Science, and Health Science Technology. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type. Figure 2.8 demonstrates an increase in ELA initial five-year standard teacher certificate production by for-profit ACPs. The percentage produced by for-profit ACPs increased from 16% in 2011–12 to 64% in 2020–21. The percentage of teacher certificates produced by public universities decreased from 44% in 2011–12 to 10% in 2020–21. The total production of ELA initial five-year standard teacher certificates increased from 1,437 to 1,865 between 2011–12 and 2020–21.

FIGURE 2.8

English Language Arts Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. English language arts (ELA) certificates include English: Grades 6–12; English Language Arts and Reading (ELAR): Grades 4–8, Grades 7–12, and Grades 8–12; ELAR with Science of Teaching Reading: Grades 4–8 and Grades 7–12; ELAR/Social Studies: Grades 4–8; Reading: Grades EC–12; and ELAR/Social Studies with Science of Teaching Reading: Grades 4–8. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.
The fine arts initial five-year standard teacher certificates issued decreased from 1,224 in 2011–12 to 1,024 in 2020–21, as illustrated in Figure 2.9. In 2020–21, the total production of fine arts initial five-year standard teacher certificates decreased to the lowest in a decade, and half of these were produced by for-profit ACPs.

FIGURE 2.9

Fine Arts Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Fine arts certificates include Art, Music, Theater, and Dance. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

The production of elementary generalist initial five-year standard certificates was highest in 2018–19 (9,230) and decreased in subsequent years to 8,196 in 2020–21 (Figure 2.10). For-profit ACPs increased production of elementary generalist initial five-year standard teacher certificates from 17% in 2011–12 to 35% in 2020–21. Since 2018–19, for-profit ACPs have been the largest producer of elementary generalist initial five-year standard teacher certificates.

FIGURE 2.10

Elementary Generalist (EC-4 and EC-6) Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Generalist certificates include Generalist, Core Subjects, and Core Subjects with Science of Teaching Reading issued for grade levels EC-4 and EC-6. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

The production of middle generalist (4–8) initial five-year standard teacher certificates has decreased from 2,734 in 2011–12 to 1,015 in 2020–21, as shown in Figure 2.11. Despite the decrease, for-profit ACPs remain the largest producer of middle generalist initial five-year standard teacher certificates, producing at least half of all certificates for eight out of the past 10 years.

FIGURE 2.11

Middle Generalist (4-8) Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Generalist certificates include Generalist, Core Subjects, and Core Subjects with Science of Teaching Reading issued for grade level 4–8. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

Figure 2.12 illustrates the total number of health and physical education initial five-year standard teacher certificates produced by educator preparation program type between 2011–12 (1,147) and 2020–21 (802). In 2011–12, public university EPPs produced 51% of all health and physical education initial five-year standard teacher certificates, though by 2020–21, for-profit ACPs became the largest producer, with 68% of all certificates.

FIGURE 2.12

Health and Physical Education Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Health and physical education certificates include Health and Physical Education. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

From 2011–12 to 2016–17, the production of world languages initial five-year standard teacher certificates (Figure 2.13) increased from 324 to 494. Since 2016–17, certifications have decreased to a low of 284 produced in 2019–20. For-profit ACPs have increased production from 32% in 2011–12 to 57% in 2020–21, as public university EPPs have decreased production from 30% to 14% over the same time period. Notably, between 20% and 26% of world languages initial five-year standard teacher certificates were from out-of-state over the past decade.

FIGURE 2.13

World Languages Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. World language certificates include Arabic, Chinese, French, German, Hindi, American Sign Language, Italian, Japanese, Korean, Latin, Russian, Spanish, Turkish, and Vietnamese. In the previous report, the certifications classified under world languages were classified as "foreign languages." Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

Figure 2.14 shows that elementary mathematics initial five-year standard teacher certificate production decreased from 690 in 2011–12 to 584 in 2020–21. For-profit ACPs have become the largest producer of elementary mathematics initial five-year standard teacher certificates, with 58% of certificates in 2020–21. Certificates produced by public universities decreased from 58% in 2011–12 to 17% in 2020–21.

FIGURE 2.14

Elementary Mathematics Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Elementary mathematics certificates include those issued to grade levels EC-4, 1-6, 1-8, and 4-8. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

Figure 2.15 illustrates the declining production of public university EPPs and the increasing production of for-profit ACPs for secondary mathematics initial five-year standard teacher certificates. In 2011–12, public university EPPs produced 38% of the total 798 certificates, while for-profit ACPs produced 31%. By 2020–21, public university EPPs produced 14% of the total 653 certificates, and for-profit ACPs increased to produce 59% of the total.

FIGURE 2.15

Secondary Mathematics Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Secondary mathematics certificates include those issued to grade levels 6–12, 7–12, and 8–12. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type. The total number of science initial five-year standard teacher certificates (Figure 2.16) produced increased from 1,438 in 2011–12 to 1,887 in 2016–17 and decreased to 1,392 in 2020–21. Over the past decade, for-profit ACPs increased the production of science initial certificates from 29% in 2011–12 to 65% in 2020–21. The second-largest producer, public university EPPs, decreased production from 36% in 2011–12 to 12% in 2020–21.

FIGURE 2.16

Science Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Science certifications include Biology; Agricultural Science and Technology: Grades 6–12; Agriculture, Food and Natural Resources: Grades 6–12; Chemistry: Grades 7–12 and Grades 8–12; Earth Science, Family and Consumer Sciences: Grades 6–12; Life Science: Grades 7–12 and Grades 8–12; Physical Science: Grades 8–12; Physical Science: Grades 6–12; Physics/ Mathematics: Grades 7–12 and Grades 8–12; and Science–Composite: Grades 4–8. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type. Figure 2.17 displays the production of social studies initial five-year standard teacher certificates by educator preparation program type from 2011–12 (1,046) to 2020–21 (1,142). The production of public university EPPs decreased from 41% in 2011–12 to 12% in 2020–21, while the production of for-profit ACPs increased from 18% to 61% over the same time period. In 2011–12, 24% of social studies initial five-year standard teacher certificates were from out-of-state, and in 2020–21, the percentage decreased to 17%.

FIGURE 2.17

Social Studies Initial Five-Year Standard Teacher Certificates by Educator Preparation Type





Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Social studies certificates include History: Grades 7–12 and Grades 8-12 and Social Studies–Composite: Grades 4–8, Grades 7–12, and Grades 8–12. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

The total number of special education initial five-year standard teacher certificates produced increased from 1,632 in 2011–12 to 2,329 in 2020–21 (Figure 2.18). In 2020–21, 71% of special education initial five-year standard certificates were produced by for-profit ACPs, an increase from 29% in 2011–12. Production of special education initial five-year standard teacher certificates decreased from 27% in 2011–12 to 5% in 2020–21 among public universities.

FIGURE 2.18

Special Education Initial Five-Year Standard Teacher Certificates by Educator Preparation Type



Source. University of Houston Education Research Center.

Notes. Initial five-year standard teacher certificates refer to the first five-year standard teacher certificate issued to an individual. The certification title subject does not indicate the courses approved to be taught for each certificate. Special education certificates include Deaf and Hard of Hearing, Generic Special Education, and Visually Impaired. Where fewer than five certificates were awarded, values are masked. See <u>Appendix C</u> for a listing of each educator preparation program and their pathway type.

Section III: Teacher Workforce Characteristics

Teacher Assignment

In this section, we consider teacher assignment in two ways. First, we discuss positions by selected student population served (e.g., special education). Second, we address positions by subject area.

Teacher Assignments by Student Population Served

For student population served, we focus on four types: regular, bilingual/ESL, CTE, and special education. We focus on these three areas because they align with the student population-based teacher shortage areas identified by the state (TEA, 2020). <u>Table 3.1</u> shows the number of FTE teachers assigned to these populations. We have included regular assignments for context. <u>Table 3.2</u> shows the number of students in each population group. Taken together the tables show us that while the number of bilingual/ESL students increased by 38.9% between 2011–12 and 2020–21, the number of bilingual/ESL FTE teachers increased by 32.7% during that same time period. Specifically, the ratio between bilingual/ESL students and teachers

TABLE 3.1

Statewide FTE Teachers by Student Population Served

Academic Year	Bilingual		English as a Second Language		Care Tecl Edue	er and nnical cation	Spe Educ	ecial ation	Regular	
	FTE	Change	FTE	Change	FTE	Change	FTE	Change	FTE	Change
2011-12	12,701		4,504		13,218		29,026		238,494	
2012-13	12,918	1.7%	4,468	-0.8%	13,429	1.6%	30,216	4.1%	239,229	0.3%
2013-14	14,349	11.1%	5,064	13.3%	13,953	3.9%	30,446	0.8%	242,626	1.4%
2014–15	14,785	3.0%	5,253	3.7%	14,582	4.5%	30,698	0.8%	247,808	2.1%
2015–16	15,264	3.2%	5,310	1.1%	15,278	4.8%	30,564	-0.4%	251,224	1.4%
2016–17	15,732	3.1%	5,338	0.5%	15,956	4.4%	30,363	-0.7%	256,338	2.0%
2017–18	16,118	2.4%	5,447	2.1%	16,753	5.0%	31,958	5.3%	257,178	0.3%
2018–19	17,125	6.3%	5,883	8.0%	17,430	4.0%	32,433	1.5%	255,001	-0.8%
2019–20	17,206	0.5%	6,291	6.9%	18,062	3.6%	33,544	3.4%	256,511	0.6%
2020-21	17,033	-1.0%	5,762	-8.4%	18,944	4.9%	34,873	4.0%	261,820	2.1%

Source. University of Houston Education Research Center.

Notes. Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels. Population served is the student population for which a service has been designed or is intended (PEIMS Code Table Co30). It does not necessarily identify the program eligibility of the students who received the service. When more than one population of students is served in a single classroom at the same time, only one record is reported using the population for which the service was designated.

has increased from about 47:1 in 2011–12 to 49:1 in 2020–21. For special education, the ratio changed from 14.8:1 in 2011–12 to 17:1 in 2020–21. The ratio for CTE changed from 81:1 in 2011–12 to about 83.5:1 in 2019–20. Therefore, on average, each FTE teacher is responsible for almost an additional two students. It is important to note, however, that although the teacher assignments are broken down by fraction of FTE (i.e., one teacher can serve different student populations), the student data are not broken down in the same way; students may be identified as both bilingual/ESL *and* special education, for example.

TABLE 3.2

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Statewide Students by Instructional Program

Academic	Bilingual/I Second I	English as a Language	Career and Educ	d Technical ation	Special Education		
Icai	Number	Change	Number	Change	Number	Change	
2011-12	809,074		1,072,030		430,350		
2012-13	840,072	3.8%	1,110,812	3.6%	431,041	0.2%	
2013-14	878,569	4.6%	1,140,598	2.7%	434,825	0.9%	
2014-15	930,737	5.9%	1,209,784	6.1%	442,476	1.8%	
2015–16	968,569	4.1%	1,284,748	6.2%	453,955	2.6%	
2016–17	1,005,219	3.8%	1,336,684	4.0%	467,611	3.0%	
2017-18	1,015,456	1.0%	1,391,689	4.1%	488,463	4.5%	
2018–19	1,066,099	5.0%	1,424,391	2.3%	521,908	6.8%	
2019-20	1,128,904	5.9%	1,512,219	6.2%	577,868	10.7%	
2020-21	1,123,936	-0.4%	*		595,885	3.1%	

Source. Texas Academic Performance Reports (TAPR), Texas Education Agency.

Notes. Student classification by instructional program as provided by the TAPR reports and defined in the TAPR Glossary.

* Career and technical education was not provided as an instructional program category on 2020-21 TAPR.

On average, an FTE teacher assigned to bilingual/ESL students taught two or more additional students in 2020–21 compared with their class sizes in 2011–12 (Figure 3.1). FTE teachers assigned to special education in 2020–21 were teaching two additional students as compared with their class sizes in 2011–12. CTE teachers were teaching two or more additional students in 2019–20 when compared with 2011–12.

FIGURE 3.1

Additional Students Per FTE Teacher by Population Served Since 2011–12



Sources. University of Houston Education Research Center; Texas Academic Performance Reports (TAPR), Texas Education Agency. *Notes.* Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of o87, o25, or o29 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels. Population served is the student population for which a service has been designed or is intended (PEIMS Code Table Co30). It does not necessarily identify the program eligibility of the students who receive the service. When more than one population of students is served in a single classroom at the same time, only one record is reported using the population for which the service was designated. Student classification by instructional program as provided by the TAPR reports and defined in the <u>TAPR Glossary</u>. Career and technical education was not provided as an instructional program category on 2020–21 TAPR.

Teacher Assignments by Subject Area

From 2011–12 to 2020–21, the number of FTE teacher positions increased in several subject areas (Table 3.3). The number of mathematics teacher positions increased by 20.7% between 2011–12 and 2020–21. The number of ELA FTE teachers increased by 20.9%. The number of positions in science increased between 2011–12 and 2020–21.

TABLE 3.3

Statewide FTE Teacher Positions by Select Subject Area

	2011- 12	2012- 13	2013- 14	2014- 15	2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
English Language Arts	63,671	65,912	68,527	71,245	73,146	76,242	77,303	77,145	76,878	77,000
Mathematics	45,528	47,030	48,461	50,136	51,125	53,566	53,739	54,047	54,134	54,973
Science	33,387	34,030	34,721	35,549	36,526	37,662	37,952	37,821	37,611	38,584
Self-Contained	34,546	32,639	33,369	33,003	33,069	32,974	33,000	33,573	35,459	34,205
Social Studies	31,146	31,394	32,119	33,070	33,775	35,371	35,670	35,720	35,591	36,630

Source. University of Houston Education Research Center.

Notes. Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teaching assignments are aggregated by subject area per the Service ID for each teaching assignment (PEIMS Code Table Co22). Self-contained is defined as a class in which one teacher teaches all or most subjects to one class of students (TAC §231.41(a).

<u>Figure 3.2</u> shows the number of FTE teachers as a percentage of their 2011–12 baseline. As shown, the number of math and ELA teachers increased by 20% in 2020–21. The numbers of science and social studies teachers also increased, by 16% and 18% respectively.

FIGURE 3.2

FTE Teachers by Selected Subject Area as Percentage of Baseline (2011–12)



Source. University of Houston Education Research Center.

Notes. Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teaching assignments are aggregated by subject area per the Service ID for each teaching assignment (PEIMS Code Table Co22).

Statewide Race and Gender of FTE Teacher Positions by Employment Subject Area

Since 2011–12, the distribution of female teachers per subject area has remained constant. Figure 3.3 demonstrates the consistency, except for a decrease in female teachers in the subject of Technology Applications. The distribution of male teachers per subject demonstrates the same consistency, as the trends for male teachers per subject are opposite those of female teachers. Like female teachers, the distribution of male teachers per subject has remained constant, though male teachers comprise an increasing proportion of teachers in Technology Applications.

FIGURE 3.3

Percentage of Teachers Who Are Female by Subject Area - Career and Technical Education - English Language Arts Fine Arts - Foreign Language - Mathematics - Physical Education and Health - Science 🗕 Self-Contained 🛛 🗕 Social Studies 🚽 Special Education 🚽 Technology Applications 100% 80% Percentage Female 60% 40% 20% 0 2015-16 2016-17 2017-18 2018-19 2011-12 2012-13 2013-14 2014-15 2019-20 2020-21 Academic Year

Source. University of Houston Education Research Center.

Notes. Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teaching assignments are aggregated by subject area per the Service ID for each teaching assignment (PEIMS Code Table Co22).

Teacher Shortage Areas

Every year, the TEA identifies teacher shortage areas by subject and submits the list to the U.S. Department of Education for consideration in partial student loan forgiveness, deferment, or cancellation. The data are available from the Department of Education starting in 1990-91. Using the data, several areas have consistently been noted as shortage areas. For example, special education and bilingual/ESL have both been identified every year since 1990-91. Mathematics has been identified every year since 1993-94. Science was included on the list every year between 1993–94 and 2017–18. Table 3.4 shows the shortage areas identified from 2011-12 to 2021-22.

TABLE 3.4

Subject Matter	2011- 12	2012– 13	2013- 14	2014- 15	2015- 16	2016- 17	2017- 18	2018– 19	2019- 20	2020- 21	2021– 22
Career and Technical Education			•	•	•	•	•	7-12	7–12	7–12	7-12
Bilingual/ English as a Second Language	•	•	•	•	•	E, S	•	PK-12	PK-12	PK-12	PK-12
Mathematics	•	•	•	•	•	•	•	7-12	7-12	7-12	7-12
Science	•	•	•	•	•	•	•				
Special Education	•	•	•	E, S	E, S	E, S	E, S	PK-12	PK-12	PK-12	PK-12
World Languages	•	•	•								

Texas Teacher Shortage Areas

Source. U.S. Department of Education.

Notes. • is identified as a shortage area, but no grade level was included. "E, S" indicates that both elementary and secondary levels were identified as shortage areas for the subject matter. "PK-12" indicates that all grades were identified as shortage areas. "7-12" indicates that grades 7 through 12 were identified as shortage areas.

Figure 3.4 shows the percentage of substitute teachers across specific subject areas. For example, the percentage of ELA teachers who are substitutes was below 0.1% of all teachers in 2011–12 and increased to a high of 0.41% in 2019–20. The percentage decreased to 0.2% of all ELA teachers in 2020–21. The sharp decrease in the use of substitute teachers during 2020–21 is likely due to the changes in instructional delivery during the pandemic. Overall, the percentage of substitute teachers has increased by an average of 0.12% across all subjects between 2011–12 and 2020–21.

FIGURE 3.4

Percentage of Substitute Teachers by Selected Subject Areas



Source. University of Houston Education Research Center.

Notes. Full-time equivalent (FTE) counts include all individuals with teaching assignments indicated by a role ID code of 047 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teaching assignments are aggregated by subject area per the Service ID for each teaching assignment (PEIMS Code Table Co22).

Salaries

Statewide Trends in Base Pay

In this section, we turn to teacher base pay.⁵ Although this provides perspective into average teacher base pay, it is important to note that supplemental payments (e.g., stipends) are not included. <u>Table 3.5</u> reports the average base pay as reported in the year the data was gathered. When examining the data in this way, the average base pay has increased from \$48,373 to \$57,639 between 2011–12 and 2020–21. However, when the dollars are adjusted for inflation by converting to constant 2021 dollars, as shown in Figure 3.5, teacher salaries have increased from \$55,825 to \$57,639 between 2011–12 and 2020–21.

⁵ For the purposes of this report, we focus on general trends. Additional inferential analyses, available on request, considers base pay disaggregation by key demographic characteristics.

Academic Year	Average Base Pay	Academic Year	Average Base Pay
2011-12	\$48,373	2016–17	\$52,525
2012-13	\$48,819	2017–18	\$53,334
2013-14	\$49,690	2018–19	\$54,121
2014-15	\$50,713	2019-20	\$57,090
2015–16	\$51,890	2020-21	\$57,639

TABLE 3.5

Teacher Base Pay (Dollars as of Report Year)

Source. University of Houston Education Research Center.

Notes. All amounts are displayed in dollars of the report year. Average base pay is calculated as the total base pay for each year divided by the total full-time equivalent (FTE) submitted during the fall of each academic year. See more detail on <u>base pay</u> in the <u>Key Terms</u> section of this report.

FIGURE 3.5

Average Base Pay of Teachers (in Constant 2021 Dollars)



Source. University of Houston Education Research Center.

Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on base pay and constant 2021 dollars in the Key Terms section of this report.

As shown in Figure 3.6, on average, teachers at charter campuses are paid less than those at traditional public schools. The gap, however, has been gradually closing over time. As of 2020–21, charter school teachers made about 9% less than traditional public school teachers; this difference has been cut in half since 2011–12, when charter school teachers made about 18% less.

FIGURE 3.6

Average Base Pay of Teachers by Charter School Campus Status (in Constant 2021 Dollars)



Sources. University of Houston Education Research Center; National Center for Education Statistics. *Notes.* Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of o87, o25, or o29 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Charter schools included are open-enrollment; college, junior college, or university; and adult high school charter schools. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on <u>charter schools</u>, <u>base pay</u>, and <u>constant 2021 dollars</u> in the <u>Key Terms</u> section of this report. Figure 3.7 illustrates that the average base pay for teachers in city and suburban locations is higher than the base pay for teachers in towns and rural areas. In constant 2021 dollars, the average base pay for teachers in cities increased from \$57,109 to \$58,103 from 2011–12 to 2020–21. Over the same time period, the average base pay for teachers in towns increased from \$52,187 to \$53,245, using constant 2021 dollars.

FIGURE 3.7

Average Base Pay of Teachers by Urbanicity (in Constant 2021 Dollars)



Sources. University of Houston Education Research Center; National Center for Education Statistics. *Notes.* Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on <u>base pay</u> and <u>constant 2021 dollars</u> in the <u>Key Terms</u> section of this report. Figure 3.8 highlights the average base pay of teachers by campus economic need. Need level is based on the percentage of economically disadvantaged students. Low economic need campuses have less than or equal to 25% of students experiencing economic disadvantage, middle economic need campuses have more than 25% but less than or equal to 75% of students experiencing economic disadvantage, and high economic need campuses have more than 75% of students experiencing economic disadvantage. From 2011–12 to 2020–21, teachers at low-need schools consistently had a higher average base pay than teachers at campuses with high economic need. However, the gap between average base pay of teachers at low-need schools and high-need schools decreased from 2018–19 to 2020–21.

FIGURE 3.8

Average Base Pay of Teachers by Campus Economic Need (in Constant 2021 Dollars)



Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on base pay and constant 2021 dollars in the Key Terms section of this report. Need level is based on percentage of economically disadvantaged students. Low economic need campuses have less than or equal to 75% of students experiencing economic disadvantage, and high economic need campuses have more than 75% of students experiencing economic disadvantage. Excludes cases with missing data.

Regarding campus at-risk status, <u>Figure 3.9</u> demonstrates that teachers at schools with low, middle, and high at-risk student populations have small pay gaps.

FIGURE 3.9

Average Base Pay of Teachers by Campus At-Risk Status (in Constant 2021 Dollars)



Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency. Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of o87, o25, or o29 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on <u>base pay</u> and <u>constant 2021 dollars</u> in the <u>Key Terms</u> section of this report. At-risk level is based on the percentage of at-risk students. Low-risk campuses have less than or equal to 25% of students at risk of dropping out, middle-risk campuses have more than 25% but less than or equal to 75% of students at risk of dropping out, and high-risk campuses have more than 75% of students at risk of dropping out.

Regional Trends in Base Pay

Figure 3.10 presents data on the average base pay for teachers across Texas in 2020–21. In this academic year, average base pay for teachers ranges from a high of \$60,891 in Region 4 (Houston) to a low of \$49,539 in Region 14 (Abilene). Figure 3.11 displays regional increases in average teacher base pay across the state except for two regions, Region 19 (El Paso) and Region 20 (San Antonio). Some regions have increased teacher pay more than others, like Region 18 (Midland), where average teacher base pay increased by \$4,157.

FIGURE 3.10

Average Base Pay of Teachers in 2020–21 by Region (in Constant 2021 Dollars)



Source. University of Houston Education Research Center. Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on base pay and <u>constant 2021 dollars</u> in the Key Terms section of this report.

FIGURE 3.11

Change in Average Base Pay from 2011–12 to 2020–21 by Region (in Constant 2021 Dollars)



Source. University of Houston Education Research Center. Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. See more detail on base pay and constant 2021 dollars in the Key Terms section of this report.

Statewide Base Pay by Experience

The statewide teacher average base pay by average years of experience is displayed in Figure 3.12. The upward trajectory of the line in Figure 3.12 indicates a positive relationship between years of experience and base pay. For example, teachers who had three years of experience made an average of \$53,182, and those with 15 years of experience made an average of \$60,172.

FIGURE 3.12

\$60,000 \$50,000 21 Years **16 Years** Average Base Pay Experience 12 Years \$40,000 Experience 7 Years \$63,934 **Experience** 1 Year \$60,843 Experience \$58,857 \$30,000 Experience \$56,167 \$51,628 \$20,000 \$10,000 0 6 8 2 10 12 16 18 20 4 14 Years of Experience

Average Base Pay of Teachers by Experience in 2020-21

Source. University of Houston Education Research Center.

Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Average base pay is calculated as the total base pay for each year divided by the total FTE for teacher assignments submitted during the fall of each academic year. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. See more details on base pay, constant 2021 dollars, and experience in the Key Terms section of this report.

Table 3.6 and Figure 3.13 further explore the relationship between experience and pay by examining the actual wage premium—or average increase in base pay for each additional year of experience—for teachers over a 10-year period. According to Table 3.6, the wage premium for one additional year of experience in 2011–12 was \$1,219. Stated differently, the average base pay difference between teachers one year apart in teaching experience was \$1,219.

Reviewing the wage premium data from Table 3.6 in Figure 3.13, the decreasing value of one additional year of experience between 2011–12 and 2020–21 is illuminated. The wage premium for one additional year of experience decreased from \$1,219 in 2011–12 to \$678 in 2020–21, when viewed in constant 2021 dollars.

TABLE 3.6

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Wage Premium for Each Additional Year of Experience (in Constant 2021 Dollars)

Academic Year	Wage Premium	Change Since 2012
2011-12	\$1,219	
2012-13	\$1,083	-\$136
2013-14	\$976	-\$243
2014-15	\$915	-\$304
2015–16	\$848	-\$371
2016–17	\$783	-\$436
2017-18	\$766	-\$454
2018–19	\$730	-\$489
2019-20	\$742	-\$477
2020-21	\$678	-\$541

Source. University of Houston Education Research Center.

Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Wage premiums are calculated by averaging the change in average wages per FTE for each year of experience. Wages reflect the total base pay per FTE per year of experience. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. See more details on base pay, constant 2021 dollars, and experience in the Key Terms section of this report.

FIGURE 3.13

Wage Premium for One Additional Year of Experience (in Constant 2021 Dollars)



Source. University of Houston Education Research Center.

Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. All dollar amounts are displayed in constant 2021 dollars. Wage premiums are calculated by averaging the change in average wages per FTE for each year of experience. Wages reflect the total base pay per FTE per year of experience. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. See more details on base pay, constant 2021 dollars, and experience in the Key Terms section of this report.

Teacher Mobility

To determine teacher mobility, we compare the current-year campus of all teachers to their previous-year campus. We report teacher mobility in six ways: First, we look at how teachers move between campuses. Second, we look at how teachers move between sectors (e.g., charter schools). Third, we look at stayer rates by campus and sector. Fourth, we look at stayer rates by district group. Fifth, we consider the average years of experience by campus. And finally, we look at movement between the education service center (ESC) regions.

Teacher Transitions by Campus

In this section, we consider the transition of teachers from one year to the next. For each year, we look at the teacher's campus from the prior academic year to the following one. We identify five possible transitions: staying in the same campus; staying within the same district but moving campuses; staying within the same region but moving districts; moving to a district in a different region; or leaving the teaching pool. Those who left might have retired, changed careers, moved into non-teaching positions, or moved to a different state.

Stayed in Campus Stayed in District, Moved Campus Stayed in Region, Moved District

FIGURE 3.14

Teacher Year-to-Year Campus Transition



Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Mobility is determined by comparing the current-year campus to the previous-year campus. Those mobile in 2011–12 taught in a different campus in 2011–12 than they taught in 2010–11. "Left" refers to teachers who left a teaching role. See <u>Appendix B</u> for more details on mobility. Over the past decade, the transition rates of teachers have remained very stable. From 2011–12 to 2020–21, the majority of Texas teachers remained at the same campus (Figure 3.14). In fact, over the past decade, the percentage of teachers who have remained at the same campus has ranged between 76% and 84%. Regarding teachers who transition, an average of 8% of teachers leave their teaching position each year, 6% move into a different campus within the same district, 4% move to a different district in the same region, and 4% move to a district in another region.

Teacher Movement by Educational Sector

Here, we look at teacher movement by three sector groups: charter, campus economic need, and campus at-risk students. For this section, we do not consider whether the teacher remained in a particular campus; instead, we focus on sector movement. For example, if a teacher was at a charter campus in one year and moved to a different charter campus in the next, we would consider that teacher as staying in the charter sector.

As a group, charter school teachers are more mobile than teachers in non-charter schools. As shown in Table 3.7, the majority of teachers who started in a non-charter school stayed in a non-charter school the following year for all years under study. No more than 1% of teachers moved from the non-charter sector to the charter sector in a given year. With respect to teachers who started in charter schools, the percentage of teachers returning to charter schools fluctuated over the past decade, with a low of 69% in 2013–14, and a high of 79% in 2011–12. As of 2020–21, 15% of charter sector teachers left—consistent with the previous three years; 9% of charter teachers moved to non-charter schools, down from prior years but up from 2011–12 by 5 percentage points.

TABLE 3.7

	2011- 12	2012– 13	2013- 14	2014- 15	2015- 16	2016- 17	2017- 18	2018– 19	2019- 20	2020- 21
Started in Non	-Charter									
Stayed in Non-Charter	93%	92%	92%	92%	92%	92%	92%	91%	91%	91%
Left Non-Charter	7%	7%	7%	7%	7%	7%	8%	8%	8%	9%
Non-charter to Charter	0%	0%	1%	1%	1%	1%	1%	1%	1%	0%
Started in Cha	rter									
Stayed in Charter	79%	72%	69%	71%	71%	75%	74%	75%	74%	77%
Left Charter	17%	14%	14%	13%	14%	13%	15%	15%	15%	15%
Charter to Non-Charter	4%	14%	17%	16%	15%	12%	11%	11%	12%	9%
Started Not in	Data Set	t								
Joined Non-Charter	13%	11%	11%	11%	12%	13%	15%	14%	14%	13%
Joined Charter	87%	89%	89%	89%	88%	87%	85%	86%	86%	87%

Teacher Movement by Charter Sector

Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignment indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Charter schools included are open-enrollment; college, junior college, or university; and adult high school charter schools. Mobility is determined by comparing the current-year campus to the previous-year campus. Those mobile in 2011–12 taught in a different campus in 2011–12 than they taught in 2010–11. "Left" refers to teachers who were not assigned a teaching role in the subsequent year. See <u>Appendix B</u> for more details on mobility.

Second, we considered the economic conditions experienced by a campus's students (regardless of charter status). Specifically, we identified three sectors of campuses based on the percentage of students experiencing economic disadvantage. The lowest group had less than or equal to 25% of their students experiencing economic disadvantage while the highest group had more than 75%. As shown in Table 3.8, the majority of teachers moving schools across all years tended to remain in the need sector in which they were serving the prior year. More than 90% of teachers at middle-need campuses moved to similar need campuses. Three-quarters of teachers leaving their high-need campuses moved to other high-need campuses. Teachers at low-need campuses left teaching at a similar rate to teachers at high-need campuses, with both types of campuses observing increases in the percentage of teachers leaving over time. Across all years, no more than 1% of teachers at low-need campuses, the percentage remained under 5% for all years. Very low percentages of middle- and high-need campus teachers moved to low-need campuses. Teachers at high-need campuses who moved out of the high-need sector tended to move to middle-need campuses.

TABLE 3.8

	2011- 12	2012- 13	2013- 14	2014– 15	2015- 16	2016- 17	2017- 18	2018– 19	2019– 20	2020- 21
Started in Low	Need									
Stayed in Low Need	-	88%	88%	87%	88%	87%	86%	86%	86%	86%
Moved to Middle Need	-	4%	4%	5%	4%	4%	5%	5%	5%	5%
Moved to High Need	-	1%	1%	1%	1%	1%	1%	1%	1%	1%
Left	-	7%	7%	7%	7%	8%	8%	8%	8%	8%
Started in Midd	le Need									
Moved to Low Need	-	2%	2%	2%	2%	2%	2%	2%	2%	2%
Stayed in Middle Need	-	95%	95%	94%	94%	94%	94%	94%	94%	94%
Moved to High Need	-	3%	3%	3%	4%	3%	3%	4%	4%	3%
Left	-	o%	o%	0%	0%	0%	o%	0%	o%	1%
Started in High	Need					1				
Moved to Low Need	-	3%	3%	3%	3%	3%	3%	3%	3%	3%
Moved to Middle Need	-	14%	15%	15%	15%	15%	15%	15%	15%	14%
Stayed in High Need	-	77%	76%	76%	76%	76%	76%	75%	75%	75%
Left	-	6%	6%	6%	6%	6%	7%	7%	7%	8%

Teacher Movement by Campus Need Sector

Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of o87, o25, or o29 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Mobility is determined by comparing the current-year campus to the previous-year campus. Those mobile in 2011–12 taught in a different campus in 2011–12 than they taught in 2010–11. "Left" refers to teachers who were not assigned a teaching role in the subsequent year. See <u>Appendix B</u> for more details on mobility. Need group is based on the percentage of students experiencing economic disadvantage. Low-group campuses have less than or equal to 25%, middle-group campuses have more than 75%.

We also consider the proportion of a campus's students who are at risk of dropping out (regardless of charter status or percentage of students experiencing economic disadvantage). As shown in <u>Table 3.9</u>, teachers tended to remain at campuses with the same general percentages of at-risk students. Teachers left the classroom at higher rates when they taught at schools with low percentages of students at risk of dropping out. Movement to a school with a different level of students at risk of dropping out was most common among teachers who taught at schools with high levels of students at risk of dropping out.

TABLE 3.9

Teacher Movement by At-Risk Student Sector

	2011- 12	2012– 13	2013- 14	2014- 15	2015– 16	2016- 17	2017- 18	2018– 19	2019- 20	2020- 21
Started in Low	At-Risk									
Stayed in Low At-Risk	-	86%	84%	84%	85%	84%	83%	83%	83%	83%
Moved to Middle At-Risk	-	7%	8%	8%	7%	8%	8%	8%	9%	8%
Moved to High At-Risk	-	0%	1%	1%	1%	1%	1%	1%	1%	1%
Left	-	7%	7%	7%	7%	8%	8%	8%	8%	9%
Started in Midd	lle At-Ri	sk								
Moved to Low At-Risk	-	2%	2%	2%	2%	2%	2%	2%	2%	2%
Stayed in Middle At-Risk	-	97%	96%	96%	96%	96%	96%	96%	96%	97%
Moved to High At-Risk	-	2%	2%	2%	2%	2%	2%	2%	2%	1%
Left	-	0%	0%	0%	0%	0%	0%	o%	o%	0%
Started in High	At-Risk									
Moved to Low At-Risk	-	5%	5%	5%	5%	5%	5%	5%	6%	6%
Moved to Middle At-Risk	-	39%	41%	40%	39%	39%	38%	37%	38%	39%
Stayed in High At-Risk	-	51%	50%	50%	51%	51%	52%	52%	50%	55%
Left	-	5%	4%	5%	5%	5%	5%	5%	6%	0%

Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Mobility is determined by comparing the current-year campus to the previous-year campus. Those mobile in 2011–12 taught in a different campus in 2011–12 than they taught in 2010–11. "Left" refers to teachers who were not assigned a teaching role in the subsequent year. See <u>Appendix B</u> for more details on mobility. At-risk level is based on the percentage of a campus's students identified as at risk of dropping out. Low at-risk campuses have less than or equal to 25%, middle at-risk campuses have more than 25% but less than or equal to 75%, and high at-risk campuses have more than 75%.

Rates of Teachers Staying at the Same Campus by Sector

In this section, we consider rates of teachers remaining at the same campus from one year to the next by sector. This is tracked year to year for each campus and does not consider the type of transition away from the campus (e.g., whether the teacher moved to a different campus or left teaching entirely).

As shown in Figure 3.15, the percentage of charter school teachers who remained at the same campus from one year to the next was lower than the percentage of non-charter school teachers who remained at the same campus. Of note, the percentage of charter school teachers staying at the same campus did increase from 56% of teachers in 2018–19 to 68% of teachers in 2020–21.

FIGURE 3.15

Rate of Teachers Staying at Same Campus by Charter School Campus Status



Source. University of Houston Education Research Center.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Staying at the same campus is determined by comparing the current-year campus to the previous year campus. Those who stayed at the same campus in 2011–12 taught in the same campus in 2011–12 as they taught in 2010–11. See <u>Appendix B</u> for more details on mobility. The rate is calculated by dividing the total number of teachers staying at the same campus by the total number of teachers at the campus for each academic year. As shown in Figure 3.16, the rates at which teachers remained at the same campus also differed somewhat by the proportion of a campus's students who experience economic disadvantage—which is also seen historically. However, in 2020–21, the percentage of teachers staying at the same campus was similar across campuses serving different populations of students experiencing economic disadvantage. In 2020–21, 79% of teachers at campuses with middle and high populations of students experiencing economic disadvantage at the same campus, and 80% of teachers at campuses with low populations stayed at the same campus, the same percentage as in 2019–20.

FIGURE 3.16

Rate of Teachers Staying at Same Campus by Campus Economic Disadvantage



Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency. Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Staying at the same campus is determined by comparing the current-year campus to the previous-year campus. Those who stayed at the same campus in 2011–12 taught in the same campus in 2011–12 as they taught in 2010–11. See <u>Appendix B</u> for more details on mobility. The rate is calculated by dividing the total number of teachers staying at the same campus by the total number of teachers at the campus for each academic year. Need group is based on the percentage of students experiencing economic disadvantage. Low-group campuses have less than or equal to 25%, middle-group campuses have more than 25% but less than or equal to 75%, and high-group campuses have more than 75%. The rates of teachers staying at the same campus have historically differed slightly by the percentage of a campus's student population at risk of dropping out (Figure 3.17). However, in 2020–21, the percentage of teachers staying at the same campus was similar across campuses serving different populations of students at risk of dropping out. In 2020–21, 79% of teachers stayed at the same campus, regardless of the population of students at risk of dropping out. This reflects a decrease in the percentage of teachers staying at campuses with low populations of students at risk of dropping out (86% in 2011–12) and an increase in the percentage of teachers staying at campuses with high populations of students at risk of dropping out (74% in 2013–14).

FIGURE 3.17



Rate of Teachers Staying at Same Campus by Campus At-Risk Student Population

Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency. Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Staying at the same campus is determined by comparing the current-year campus to the previous-year campus. Those who stayed at the same campus in 2011–12 taught in the same campus in 2011–12 as they taught in 2010–11. See <u>Appendix B</u> for more details on mobility. The rate is calculated by dividing the total number of teachers staying at the same campus by the total number of teachers at the campus for each academic year. At-risk level is based on the percentage of a campus's students identified as at risk of dropping out. Low at-risk campuses have less than or equal to 25%, middle at-risk campuses have more than 25% but less than or equal to 75%, and high at-risk campuses have more than 75%. Table 3.10 displays the percentage of teachers remaining at the same campus per district group. In 2011–12, higher percentages of teachers remained in the same campus generally because of statewide cuts to the education budget and teacher furloughs that occurred that year. Otherwise, teacher mobility has remained relatively stable, except for an increase in 2020–21.

TABLE 3.10

Rate of Teachers Staying at the Same Campus by District Group

	2011- 12	2012- 13	2013- 14	2014- 15	2015- 16	2016– 17	2017- 18	2018– 19	2019- 20	2020- 21
City										
Large	84%	78%	77%	76%	76%	78%	77%	78%	77%	79%
Medium	85%	78%	79%	78%	79%	80%	80%	78%	78%	80%
Small	84%	79%	78%	78%	79%	79%	79%	80%	79%	82%
Rural	1					1		1		
Distant	85%	79%	77%	76%	77%	78%	77%	75%	75%	79%
Fringe	83%	78%	76%	75%	76%	75%	75%	74%	75%	77%
Remote	84%	78%	76%	76%	77%	77%	77%	78%	75%	82%
Suburban						1		1		1
Large	85%	79%	78%	78%	78%	79%	80%	79%	79%	80%
Midsize	85%	81%	78%	78%	78%	78%	79%	77%	78%	80%
Small	81%	81%	78%	74%	77%	79%	80%	80%	76%	78%
Town	1					1	1	1		
Distant	84%	77%	77%	75%	75%	76%	75%	75%	75%	79%
Fringe	84%	80%	78%	77%	79%	76%	77%	77%	76%	78%
Remote	84%	79%	78%	76%	78%	79%	78%	78%	78%	81%

Sources. University of Houston Education Research Center; National Center for Education Statistics.

Notes. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Staying at the same campus is determined by comparing the current-year campus to the previous-year campus. Those who stayed at the same campus in 2011–12 taught in the same campus in 2011–12 as they taught in 2010–11. See <u>Appendix B</u> for more details on mobility. The rate is calculated by dividing the total number of teachers staying at the same campus by the total number of teachers at the campus for each academic year. District group is a geographic locale determined for each campus's district by the National Center for Education Statistics.

Average Years of Experience

In this section, we analyze the average years of experience for campus teachers by sector. As shown in Figure 3.18, the average years of experience of charter school teachers was less than teachers in non-charter schools. The average years of experience of charter school teachers increased from 4.2 years in 2011–12 to 5.6 years in 2020–21. The average years of experience of teachers in non-charter schools increased from 8.4 years in 2011–12 to 10.4 years in 2020–21. Note that the gap in average years of experience between charter and non-charter schools increased from a difference of 4.2 years in 2011–12 to a difference of 4.8 years in 2020–21.

FIGURE 3.18

Average Teacher Experience by Charter School Campus Status



Source. University of Houston Education Research Center.

Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. Charter schools included are open-enrollment; college, junior college, or university; and adult high school charter schools. Average years of experience is calculated by totaling the years of experience for each assignment and dividing by the total FTEs for each group. Teachers with multiple campus assignments were included for each campus assignment. See more details on <u>charter schools</u> and <u>experience</u> in the <u>Key Terms</u> section of this report. Similarly, the average experience is somewhat different between campuses with high economic need and those with low or middle economic need. Low economic need campuses have less than or equal to 25% of students experiencing economic disadvantage, middle economic need campuses have more than 25% but less than or equal to 75% of students experiencing economic disadvantage, and high economic need campuses have more than 75% of students experiencing economic disadvantage. As shown in Figure 3.19, the average years of experience of teachers in schools with the highest populations of students with economic disadvantage. In 2011–12, the average years of experience of teachers in schools with the lowest populations of students with economic disadvantage. In 2011–12, the average years of experience of teachers in schools with the average years of experience of teachers in schools with the lowest populations of students with economic disadvantage to 9.7 years by 2020–21. The average years of experience of teachers in schools with the lowest populations of students in schools with the lowest populations of students in schools with the lowest populations of teachers in schools with the lowest populations of students in schools with the lowest populations of students in schools with the lowest populations of students in schools with the lowest populations of teachers in schools increased to 9.7 years by 2020–21. The average years of experience of teachers in schools with the lowest populations of students with economic disadvantage increased from 8.5 years in 2011–12 to 10.6 years in 2020–21.

FIGURE 3.19



Average Teacher Experience by Campus Economic Disadvantage

Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency *Notes.* Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. Average years of experience is calculated by totaling the years of experience for each assignment and dividing by the total FTEs for each economic disadvantage group. Teachers with multiple campus assignments were included for each campus assignment. Need group is based on the percentage of students experiencing economic disadvantage. Low-group campuses have less than or equal to 25%, middle-group campuses have more than 25% but less than or equal to 75%, and high-group campuses have more than 75%. See more details on <u>experience</u> in the <u>Key Terms</u> section of this report.
Average teaching experience also differs by how much of the student population is identified as being at risk of dropping out. Low at-risk campuses have less than or equal to 25% of students at risk of dropping out, middle at-risk campuses have more than 25% but less than or equal to 75% of students at risk of dropping out, and high at-risk campuses have more than 75% of students at risk of dropping out. As shown in Figure 3.20, the average years of experience of teachers in schools with the highest populations of students at risk of dropping out. In 2011–12, the average years of experience of teachers in schools with the highest populations of students at risk of dropping out. In 2011–12, the average years of experience of teachers in schools with the highest populations of students at risk of dropping out was 7.8 years, and the average years of experience of teachers in schools with the lowest populations of students at risk of dropping out was 7.8 years, and the average years of experience of teachers in schools with the lowest populations of students at risk of dropping out are lower to 9.9 years by 2020–21. The average years of experience of teachers in schools with the lowest populations of students at risk of dropping out increased from 8.5 years in 2011–12 to 10.5 years in 2020–21.

FIGURE 3.20



Average Teacher Experience by Percentage of Campus Students at Risk of Dropping Out

Sources. University of Houston Education Research Center; Texas Academic Performance Reports, Texas Education Agency. *Notes.* Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999–2000 and 2020–21. Average years of experience is calculated by totaling the years of experience for each assignment and dividing by the total FTEs for each group. Teachers with multiple campus assignments were included for each campus assignment. At-risk level is based on the percentage of a campus's students identified as at risk of dropping out. Low at-risk campuses have less than or equal to 25%, middle at-risk campuses have more than 25% but less than or equal to 75%, and high at-risk campuses have more than 75%. See more details on <u>experience</u> in the <u>Key Terms</u> section of this report. Figure 3.21 shows the average teacher experience by urbanicity. As shown, the average years of experience for teachers has increased from 2011-12 through 2020-21. Average years of experience for teachers in cities and suburban areas are lower than in rural or town areas. The average years of experience for teachers in rural settings increased from 8.5 years in 2011-12 to 10.6 years in 2020-21, and the average years of experience for teachers in town areas increased from 8.7 years in 2011–12 to 10.7 years in 2020–21.

Average Teacher Experience by Campus Urbanicity -Rural — Town 12 11 10 9 Average Years of Experience 8 10.7 10.6 10.3 10.1 vears years 9.9 6 years 9.6 years 10.6 9.4 10.4 years 9.2 10.2 years 9.0 10.0 years years 8.7 years 9.8 5 years vears years 9.6 years 10.1 years 9.3 10.0 **vears** 9.1 9.8 8.8 years years 9.4 years 8.5 years 9.2 years **vears** years 9.0 years 8.8 9.8 years years 9.7 8.6 8.4 9.5 3 years 9.2 years years years 8.1 8.9 years years **years** 8.7 years years 8.6 years 2 8.5 8.4 years years 8.1 years years 1 years 0 2015-16 2016-17 2017-18 2018–19 2011-12 2012-13 2013-14 2014-15 2019-20 2020-21 Academic Year

Sources. University of Houston Education Research Center; National Center for Education Statistics. Notes. Teachers include all full-time equivalents (FTEs) for teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System [PEIMS] Code Table Co21) and include assignments across all grade levels submitted during the fall of each academic year. Teacher experience is calculated by counting each academic year an individual was assigned a teaching role between 1999-2000 and 2020-21. Average years of experience is calculated by totaling the years of experience for each assignment and dividing by the total FTEs for each group. Teachers with multiple campus assignments were included for each campus assignment. Urbanicity is a geographic locale determined for each campus's district by the National Center for Education

Statistics. See more details on experience in the Key Terms section of this report.

FIGURE 3.21

Teacher Retention

In this section, we report on the retention rates of a cohort of new certified teachers who were employed in a school district as the teacher of record in 2011–12. We then follow them from their first employment in 2011–12 through 2020–21.

Statewide Trends in Retention

Examining statewide data on teacher retention from 2011–12 to 2020–21 for one first-year teacher cohort, we found that teachers were retained into the second year of teaching at a rate of 87%. Figure 3.22 shows that of the 16,517 first-year teachers in 2011–12, the retention rate falls to 41% of the beginning cohort by 2020–21. In addition to the graphic, <u>Table 3.11</u> displays the details of the 2011–12 first-year teacher retention through 2020–21.

FIGURE 3.22



10-Year Teacher Retention (2011-12 Cohort of First-Year Teachers)

Source. University of Houston Education Research Center. Notes. The 2011–12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011–12. Teachers were considered retained if they were assigned a teacher role code in subsequent years.

TABLE 3.11

10-Year Teacher Retention (2011-12 Cohort of First-Year Teachers)

	2011- 12	2012– 13	2013- 14	2014– 15	2015- 16	2016- 17	2017- 18	2018– 19	2019- 20	2020- 21
Teachers	16,517	14,310	12,781	11,566	10,522	9,497	8,668	7,920	7,287	6,772
Retention	100%	87%	77%	70%	64%	57%	52%	48%	44%	41%

Source. University of Houston Education Research Center.

Notes. The 2011-12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011-12. Teachers were considered retained if they were assigned a teacher role code in subsequent years.

Statewide Retention by EPP Type

Of the 16,517 first-year teachers in the 2011–12 cohort, 15,319 were issued their first Texas teacher certification at a university EPP (public or private), a nonprofit ACP, or a for-profit ACP, or were issued an out-of-state teaching permit.⁶ These teachers were included in the retention analysis. After categorizing the first-year teachers based upon the EPP pathway associated with their first teacher certificate, our examination of teacher retention based on educator pathway type revealed that teachers prepared through a university-based EPP pathway have the highest teacher retention among EPPs. As demonstrated in Figure 3.23 and Table 3.12, out-of-state certified teachers have the lowest rates of teacher retention across the past decade.

FIGURE 3.23

10-Year Teacher Retention by Educator Preparation Program Pathway (2011–12 Cohort of First-Year Teachers)



Source. University of Houston Education Research Center.

Notes. The 2011–12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011–12. Teachers were considered retained if they were assigned a teacher role code in subsequent years. Teachers were categorized by the educator preparation program (EPP) associated with their first teacher certificate. See <u>Appendix C</u> for a listing of each EPP and their pathway type.

⁶ For more detail on teacher certifications and educator preparation program pathways, see Section II of this report.

TABLE 3.12

10-Year Teacher Retention by Educator Preparation Program Pathway (2011–12 Cohort of First-Year Teachers)

	2011- 12	2012– 13	2013- 14	2014- 15	2015- 16	2016- 17	2017- 18	2018- 19	2019- 20	2020- 21
	100%	93%	87%	81%	75%	68%	63%	58%	53%	50%
University	7,406	6,898	6,447	6,005	5,568	5,066	4,649	4,274	3,949	3,676
Non-profit	100%	86%	72%	63%	56%	50%	45%	41%	37%	35%
Non-pront	2,016	1,731	1,443	1,267	1,128	1,007	913	824	752	705
For profit	100%	89%	78%	69%	62%	56%	51%	47%	43%	39%
For-profit	4,203	3,726	3,279	2,915	2,625	2,362	2,152	1,969	1,793	1,660
Out of State	100%	84%	72%	62%	54%	47%	42%	37%	34%	31%
out-or-state	1,694	1,419	1,227	1,050	921	804	707	634	574	525

Source. University of Houston Education Research Center.

Notes. The 2011-12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011-12. Teachers were considered retained if they were assigned a teacher role code in subsequent years. Teachers were categorized by the educator preparation program (EPP) associated with their first teacher certificate. See <u>Appendix C</u> for a listing of each EPP and their pathway type.

Retention by University Program Type

As shown in Figure 3.24 and Table 3.13, analysis of the 2011–12 cohort of first-year teachers further disaggregated by university-based EPP type reveals that public universities with traditional (standard) programs yield consistently higher rates of retention for first-year teachers. Among both private and public universities, the alternative programs have the lowest rates of teacher retention in the cohort.

FIGURE 3.24

10-Year Teacher Retention by Education Preparation Program Type, Public Universities and Private Universities (2011–12 Cohort of First-Year Teachers)



Source. University of Houston Education Research Center.

Notes. The 2011–12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011–12. Teachers were considered retained if they were assigned a teacher role code in subsequent years. Teachers were categorized by the educator preparation program (EPP) associated with their first teacher certificate. See <u>Appendix C</u> for a listing of each EPP and their pathway type.

TABLE 3.13

10-Year Teacher Retention by Education Preparation Program Type, Public Universities and Private Universities (2011–12 Cohort of First-Year Teachers)

	2011- 12	2012- 13	2013- 14	2014- 15	2015- 16	2016- 17	2017- 18	2018– 19	2019- 20	2020- 21
Public	5,305	4,980	4,692	4,404	4,088	3,751	3,451	3,188	2,947	2,753
University Traditional	100%	94%	88%	83%	77%	71%	65%	60%	56%	52%
Public	298	266	232	218	202	174	163	145	132	126
University Alternative	100%	89%	78%	73%	68%	58%	55%	49%	44%	42%
Public	683	610	556	509	470	419	382	349	323	301
University Post- Baccalaureate	100%	89%	81%	75%	69%	61%	56%	51%	47%	44%
Private	852	799	742	675	623	555	507	455	420	383
University Traditional	100%	94%	87%	79%	73%	65%	60%	53%	49%	45%
Private	21	19	16	15	14	13	10	9	9	9
University Alternative	100%	90%	76%	71%	67%	62%	48%	43%	43%	43%
Private	182	167	153	133	122	110	100	95	86	76
University Post- Baccalaureate	100%	92%	84%	73%	67%	60%	55%	52%	47%	42%

Source. University of Houston Education Research Center.

Notes. The 2011-12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011-12. Teachers were considered retained if they were assigned a teacher role code in subsequent years. Teachers were categorized by the educator preparation program (EPP) associated with their first teacher certificate. See <u>Appendix C</u> for a listing of each EPP and their pathway type.

Figure 3.25 and Table 3.14 present statewide retention rates from 2011–12 to 2020–21 for the first-year teacher cohort disaggregated by race and ethnicity. Teachers identifying as Hispanic have consistently higher rates of retention across the past decade, and those identifying as a race or ethnicity other than Black, Hispanic, or White have the lowest retention rates across the past decade.

FIGURE 3.25

10-Year Teacher Retention by Race/Ethnicity (2011–12 Cohort of First-Year Teachers)



Source. University of Houston Education Research Center.

Notes. The 2011–12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011–12. Teachers were considered retained if they were assigned a teacher role code in subsequent years.

TABLE 3.14

	2011- 12	2012- 13	2013- 14	2014- 15	2015- 16	2016– 17	2017- 18	2018– 19	2019- 20	2020- 21
Another Race	1,339	853	659	523	432	367	332	288	265	236
or Ethnicity	100%	64%	49%	39%	32%	27%	25%	22%	20%	18%
Diack	1,421	1,201	1,063	957	873	783	699	638	561	516
ВІАСК	100% 85%	85%	75%	67%	61%	55%	49%	45%	39%	36%
llionania	4,201	3,811	3,532	3,294	3,045	2,814	2,610	2,432	2,273	2,126
Hispanic	100%	91%	84%	78%	72%	67%	62%	58%	54%	51%
))/b:to	9,556	8,445	7,497	6,725	6,090	5,434	4,919	4,459	4,073	3,772
white	100%	88%	78%	70%	64%	57%	51%	47%	43%	39%

10-Year Teacher Retention by Race/Ethnicity (2011–12 Cohort of First-Year Teachers)

Source. University of Houston Education Research Center.

Notes. The 2011-12 cohort includes 16,517 teachers. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011-12. Teachers were considered retained if they were assigned a teacher role code in subsequent years.

Consecutive Teachers Within the 2011–12 First-Year Teacher Cohort

Research suggests that even though they may leave the role, teachers often stay in the field of education in a different capacity (Templeton et al., 2020). Within the 2011–12 cohort of first-year teachers, we examined the teachers who remained consecutively employed as a teacher for their tenure across the past decade and those who were a teacher at any point during the past decade. For example, as displayed in Figure 3.26, a first-year teacher who remains a teacher for each year from 2011–12 through 2017–18 would be considered a consecutively employed teacher. A non-consecutive teacher might be one who is employed as a teacher from 2011–12 through 2011–12, through 2013–14, serves in the role of teacher facilitator during 2014–15, and returns to the role of teacher in 2015–16. Alternatively, a non-consecutive teacher could teach in 2011–12, leave the public school system altogether, and return as a teacher in 2016–17. When we examine the differences in retention in the two groups, during the third through sixth years of the past decade, teachers who moved in and out of teaching had higher retention rates. However, near the end of the past decade, those teachers who were consecutively employed as teachers were more likely to remain in the role of teacher near the end of the past decade.

FIGURE 3.26

10-Year Teacher Retention Differences in Consecutive and Non-Consecutive Teachers (2011–12 Cohort of First-Year Teachers)



Source. University of Houston Education Research Center.

Notes. The 2011-12 cohort includes 16,517 teachers. Of those, 13,845 were consecutively employed only in the teacher role for their tenure across the past decade. Teachers include all individuals with teaching assignments indicated by a role ID code of 087, 025, or 029 (Public Education Information Management System Code Table Co21) and include assignments across all grade levels submitted during the fall of 2011-12. Teachers were considered retained if they were assigned a teacher role code in subsequent years.

Discussion and Recommendations

The mission of the Texas public education system is to prepare every child for success in college, a career, or the military (TEA, 2022). The TEA's primary strategy to achieve this is to recruit, support, and retain public school educators to ensure there are effective instructional leaders capable of delivering strong classroom instruction (TEA, 2022). In short, the state has determined that a strong teacher workforce is essential to ensure all students can thrive. At the same time, Texas—along with other states—is facing unprecedented teacher shortages (Darling-Hammond et al., 2016; Illinois State Board of Education, n.d.; Kennedy, 2020). When many teaching positions across the state are left vacant or filled with less qualified or uncertified teachers, the teacher shortages prove even more detrimental to students' academic achievement in a post-pandemic era (Nguyen et al., 2022). While some have attributed the teacher shortage to the overall decline in enrollment for teacher preparation programs (Aragon, 2016), this report provides an updated comprehensive view of the teacher workforce across the state. By doing so, this study endeavors to support policy and advocacy development that is aimed at strengthening the state's public education system by growing and retaining the pool of qualified educators needed to serve local communities.

Teacher and Student Demographic Misalignment

The findings from this report support the findings of the previous report and illuminate some changing trends in the past few years across the Texas teacher workforce. Regarding teacher diversity, in the most recent years, teachers who identify as Black or Hispanic are a large component of the increased teacher population. That demographic shift notwithstanding, the majority of the Texas teacher population identifies as White.

Increases in the number of teachers who identify as Black or Hispanic is positive for the state, as research has posited many benefits to demographics of the teacher population matching those of the student population. As noted in the previous report, when students have teachers who match their race and ethnic identity, they are more likely to succeed academically (Bristol & Martin-Fernandez, 2019; Ingersoll et al., 2019; Kettler & Hurst, 2017; Little & Bartlett, 2010; López, 2016; U.S. Department of Education, 2016).

Teacher Preparation and Certification

Like the previous report, our analysis of statewide trends in teacher certification shows that the number of initial five-year standard teacher certificates is declining. In fact, the number of initial five-year standard teacher certificates awarded in 2019–20 and 2020–21 were lower than those awarded in 2011–12. As presented in the findings of the previous report, the decline in certification is due mainly to decreasing certifications in public and private university EPPs and nonprofit EPPs. Certifications produced by for-profit ACPs have continued to increase, and as of 2020–21, they accounted for 58% of all initial five-year standard teacher certificates produced statewide. This trend is concerning, as research suggests teachers who choose ACPs go into the classroom with less experience (Darling-Hammond & Podolsky, 2019) and have higher attrition rates (Carver-Thomas & Darling-Hammond, 2017).

Teacher Pay

At the center of many policy conversations regarding the teacher workforce is the relatively low compensation of teachers compared with other countries (OECD, 2020), the difference in wage premiums between states (Allegretto & Mishel, 2020), and the established linkages between higher pay and better outcomes (Akiba et al., 2012; Garcia et al., 2009; Grissom & Strunk, 2012). Our analysis found that when viewed as constant 2021 dollars, the average base pay of teachers in 2020–21 was comparable to that of teachers in 2015–16. Teacher pay has not significantly increased over the past decade, and the wage premium for each additional year of experience in teaching has actually decreased. Understanding wage premiums for an additional year of experience is important because teacher experience has a significant, positive relationship to student achievement (Clotfelter et al., 2007; Ladd & Sorensen, 2017) and keeping the most effective teachers in the classroom is one way to influence student success.

Teacher Mobility and Retention

In agreement with the prior report, our analysis found that teacher mobility has remained very stable over the past decade—though it should be noted that our analysis extends into 2020–21, the first full school year affected by the pandemic, where 79% of all teachers remained at the same campus, an increase over 2019–20. Of those who moved, 8% left the role of teacher, 6% moved to a different campus within the same district, 4% moved to a different district in the same region, and 4% moved to a district in another region.

Confirming the assertions of the previous report and previous literature, our analysis also found that a high proportion of teachers leave after year 1 (Borman & Dowling, 2008; Guarino et al., 2006). In our analysis of the 2011–12 cohort of first-year teachers, 87% were retained into year 2, 77% into year 3, and by year 10, 41% remained in the classroom as teachers. Teachers prepared by university EPPs have higher rates of retention relative to their peers prepared through other programs (Redding & Smith, 2016; Zhang & Zeller, 2016). First-year teachers prepared by university EPPs were retained at a rate of 93% into their second year, compared with 89% of those prepared by for-profit ACPs.

As in the previous report, our analysis of teacher retention among campuses serving higher levels of students at risk of dropping out of school or economically disadvantaged students found relatively similar rates across campus types, which contradicts prior research (Darling-Hammond & Podolsky, 2019; Ingersoll et al., 2019).

COVID-19: Considerations for the Teacher Workforce

The COVID-19 pandemic has intensified economic inequality and disrupted the state educational system, leaving many Texans—especially those who are racially and economically marginalized —to experience disproportional impacts and interruptions to their life and well-being. Our analysis provides data on the 2020–21 school year, the first full school year of the pandemic. Further analysis of the longer-term impacts of the pandemic is needed.

State Policy Recommendations

Findings from this descriptive study highlight several policy recommendations that state lawmakers might consider in continuing work to strengthen the breadth of the teacher workforce in Texas:

Increase capacity to understand the role of teacher compensation in recruitment and retention. Findings from this research document that teacher salaries struggle to keep pace with inflation, and wage premiums for an additional year of experience have decreased. Understanding the ways in which compensation influences teacher entry and retention into the workforce is key to developing compensation plans in alignment with the state's education goals.

Expand investment in strategies that cultivate a diverse teacher workforce. This study documents a persistent gap in the number of in-service teachers of color working with a growing and racially diverse student population. Empirically documented efforts such as grow-your-own programs, targeted schol-arships, and culturally and socially responsive curricula offer strong examples to consider as such efforts move to scale.

Increase capacity to understand the role of the workplace environment on teacher retention. Findings from this study consistently suggest that teachers are moving away from schools that are in most need of high-quality teachers. The challenge is that state data are not currently available to understand what conditions exist that are underlying those moves. The state should invest in data collection and analysis that explores thoroughly the perceptions of current teaching, learning, and workplace conditions in Texas.

Expand investment in research-based EPPs that well-prepare teachers to enter and stay in the pro-fession. This study documents distinct differences by university-based programs and ACPs in production, in-service placement, and retention patterns. The state is compelled to spend its limited resources wisely. Supporting programs that include research-based elements like pre-service clinical practice experiences offers a sound investment with a likely positive return.

Build on the existing strengths of the state's Hispanic teacher workforce. As identified in the study, this sector of the teacher workforce is heavily influencing success metrics (both in terms of growth in representation and retention of teachers of color). Texas would be well-served to increasingly understand and support the conditions contributing to the development, support, and retention of Hispanic teachers.

Expand investment in closing the gap in high-need teaching areas. This study finds that bilingual/ESL and special education have been teacher shortage areas in Texas for almost 30 years. Maximizing targeted resources invested in research-based recruitment and retention of well-prepared teachers in this area is foundational to the economic and civic success of the state now and in the foreseeable future.

Appendix A: Relevant Literature

The well-established body of teacher-focused literature highlights the transformations needed to grow a teacher workforce that equitably meets the educational needs of communities, particularly marginalized groups such as low-income students and students of color (e.g., Bristol & Martin-Fernandez, 2019; Dar-ling-Hammond & Post, 2000. Ingersoll et al., 2019; Little & Bartlett, 2010; U.S. Department of Education, 2016). Such needs are complex, and addressing the various challenges associated with advancing educational outcomes will require attention to many areas to build a stronger, more effective teacher workforce. The following review of literature sheds light on existing scholarship and research that is both germane and relevant to the three major focal areas of this report: teacher preparation and certification, teacher retention and mobility, and teacher workforce conditions.

Teacher Preparation and Certification

Prior research on educator preparation and certification demonstrates the importance of high-quality training programs. As the research on educator preparation evolves, pedagogical development and clinical teaching experience have been shown to enhance teacher success and retention (Ingersoll et al., 2014). Teacher training is also associated with the ability of teachers to meet the needs of students with varying racial, gender, and class identities (Banks, 2015).

Educator preparation is also related to a variety of characteristics and outcomes for teachers, students, and schools. Regarding teacher characteristics, teachers who feel less prepared are more likely to migrate away from schools with higher economic needs and fewer resources than teachers who feel more prepared (Podolsky et al., 2019). This issue has disparate impacts on educators of color, who are more likely to teach in such settings and also more likely to enter the teaching workforce without having completed their certification program training (Darling-Hammond & Podolsky, 2019). Considering student characteristics, a large body of research shows that students from lower-income backgrounds and students of color, namely Black and Hispanic students, have an increased likelihood of being taught by less-prepared, less-experienced teachers (Boyd et al., 2009).

Scholars have also examined the influence of certification program type on student- and school-based outcomes. Though the research findings in this area are fairly mixed, traditional programs continue to demonstrate slightly greater potential to produce high-quality teachers (Whitford et al., 2018). Teachers perceive in-service training opportunities (Lowery et al., 2012) and pedagogical preparation (Kee, 2011) as some of the benefits afforded by traditional programs that contribute to increased feelings of preparedness upon entering the classroom. Further, research focusing on teacher certification shows that teachers certified through alternative means demonstrate lower rates of long-term retention (Center for Research, Evaluation & Advancement of Teacher Education, 2020; Freedman & Appleman, 2009; Ronfeldt & Reininger, 2012; Zhang & Zeller, 2016). Such teachers are also more likely to serve in low-income schools that are more likely to display higher rates of teacher turnover (Darling-Hammond, 2006; 2010).

Teacher Workforce Conditions

Much of the contemporary literature related to conditions that shape the experiences of professional teachers points to a few central factors such as school conditions (e.g., leadership, culture, and climate) (Harris & Sass, 2011; Johnson et al., 2012; Kraft et al., 2016) and pay or salary structures (Sutcher et al., 2016).

According to the Organization for Economic Cooperation and Development (OECD), the salaries of teachers in the United States are, on average, 30% below those of college graduates in other professions (OECD, 2020). Teacher wages and salaries have also declined as compared with other college-educated workers (Allegretto & Mishel, 2016). In addition to influencing teacher turnover, the lack of competitive pay also contributes to the inequities that plague the schools with the most need, as compensation rates are

often lower in urban and rural areas (Adamson & Darling-Hammond, 2012).

Teacher pay has been shown to influence educators' decisions related to staying, moving, and leaving, as teacher salary is negatively associated with teacher turnover (Garcia et al., 2009). Conversely, teacher salary is positively associated with student achievement (Akiba et al., 2012), making it an imperative area for consideration. Pay structure is also linked to student performance, and higher levels of pay for beginning teachers have been shown to improve achievement across grades (Grissom & Strunk, 2012).

Generally, across disciplines, rising tuition costs and increased student loan consumption have led many to question the cost-benefit trade-off of pursuing a degree (Avery & Turner, 2012). This is especially true for teacher candidates, who often earn less than other college-educated professionals. Showing the intersecting nature between these issues, salary concerns are exacerbated for teachers with student debt (Fiddiman et al., 2019). The matter of teacher debt also intersects with efforts to increase racial and ethnic diversity in the educator workforce, as Black students and degree holders typically rely on student loan funding more than their other race peers, and Black women particularly are more likely to default (Miller, 2017). In their analysis of debt burden on teachers of color, Fiddiman et al. (2019) found that Black and Hispanic teachers hold more debt than their White peers, with Black teachers in particular expressing challenges with loan repayment.

Additionally, working conditions formed by the school's culture, the school leadership, and relationships among colleagues have implications for teacher turnover (Johnson et al., 2012). While exploring the relationship between school contextual factors and first-year teacher turnover in an urban context, Boyd et al. (2011) found that teachers' perceptions of the school administration significantly influenced their retention decisions. Similarly, Kraft et al. (2016) further found that improvements in school leadership and teacher relationships were independently associated with reductions in teacher turnover. While principal effectiveness has a significant relationship with overall turnover, Nguyen (2021) found that its effects are marginal in high-income schools and significant and more pronounced in low-income schools. Another characteristic related to teacher turnover is teachers' perception of higher levels of cooperation with other teaching staff, which has a negative correlation with teacher turnover (Nguyen, 2021).

For other specific groups of teachers, school leadership also predicted retention and turnover. Suárez and Wright (2019) explored the turnover among Science, Technology, Engineering, and Math (STEM) teachers and found that having a principal who had majored in a STEM subject significantly and positively affected the STEM teacher retention. Sun's (2018) study of teachers in North Carolina found that Black teachers' annual retention rate was about 4 percentage points lower than that of White teachers. This finding is attributed to the challenging school and community contexts in which these teachers worked (Sun, 2018). The research further found that schools with stronger leadership and higher-quality professional development opportunities predicted a higher retention rate of effective Black teachers (Sun, 2018).

Teacher Retention and Mobility

In addition to preparation and certification, teacher retention and mobility remain essential areas of focus regarding strengthening the teacher workforce. Mobility, which considers patterns of teacher movement between schools or out of the system, has fiscal implications for schools and school districts (Feng & Sass, 2015; Watlington et al., 2010). Among the findings from research on teacher retention are consistent themes showing a complex web of factors that impact staying, moving, and leaving patterns among teachers, such as salary, resources, and dissatisfaction with various aspects of the school setting (Sutcher et al., 2016).

Teacher mobility continues to influence outcomes as well, with many studies citing specific patterns of movement among early career teachers. For example, moving between schools has been shown to pose implications for the educational continuity of students and schools (Carver-Thomas & Darling-Hammond, 2017; Ronfeldt et al., 2013). Mobility also contributes to the unequal distribution of well-qualified, experienced teachers across school type and student population characteristic (Darling-Hammond & Podolsky,

2019). Teachers' beliefs about students of color and low-income students have also been found to be related to mobility (Djonko-Moore, 2016).

Retention and mobility are more likely to impact outcomes among lower-income students and students of color. Scholars have highlighted how turnover is often a heightened issue for schools with high economic need and large populations of Black and Latino students (Borman & Dowling, 2008; Ingersoll et al., 2018). Additionally, teacher turnover is associated with subject areas, thus worsening the teacher shortage in specific disciplines (e.g., mathematics, science, special education, and English language development) (Darling-Hammond & Podolsky, 2019).

Several highly cited studies also show the relationship between the organizational context of schools and teacher retention (Ingersoll, 2001). Extant research on this topic highlights how educators tend to migrate away from schools with fewer resources and more students from marginalized backgrounds, as such schools fail to provide adequate working conditions and tend to offer less competitive salaries (Darling-Hammond, 2010; Darling-Hammond & Podolsky, 2019; Ingersoll, 2001; 2004; Papay et al., 2017; Simon & Johnson, 2015). Studies also indicate that schools with lower-achieving students and less parental engagement are also less likely to retain teachers (Borman & Dowling, 2008; Guarino et al., 2006; Hanushek et al., 2004). Other contextual factors shown to influence teacher retention include leadership (e.g., principal effectiveness) and climate and culture (e.g., norms of trust, respect, and collegiality) (Grissom, 2011; Ingersoll, 2001; Simon & Johnson, 2015).

Retention rates among teachers from racially minoritized backgrounds warrant particular consideration. As prior research from Ingersoll et al. (2019) reveals, strategic recruitment programming efforts—carried out at the national level—that aim to increase the number of teachers from underrepresented racial groups have largely been successful. However, the gains made in this area are often diminished by the high rates of teacher turnover in schools with large numbers of racially minoritized and economically disadvantaged students (Darling-Hammond & Podolsky, 2019; Ingersoll et al., 2019). This is especially important given the ways high teacher turnover can negatively impact student achievement (Ronfeldt et al., 2013).

Appendix B: Report Methodology

In this section, we provide an overview of the data and methods used.

Data

This report used descriptive methods to analyze trends in the Texas teacher workforce. By combining and examining multiple sources of data, we provide insights into the teaching landscape over the past decade. In this section, we discuss the data used.

The data for this report are derived from a variety of sources. The majority of data comes from the University of Houston Education Research Center (UH ERC). Administrative data regarding teacher assignments (e.g., responsibility, base pay) are submitted by schools to the Texas Education Agency (TEA) and made available to the UH ERC. This data set is matched teacher certification data provided by the State Board for Educator Certification to the UH ERC and details information about each Texas teacher certificate obtained by a qualified applicant in Texas. Publicly available data from the TEA Texas Academic Performance Reports (TAPR), National Center for Education Statistics (NCES), and the U.S. Census Bureau are included to provide information about campuses and districts for each teacher assignment, such as geographic location and student population served. These data are disaggregated by proportion of fulltime equivalent (FTE) teachers (see <u>Key Terms</u> in the <u>Introduction</u> of this report), allowing for meaningful analysis. Campus and student data come from publicly accessible TAPRs.⁷ These data include information on the campus type, location, and student population. The campus urbanicity data come from the NCES. And teacher shortage areas are determined using data available from the U.S. Department of Education based on reports sent from the TEA.

Lastly, state demographic data came from the publicly available Texas Demographic Center. The center provided information on the race/ethnicity of the state population by age group. We focused on two such groups: adults (over age 18) and student-age (ages 4 to 18). Data from the Texas Demographic Center are based on a calendar year. Therefore, when we combined them with the data set from all other sources that are based in an academic year, we combined the calendar-year data as the first of the school year. For example, 2011 calendar-year data were combined with 2011–12 academic-year data.

Methods

The descriptive statistics provided throughout the report include averages, counts, and percentages of total populations. When averages were provided, the sum of the variable of interest was divided by the count for the total population or specific group. For example, the total base pay for teachers in 2012–13 was summed and divided by the total FTE teachers for 2012–13. When percentages are reported, the total of the variable of interest for a subgroup was divided by the total of the variable of interest for the population. For example, the total number of Hispanic teachers in 2014–15 was divided by the total number of Hispanic teachers in 2014–15.

Within data sets from each source, several variables were created for this specific project. The definitions of each of these variables can be found in the <u>Key Terms</u> section of this report.

Mobility

Key variables created for teacher mobility included variables indicating if a teacher remained at the same or moved to a different campus than the previous year. In some cases, teachers were assigned teaching roles at several campuses. Most often, multiple teacher roles were assigned at the same campus, perhaps due to funding provided by different program sources. Less often, teaching roles were assigned across

⁷ Prior to 2013, these were called Academic Excellence Indicator System (AEIS) reports.

campuses in a district (most often in rural settings). In these cases, one of the campuses was chosen at random for the mobility variable creation, thus providing room for some error in the data set. Also, mobility during the school year (e.g., a teacher leaves one campus to teach at another in December) is not captured in the Public Education Information Management System data files used from the fall of each school year.

Appendix C

TABLE C.1

Educator Preparation Program Certification Production by Type

Educator Preparation Program Organization	Educator Preparation Program Type
21st Century Leadership 1	For-Profit Alternative Certification Program
✓ 240 Certification	For-Profit Alternative Certification Program
A Career in Education-ACP	For-Profit Alternative Certification Program
A Career in Teaching-EPP (Corpus Chri	For-Profit Alternative Certification Program
A Career in Teaching-EPP (Humble)	For-Profit Alternative Certification Program
✓ A Career in Teaching-EPP (McAllen)	For-Profit Alternative Certification Program
✓ A+ Texas Teachers	For-Profit Alternative Certification Program
✓ A+ Texas Teachers (Austin)	For-Profit Alternative Certification Program
✓ A+ Texas Teachers (Bedford/Fort Worth)	For-Profit Alternative Certification Program
✓ A+ Texas Teachers (Dallas)	For-Profit Alternative Certification Program
✓ A+ Texas Teachers (San Antonio)	For-Profit Alternative Certification Program
✓ Abilene Christian University	Private University: Traditional Program
✓ ACT-Central Texas: Temple	For-Profit Alternative Certification Program
✓ ACT-Houston	For-Profit Alternative Certification Program
✓ ACT-Houston at Dallas	For-Profit Alternative Certification Program
✓ ACT-Rio Grande Valley	For-Profit Alternative Certification Program
✓ Alamo Colleges	Nonprofit Alternative Certification Program: Community College
Alamo Comm Coll Dst (St Phillips Coll	For-Profit Alternative Certification Program
Alamo Community College District	Nonprofit Alternative Certification Program: Community College
ALBANY ISD	Nonprofit Alternative Certification Program: Independent School District

Educator Preparation Program Organization	Educator Preparation Program Type
ALIEF ISD	Nonprofit Alternative Certification Program: Independent School District
Alternative Cert for Tchrs NOW!(El Pa	For-Profit Alternative Certification Program
Alternative Cert for Tchrs NOW!(Houst	For-Profit Alternative Certification Program
Alternative-So Tx Ed Pgm-Laredo (A-ST	For-Profit Alternative Certification Program
Alternative-South Texas Educator Prog	For-Profit Alternative Certification Program
✓ Angelo State University	Public University: Alternative Certification Program
✓ Angelo State University	Public University: Post-Baccalaureate Program
✓ Angelo State University	Public University: Traditional Program
✓ Arlington Baptist University	Private University: Traditional Program
ATC-East Houston	For-Profit Alternative Certification Program
✓ Austin College	Nonprofit Alternative Certification Program: Community College
✓ Austin Community College	Nonprofit Alternative Certification Program: Community College
AUSTIN ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Baylor University	Private University: Traditional Program
Blinn College	Nonprofit Alternative Certification Program: Community College
Brookhaven College	Nonprofit Alternative Certification Program: Community College
CLEAR CREEK ISD	Nonprofit Alternative Certification Program: Independent School District
College of the Mainland COMPACT	Nonprofit Alternative Certification Program: Community College
COLLEGE STATION ISD	Nonprofit Alternative Certification Program: Independent School District
Collin County Community College	Nonprofit Alternative Certification Program: Community College
✓ Concordia University	Private University: Traditional Program
✓ Criswell College	Nonprofit Alternative Certification Program: Community College
✓ Dallas Baptist University	Private University: Traditional Program
✓ Dallas ISD	Nonprofit Alternative Certification Program: Independent School District

Educator Preparation Program Organization	Educator Preparation Program Type
Del Mar College	Nonprofit Alternative Certification Program: Community College
EAST CENTRAL ISD	Nonprofit Alternative Certification Program: Independent School District
✓ East Texas Baptist University	Private University: Traditional Program
ECTOR COUNTY ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Education Career Alternatives Program	For-Profit Alternative Certification Program
✓ EIT: Excellence in Teaching	For-Profit Alternative Certification Program
eTeach N Texas	For-Profit Alternative Certification Program
FORT WORTH ISD	Nonprofit Alternative Certification Program: Independent School District
FRENSHIP ISD	Nonprofit Alternative Certification Program: Independent School District
GRANBURY ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Hardin-Simmons University	Private University: Post-Baccalaureate Program
✓ Hardin-Simmons University	Private University: Post-Baccalaureate Program
✓ Harris County Department of Ed	Nonprofit Alternative Certification Program: Independent School District
✓ Houston Baptist University	Private University: Post-Baccalaureate Program
✓ Houston Baptist University	Private University: Post-Baccalaureate Program
✓ Houston Community College System	Nonprofit Alternative Certification Program: Community College
✓ HOUSTON ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Howard Payne University	Private University: Traditional Program
✓ Huston-Tillotson University	Private University: Post-Baccalaureate Program
✓ Huston-Tillotson University	Private University: Post-Baccalaureate Program
Intern Teacher ACP	For-Profit Alternative Certification Program
INTERNATIONAL LEADERSHIP OF TEXAS (ILT)	Nonprofit Alternative Certification Program: Charter School
✓ IteachTEXAS	For-Profit Alternative Certification Program
🗸 Jarvis Christian College	Private University: Post-Baccalaureate Program

Educator Preparation Program Organization	Educator Preparation Program Type
🗸 Jarvis Christian College	Private University: Post-Baccalaureate Program
Lamar State College: Orange	Nonprofit Alternative Certification Program: Community College
Lamar State College: Port Arthur	Nonprofit Alternative Certification Program: Community College
🗸 Lamar University	Public University: Alternative Certification Program
🖌 Lamar University	Public University: Post-Baccalaureate Program
🗸 Lamar University	Public University: Traditional Program
Laredo Community College	Nonprofit Alternative Certification Program: Community College
✓ LeTourneau University	Private University: Traditional Program
✓ Lone Star College: Cy-Fair	Nonprofit Alternative Certification Program: Community College
✓ Lone Star College: Montgomery	Nonprofit Alternative Certification Program: Community College
✓ Lone Star College: North Harris	Nonprofit Alternative Certification Program: Community College
✓ Lone Star College: Tomball	Nonprofit Alternative Certification Program: Community College
✓ Lone Star Colleges	Nonprofit Alternative Certification Program: Community College
✓ Lubbock Christian University	Private University: Traditional Program
✓ McLennan Community College	Nonprofit Alternative Certification Program: Community College
✓ McMurry University	Private University: Post-Baccalaureate Program
✓ McMurry University	Private University: Post-Baccalaureate Program
✓ Midwestern State University	Public University: Post-Baccalaureate Program
✓ Midwestern State University	Public University: Traditional Program
✓ Midwestern State University	Public University: Alternative Certification Program
✓ Mountain View College	Nonprofit Alternative Certification Program: Community College
NAZARETH ISD	Nonprofit Alternative Certification Program: Independent School District
Neuhaus Education Center	For-Profit Alternative Certification Program
✓ Our Lady of the Lake University	Private University: Traditional Program

Educator Preparation Program Organization	Educator Preparation Program Type
PASADENA ISD	Nonprofit Alternative Certification Program: Independent School District
🗸 Paul Quinn College	Private University: Traditional Program
PFLUGERVILLE ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Prairie View A&M University	Public University: Vocational Program
✓ Prairie View A&M University	Public University: Post-Baccalaureate Program
✓ Prairie View A&M University	Public University: Alternative Certification Program
✓ Prairie View A&M University	Public University: Traditional Program
Professional Teacher Certifications,	For-Profit Alternative Certification Program
Quality ACT: Alternative Certified Tc	For-Profit Alternative Certification Program
✓ REG 01 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 02 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
REG 03 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 04 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 05 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG o6 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 07 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
REG 09 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 10 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 11 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 12 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 13 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 14 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
REG 17 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center

Educator Preparation Program Organization	Educator Preparation Program Type
✓ REG 18 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 19 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ REG 20 EDUCATION SERVICE CENTER	Nonprofit Alternative Certification Program: Education Service Center
✓ Relay Graduate School of Education ACP	For-Profit Alternative Certification Program
✓ Rice University	Private University: Post-Baccalaureate Program
✓ Rice University	Private University: Post-Baccalaureate Program
Richland College	Nonprofit Alternative Certification Program: Community College
✓ Sam Houston State University	Public University: Vocational Program
✓ Sam Houston State University	Public University: Alternative Certification Program
✓ Sam Houston State University	Public University: Post-Baccalaureate Program
✓ Sam Houston State University	Public University: Traditional Program
San Antonio College Center for Ed Prep	For-Profit Alternative Certification Program
San Jacinto College North	Nonprofit Alternative Certification Program: Community College
✓ Schreiner University	Private University: Post-Baccalaureate Program
✓ Schreiner University	Private University: Post-Baccalaureate Program
South Texas College	Nonprofit Alternative Certification Program: Community College
✓ South Texas Transition to Teaching ACP	For-Profit Alternative Certification Program
✓ Southern Methodist University	Private University: Traditional Program
✓ Southwestern Adventist University	Private University: Post-Baccalaureate Program
✓ Southwestern Adventist University	Private University: Post-Baccalaureate Program
✓ Southwestern Assemblies of God Univ	Private University: Post-Baccalaureate Program
✓ Southwestern Assemblies of God Univ	Private University: Post-Baccalaureate Program
✓ Southwestern University	Private University: Traditional Program
✓ St Edwards University	Private University: Traditional Program
✓ St Marys University	Private University: Post-Baccalaureate Program

Educator Preparation Program Organization	Educator Preparation Program Type
✓ St Marys University	Private University: Post-Baccalaureate Program
State Board for Educator Certification	Out-of-State
✓ Stephen F Austin State University	Public University: Vocational Program
✓ Stephen F Austin State University	Public University: Alternative Certification Program
✓ Stephen F Austin State University	Public University: Post-Baccalaureate Program
✓ Stephen F Austin State University	Public University: Traditional Program
Steps to Teaching: ACP	For-Profit Alternative Certification Program
✓ Sul Ross State University: Alpine	Public University: Alternative Certification Program
✓ Sul Ross State University: Alpine	Public University: Post-Baccalaureate Program
✓ Sul Ross State University: Alpine	Public University: Traditional Program
✓ Sul Ross State University: Rio Grande	Public University: Alternative Certification Program
✓ Sul Ross State University: Rio Grande	Public University: Post-Baccalaureate Program
✓ Sul Ross State University: Rio Grande	Public University: Traditional Program
✓ Tarleton State University	Public University: Post-Baccalaureate Program
✓ Tarleton State University	Public University: Alternative Certification Program
✓ Tarleton State University	Public University: Traditional Program
✓ TeacherBuilder.com	For-Profit Alternative Certification Program
✓ Teachers for the 21st Century	For-Profit Alternative Certification Program
✓ Teachworthy	For-Profit Alternative Certification Program
✓ Texas A&M International University	Public University: Alternative Certification Program
✓ Texas A&M International University	Public University: Post-Baccalaureate Program
✓ Texas A&M International University	Public University: Traditional Program
✓ Texas A&M University	Public University: Alternative Certification Program
✓ Texas A&M University	Public University: Post-Baccalaureate Program
✓ Texas A&M University	Public University: Traditional Program
✓ Texas A&M University	Public University: Vocational Program

Educator Preparation Program Organization	Educator Preparation Program Type
🗸 Texas A&M University: Central Texas	Public University: Post-Baccalaureate Program
🗸 Texas A&M University: Central Texas	Public University: Traditional Program
🗸 Texas A&M University: Central Texas	Public University: Alternative Certification Program
✓ Texas A&M University: Commerce	Public University: Vocational Program
✓ Texas A&M University: Commerce	Public University: Post-Baccalaureate Program
✓ Texas A&M University: Commerce	Public University: Alternative Certification Program
✓ Texas A&M University: Commerce	Public University: Traditional Program
🗸 Texas A&M University: Corpus Christi	Public University: Alternative Certification Program
🗸 Texas A&M University: Corpus Christi	Public University: Vocational Program
🗸 Texas A&M University: Corpus Christi	Public University: Post-Baccalaureate Program
🗸 Texas A&M University: Corpus Christi	Public University: Traditional Program
✓ Texas A&M University: Kingsville	Public University: Post-Baccalaureate Program
✓ Texas A&M University: Kingsville	Public University: Alternative Certification Program
✓ Texas A&M University: Kingsville	Public University: Traditional Program
🗸 Texas A&M University: San Antonio	Public University: Post-Baccalaureate Program
✓ Texas A&M University: San Antonio	Public University: Alternative Certification Program
🗸 Texas A&M University: San Antonio	Public University: Traditional Program
🗸 Texas A&M University: Texarkana	Public University: Post-Baccalaureate Program
🗸 Texas A&M University: Texarkana	Public University: Alternative Certification Program
🗸 Texas A&M University: Texarkana	Public University: Traditional Program
Texas Alternative Center for Teachers	For-Profit Alternative Certification Program
Texas Alternative Cert Pgm @ Austin	For-Profit Alternative Certification Program
Texas Alternative Cert Pgm @ Brownsvi	For-Profit Alternative Certification Program
Texas Alternative Cert Pgm @ Houston	For-Profit Alternative Certification Program
Texas Alternative Cert Pgm @ San Anto	For-Profit Alternative Certification Program
Texas Alternative Certification Program	For-Profit Alternative Certification Program

Educator Preparation Program Organization	Educator Preparation Program Type
✓ Texas Christian University	Private University: Traditional Program
✓ Texas College	Nonprofit Alternative Certification Program: Community College
Texas Department of Human Resources	Out-of-State
Texas Gulf Foundation	For-Profit Alternative Certification Program
✓ Texas Lutheran University	Private University: Post-Baccalaureate Program
✓ Texas Lutheran University	Private University: Post-Baccalaureate Program
✓ Texas Southern University	Public University: Post-Baccalaureate Program
✓ Texas Southern University	Public University: Traditional Program
✓ Texas State University	Public University: Alternative Certification Program
✓ Texas State University	Public University: Vocational Program
✓ Texas State University	Public University: Post-Baccalaureate Program
✓ Texas State University	Public University: Traditional Program
Texas Teaching Fellows (Austin)	For-Profit Alternative Certification Program
Texas Teaching Fellows (Dallas)	For-Profit Alternative Certification Program
Texas Teaching Fellows (El Paso)	For-Profit Alternative Certification Program
Texas Teaching Fellows (San Antonio)	For-Profit Alternative Certification Program
✓ Texas Tech University	Public University: Alternative Certification Program
✓ Texas Tech University	Public University: Post-Baccalaureate Program
✓ Texas Tech University	Public University: Traditional Program
✓ Texas Tech University	Public University: Vocational Program
🗸 Texas Wesleyan University	Private University: Post-Baccalaureate Program
🗸 Texas Wesleyan University	Private University: Post-Baccalaureate Program
✓ Texas Womans University	Public University: Post-Baccalaureate Program
✓ Texas Womans University	Public University: Traditional Program
✓ Texas Womans University	Public University: Alternative Certification Program
✓ The Texas Institute for Teacher Educa	For-Profit Alternative Certification Program

Educator Preparation Program Organization	Educator Preparation Program Type
✓ TNTP Academy: Fort Worth	For-Profit Alternative Certification Program
Training via E-Learning: An Alt Crt H	For-Profit Alternative Certification Program
✓ Trinity University	Private University: Traditional Program
Tyler Junior College	Nonprofit Alternative Certification Program: Community College
University Of Central Texas	Public University: Traditional Program
✓ University of Dallas	Private University: Post-Baccalaureate Program
✓ University of Dallas	Private University: Post-Baccalaureate Program
✓ University of Houston	Public University: Alternative Certification Program
✓ University of Houston	Public University: Vocational Program
✓ University of Houston	Public University: Post-Baccalaureate Program
✓ University of Houston	Public University: Traditional Program
✓ University of Houston-Clear Lake	Public University: Alternative Certification Program
✓ University of Houston-Clear Lake	Public University: Post-Baccalaureate Program
✓ University of Houston-Clear Lake	Public University: Traditional Program
✓ University of Houston-Downtown	Public University: Traditional Program
✓ University of Houston-Victoria	Public University: Alternative Certification Program
✓ University of Houston-Victoria	Public University: Post-Baccalaureate Program
✓ University of Houston-Victoria	Public University: Traditional Program
✓ University of Mary Hardin-Baylor	Private University: Post-Baccalaureate Program
✓ University of Mary Hardin-Baylor	Private University: Post-Baccalaureate Program
✓ University of North Texas	Public University: Vocational Program
✓ University of North Texas	Public University: Alternative Certification Program
✓ University of North Texas	Public University: Post-Baccalaureate Program
✓ University of North Texas	Public University: Traditional Program
✓ University of North Texas: Dallas	Public University: Alternative Certification Program
✓ University of North Texas: Dallas	Public University: Post-Baccalaureate Program

Educator Preparation Program Organization	Educator Preparation Program Type
✓ University of North Texas: Dallas	Public University: Traditional Program
University of Phoenix	Private University: Traditional Program
✓ University of St Thomas	Private University: Traditional Program
✓ University of Texas: Arlington	Public University: Alternative Certification Program
✓ University of Texas: Arlington	Public University: Post-Baccalaureate Program
✓ University of Texas: Arlington	Public University: Traditional Program
✓ University of Texas: Austin	Public University: Alternative Certification Program
✓ University of Texas: Austin	Public University: Post-Baccalaureate Program
✓ University of Texas: Austin	Public University: Traditional Program
University of Texas: Brownsville	Public University: Post-Baccalaureate Program
University of Texas: Brownsville	Public University: Alternative Certification Program
University of Texas: Brownsville	Public University: Traditional Program
✓ University of Texas: Dallas	Public University: Post-Baccalaureate Program
✓ University of Texas: Dallas	Public University: Traditional Program
✓ University of Texas: Dallas	Public University: Alternative Certification Program
✓ University of Texas: El Paso	Public University: Vocational Program
✓ University of Texas: El Paso	Public University: Post-Baccalaureate Program
✓ University of Texas: El Paso	Public University: Alternative Certification Program
✓ University of Texas: El Paso	Public University: Traditional Program
✓ University of Texas: Permian Basin	Public University: Alternative Certification Program
✓ University of Texas: Permian Basin	Public University: Post-Baccalaureate Program
✓ University of Texas: Permian Basin	Public University: Traditional Program
✓ University of Texas: Rio Grande Valley	Public University: Post-Baccalaureate Program
✓ University of Texas: Rio Grande Valley	Public University: Alternative Certification Program
✓ University of Texas: Rio Grande Valley	Public University: Traditional Program
✓ University of Texas: San Antonio	Public University: Alternative Certification Program

Educator Preparation Program Organization	Educator Preparation Program Type
✓ University of Texas: San Antonio	Public University: Post-Baccalaureate Program
✓ University of Texas: San Antonio	Public University: Traditional Program
✓ University of Texas: Tyler	Public University: Vocational Program
✓ University of Texas: Tyler	Public University: Post-Baccalaureate Program
✓ University of Texas: Tyler	Public University: Traditional Program
✓ University of the Incarnate Word	Private University: Traditional Program
✓ Urban Teachers	For-Profit Alternative Certification Program
VALLEY VIEW ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Wayland Baptist University	Private University: Post-Baccalaureate Program
✓ Wayland Baptist University	Private University: Post-Baccalaureate Program
Weatherford College	Nonprofit Alternative Certification Program: Community College
✓ Web-Centric Alternative Cert Program	For-Profit Alternative Certification Program
✓ West Texas A&M University	Public University: Vocational Program
✓ West Texas A&M University	Public University: Post-Baccalaureate Program
✓ West Texas A&M University	Public University: Alternative Certification Program
✓ West Texas A&M University	Public University: Traditional Program
Western Governors University	Private University: Post-Baccalaureate Program
WHARTON ISD	Nonprofit Alternative Certification Program: Independent School District
✓ Wiley College	Nonprofit Alternative Certification Program: Community College
✓ YES PREP PUBLIC SCHOOLS INC	Nonprofit Alternative Certification Program: Charter School

References

- Adamson, F., & Darling-Hammond, L. (2012). Funding disparities and the inequitable distribution of teachers: Evaluating sources and solutions. *Education Policy Analysis Archives*, 20(37).
- Akiba, M., Chiu, Y. L., Shimizu, K., & Liang, G. (2012). Teacher salary and national achievement: A cross-national analysis of 30 countries. *International Journal of Educational Research*, 53, 171–181.
- Allegretto, S. A., & Mishel, L. (2016). The teacher pay gap is wider than ever: Teachers' pay continues to fall further behind pay of comparable workers. Economic Policy Institute.
- Allegretto, S., & Mishel, L. (2020). Teacher pay penalty dips but persists in 2019: Public school teachers earn about 20% less in weekly wages than nonteacher college graduates. Economic Policy Institute.
- Aragon, S. (2016). *Teacher shortages: What we know*. Education Commission of the States. <u>https://files.eric.ed.gov/fulltext/ED565893.pdf</u>
- Arroyo-Romano, J. E. (2016). Bilingual education candidates' challenges meeting the Spanish language/bilingual certification exam and the impact on teacher shortages in the state of Texas, USA. *Journal of Latinos and Education*, 15(4), 275–286.
- Avery, C., & Turner, S. (2012). Student loans: Do college students borrow too much—or not enough? *Journal of Economic Perspectives, 26*(1), 165–92.
- Banks, T. (2015). Teacher education reform in urban Educator Preparation Programs. *Journal of Education and Learning*, *4*(1), 60–71.
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, *78*(3), 367–409.
- Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation and student achievement. *Educational Evaluation and Policy Analysis*, 31(4), 416–440.
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303–333.
- Bristol, T. J., & Martin-Fernandez, J. (2019). The added value of Latinx and Black teachers for Latinx and Black students: Implications for policy. *Policy Insights from the Behavioral and Brain Sciences*, 6(2), 147–153.
- Carver-Thomas, D., & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it.* Palo Alto, CA: Learning Policy Institute.
- Center for Research, Evaluation, & Advancement of Teacher Education (CREATE). (2020). *Performance analysis for colleges of education*. Houston, TX: Author.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). Teacher credentials and student achievement: Longitudinal analysis with student fixed effects. *Economics of Education Review*, *26*(6), 673–682.
- Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education*, *57*(3), 300–314.
- Darling-Hammond, L. (2010). Teacher education and the American future. Journal of Teacher Education, 61(1-2), 35-47.
- Darling-Hammond, L., Furger, R., Shields, P. M., & Sutcher, L. (2016). Addressing California's emerging teacher shortage: An analysis of sources and solutions. Learning Policy Institute. <u>https://learningpolicyinstitute.org/sites/default/files/ product-files/LPI-Report-AddressingCA_TeacherShortage.pdf</u>
- Darling-Hammond, L., & Podolsky, A. (2019). Breaking the cycle of teacher shortages: What kind of policies can make a difference? *Education Policy Analysis Archives*, *27*(34).
- Darling-Hammond, L., & Post, L. (2000). Inequality in teaching and schooling: Supporting high-quality teaching and leadership in low-income schools. A notion at risk: Preserving public education as an engine for social mobility, 127–167.
- Djonko-Moore, C. M. (2016). An exploration of teacher attrition and mobility in high poverty racially segregated schools. *Race, Ethnicity and Education, 19*(5), 1063–1087.
- Every Student Succeeds Act of 2015, Pub. L. No. 114-95 § 114 Stat. 1177 (2015-2016).
- Feng, L., & Sass, T. (2015). The impact of incentives to recruit and retain teachers in "hard-to-staff" subjects. Working Paper 141. National Center for Analysis of Longitudinal Data in Education Research. <u>http://www.caldercenter.org/</u> <u>sites/default/files/WP%20141.pdf</u>

- Fiddiman, B., Campbell, C., & Partelow, L. (2019). *Student debt: An overlooked barrier to increasing teacher diversity.* Washington, DC: Center for American Progress. <u>https://www.americanprogress.org/issues/education-postsecondary/reports/2019/07/09/471850/student-debt-overlooked-barrier-increasing-teacher-diversity/</u>
- Freedman, S. W., & Appleman, D. (2009). 'In it for the long haul': How teacher education can contribute to teacher retention in high-poverty, urban schools. *Journal of Teacher Education, 60*(3), 323–337.
- Garcia, C. M., Slate, J. R., & Delgado, C. T. (2009). Salary and ranking and teacher turnover: A statewide study. *International Journal of Education Policy and Leadership*, 4(7), 1–8.
- Grissom, J. A. (2011). Can good principals keep teachers in disadvantaged schools? Linking principal effectiveness to teacher satisfaction and turnover in hard-to-staff environments. *Teachers College Record*, *113*(11), 2552–2585.
- Grissom, J. A., & Strunk, K. O. (2012). How should school districts shape teacher salary schedules? Linking school performance to pay structure in traditional compensation schemes. *Educational Policy*, *26*(5), 663–695.
- Guarino, C., Santibañez, L., & Daley, G. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, 76(2), 173–208.
- Hanushek, E. A. (2010). *Economic aspects of the demand for teacher quality*. <u>https://senate.texas.gov/cmtes/81/</u> c530/0720-EricHanushek-1.pdf
- Hanushek, E. A. (2011). The economic value of higher teacher quality. Economics of Education Review, 30(3), 466-479.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). The revolving door: A path-breaking study of teachers in Texas reveals that working conditions matter more than salary. *Education Next, 4*(1), 77–82.
- Harris, D. N., & Sass, T. R. (2011). Teacher training, teacher quality and student achievement. *Journal of Public Economics*, 95(7-8), 798-812.
- Horn, C. L., Burnett, C., Lowrey, S., & White, C. (2020). Texas teacher workforce report. Center for Research, Evaluation & Advancement of Teacher Education and Education Research Center. <u>https://www.uh.edu/education/research/ institutes-centers/erc/reports-publications/ryht-report-20211.pdf</u>
- Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. American Educational Research Journal, 38(3), 499–534.
- Ingersoll, R. M. (2004). Why do high-poverty schools have difficulty staffing their classrooms with qualified teachers? Renewing our schools, securing our future: A national task force on public education. Joint initiative of the Center for American Progress and the Institute for America's Future. <u>https://repository.upenn.edu/gse_pubs/493</u>
- Ingersoll, R., & May, H. (2011). *Recruitment, retention and the minority teacher shortage*. <u>https://repository.upenn.edu/gse_pubs/226</u>
- Ingersoll, R. M., May, H., & Collins, G. (2019). Recruitment, employment, retention and the minority teacher shortage. *Education Policy Analysis Archives*, 27(37).
- Ingersoll, R. M., Merrill, L., & May, H. (2014). What are the effects of teacher education and preparation on beginning teacher attrition? CPRE Research Report RR-82. Consortium for Policy Research in Education.

Ingersoll, R., Merrill, L., & Stuckey, D. (2018). The changing face of teaching. Educational Leadership, 75(8), 44-49.

- Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teachers College Record*, 114(10), 1–39.
- Kee, A. N. (2012). Feelings of preparedness among alternatively certified teachers: What is the role of program features? *Journal of Teacher Education*, 63(1), 23–38.
- Kennedy, B. (2020). The bilingual teacher shortage in one Texas school district: Practitioner perspectives. *Journal of Latinos and Education*, 19(4), 338–354.
- Kettler, T., & Hurst, L. T. (2017). Advanced academic participation: A longitudinal analysis of ethnicity gaps in suburban schools. *Journal for the Education of the Gifted, 40*(1), 3–19.
- Kraft, M. A., Marinell, W. H., & Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal*, 53(5), 1411–1449.
- Ladd, H. F., & Sorensen, L. C. (2017). Returns to teacher experience: Student achievement and motivation in middle school. *Education Finance and Policy*, 12(2), 241–279.
- Little, J. W., & Bartlett, L. (2010). The teacher workforce and problems of educational equity. *Review of Research in Education*, 34(1), 285-328.

- López, F. A. (2016). Culturally responsive pedagogies in Arizona and Latino students' achievement. *Teachers College Record*, 118(5), 1–42.
- Lowery, D. C., Roberts, J., & Roberts, J. (2012). Alternate route and traditionally-trained teachers' perceptions of teaching preparation programs. *Journal of Case Studies in Education*, 3.
- Miller, K. (2017). Deeper in debt: Women & student loans. American Association of University Women.
- Nguyen, T. D. (2021). Linking school organizational characteristics and teacher retention: Evidence from repeated cross-sectional national data. *Teaching and Teacher Education*, 97, 103220.
- Nguyen, T. D., Lam, C. B., & Bruno, P. (2022). Is there a national teacher shortage? A systematic examination of reports of teacher shortages in the United States. EdWorkingPaper, 22-631. <u>https://doi.org/10.26300/76eq-hj32</u>
- Organization for Economic Cooperation and Development. (2020). *Education at a Glance 2020: OECD Indicators*. OECD Publishing, Paris. <u>https://doi.org/10.1787/69096873-en</u>
- Overschelde, J. V. (2020). Evaluating Educator Preparation Programs in the State of Texas (Policy No. UHERC 004). University of Houston Education Research Center. <u>https://uh.edu/education/research/institutes-centers/erc/reports-publications/policy_brief-epps-july-20201.pdf</u>
- Papay, J. P., Bacher-Hicks, A., Page, L. C., & Marinell, W. H. (2017). The challenge of teacher retention in urban schools: Evidence of variation from a cross-site analysis. *Educational Researcher*, 46(8), 434–448.
- Peyton, D. J., Acosta, K., Harvey, A., Pua, D. J., Sindelar, P. T., Mason-Williams, L., Dewey, J., Fisher, T. L., & Crews, E. (2020). Special education teacher shortage: Differences between high and low shortage states. *Teacher Education and Special Education*.
- Podolsky, A., Kini, T., Darling-Hammond, L., & Bishop, J. (2019). Strategies for attracting and retaining educators: What does the evidence say? *Education Policy Analysis Archives*, 27(38).
- Redding, C., & Smith, T. M. (2016). Easy in, easy out: Are alternatively certified teachers turning over at increased rates? *American Educational Research Journal*, *53*(4), 1086–1125.
- Ronfeldt, M., & Reininger, M. (2012). More or better student teaching? Teaching and Teacher Education, 28(8), 1091-1106.
- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. American Educational Research Journal, 50(1), 4–36.
- Saultz, A., White, R. S., Mceachin, A., Fusarelli, L. D., & Fusarelli, B. C. (2017). Teacher quality, distribution, and equity in ESSA. *Journal of School Leadership*, 27(5).
- Simon, N. S., & Johnson, S. M. (2015). Teacher turnover in high-poverty schools: What we know and can do. *Teachers College Record*, 117(3), 1–36.
- Suárez, M. I., & Wright, K. B. (2019). Investigating school climate and school leadership factors that impact secondary STEM teacher retention. *Journal for STEM Education Research*, 2(1), 55–74.
- Sun, M. (2018). Black teachers' retention and transfer patterns in North Carolina: How do patterns vary by teacher effectiveness, subject, and school conditions? *AERA Open*, *4*(3), 2332858418784914.
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S. Palo Alto, CA: Learning Policy Institute.
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2019). Understanding teacher shortages: An analysis of teacher supply and demand in the United States. Education Policy Analysis Archives, 27(35). <u>http://dx.doi.org/10.14507/epaa.27.3696</u>
- Templeton, T., Lowrey, S., & Horn, C. (2020). Assessing the effectiveness of Texas Educator Preparation Programs. Center for Research, Evaluation & Advancement of Teacher Education and Education Research Center.

https://uh.edu/education/research/institutes-centers/erc/reports-publications/deans-report-epp-july-2020.pdf

- Texas Education Agency (2009). PEIMS EDIT+ User Technical Documentation. <u>https://tea.texas.gov/sites/default/</u> <u>files/tips_staffFTE_2012_1007.pdf</u>
- Texas Education Agency (2020, January 30). 2020-2021 Teacher shortage areas and loan forgiveness programs. <u>https://tea.</u> <u>texas.gov/about-tea/news-and-multimedia/correspondence/taa-letters/2020-2021-teacher-shortage-areas-and-loan-forgiveness-programs</u>
- Texas Education Agency (2021). Texas Academic Performance Reports Glossary. <u>https://rptsvr1.tea.texas.gov/perfre-port/tapr/2021/glossary.pdf</u>

- Texas Education Agency. (2022). Agency Strategic Plan Fiscal Years 2023 to 2027. <u>https://tea.texas.gov/sites/default/</u> <u>files/2023-2027-TEA-Strategic-Plan.pdf</u>
- Ulferts, J. D. (2016). A brief summary of teacher recruitment and retention in the smallest Illinois rural schools. *The Rural Educator*, *37*(1), 14–24.
- U.S. Census Bureau. (2021). Current versus constant (or real) dollars. Retrieved July 27, 2022, from <u>https://www.census.gov/topics/income-poverty/income/guidance/current-vs-constant-dollars.html</u>
- U.S. Department of Education. (2016). *The state of racial diversity in the educator workforce*. <u>https://www2.ed.gov/</u><u>rschstat/eval/highered/racial-diversity/state-racial-diversity-workforce.pdf</u>
- Watlington, E., Shockley, R., Guglielmino, P., & Felsher, R. (2010). The high cost of leaving: An analysis of the cost of teacher turnover. *Journal of Education Finance*, 36(1), 22–37.
- Whitford, D. K., Zhang, D., & Katsiyannis, A. (2018). Traditional vs. alternative teacher preparation programs: A meta-analysis. *Journal of Child and Family Studies*, *27*(1), 671–685.
- Zhang, G., & Zeller, N. (2016). A longitudinal investigation of the relationship between teacher preparation and teacher retention. *Teacher Education Quarterly*, 43(2), 73–92.