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Education Research Center
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POLICY BRIEF

Assessment of Effectiveness of Tech Teach Across Texas Graduates

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January 2020

What We Studied

Educator Preparation Programs (EPPs) in Texas are held accountable by the state agency and by accreditors to produce effective educators that will remain employed in the field. Currently, in Texas, EPPs have limited access to reliable data with which to empirically examine the impact of their graduates on student learning. And, while the Texas Education Agency produces teacher retention reports, these reports ignore nuances, strategies, and efforts that EPPs have implemented, thereby limiting EPPs ability to make programmatic decisions as to what initiatives are effective or not.

This program evaluation study sought to discern if a preparation pathway offered by Texas Tech University (TTU), one that leverages community college graduates, was yielding desirable outcomes. Results suggest that the preparation pathway at TTU that recruits community college graduates produces effective teachers, who remain employed at a rate comparable to state trends and may effectively be increasing the ethnic diversity of the teaching workforce in Texas.

A more concerted study with a larger sample and over a longer period of time would certainly provide more compelling arguments to drive policies in the state of Texas, However, the findings of this study should be considered as encouraging to EPPs who are considering and/or who currently support partnerships with community colleges in search of teacher candidate talent.

The Teacher Education Department at Texas Tech University is committed to producing quality teachers that can immediately impact children upon entering the profession. The Department hosts two unique teacher preparation pathways. The TechTeach (TT) pathway prepares students at the university in a face-to-face format on the main Texas Tech University campus in Lubbock, Texas. The TechTeach Across Texas (TTAT) pathway is an accelerated, online format that recruits graduates from Associate of Arts in Teaching programs at community colleges from across the state. There is preliminary evidence that TTAT is effectively enhancing ethnic diversity within the Texas teaching workforce.

The purpose of this study was to examine teaching effectiveness of TTAT graduates and compare their effectiveness to the core of graduates from standard—including graduates from the TT campus-based program—and alternative certification programs in the state of Texas. The findings from this study should help inform future policy and programmatic decisions, including the support and propagation of similar programs across the state.

The research questions we studied were:

1. Do graduates from the TTAT have a differential effect on student achievement, relative to graduates from other pathways?

2. Do TTAT graduates remain employed in the profession over time, relative to graduates from other pathways?

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How We Analyzed the Data

TechTeach teacher candidate completer data were merged with datasets from the Texas State Board of Educator Certification (SBEC), the Texas Education Agency (TEA), and the State of Texas Assessment of Academic Readiness (STAAR). These state-level datasets were accessed and analyzed at the Texas Education Research Center at the University of Texas at Austin.

The original sample included 161,599 teachers with Value Added Models (VAMs) during the years 2015 through 2018 and who had been prepared through a standard or alternative certification pathway. The sample was further reduced to reflect teachers with a novice designation (defined as a teacher who has been in the classroom less than 2 years). This sample resulted in a sample size of 28,261 teachers.

Tables 1-3 display the distribution of teachers with VAM by year, ethnicity, and preparation pathway respectively for teachers with a novice designation.

Table 1. Novice with VAM by year

Year	Count	%	Cum %
2015	7,217	25.54	25.54
2016	7,230	25.58	51.12
2017	6,992	24.74	75.86
2018	6,822	24.14	100.00
Total	28,261		

What We Discovered

Our first analysis identified that TTAT produces a relatively greater proportion of Hispanic teachers than the other preparation pathways examined. The analysis only used the three largest ethnicities represented in the State. The chi-square test of independence suggested that a relationship exists between preparation pathways and teacher ethnicity, χ^2 (6, 27,093) 1077, p<.05. Examination of individual cells suggests that TTAT prepares a greater proportion of Hispanic teachers than other pathways.

Table 2. Novice with VAM by ethnicity

Ethnicity	Count	%	Cum %
American Indian	91	.32	.32
Asian	573	2.03	2.35
Black	4,024	14.24	16.59
Hispanic	7,901	27.96	44.55
White	15,168	53.67	98.22
Multi ethnic	404	1.43	99.65
Hawaii Pacific Island	100	.35	100.00
Total	28,261		

The VAMs were calculated in math (Table 5) and English Language Arts (ELA; Table 6). Teacher effectiveness quartiles were generated for all teachers within each subject. Lastly, a test of independence determined if there was an association between effectiveness quartiles and preparation pathway. In math, the chi-square test was significant, χ^2 (9, 16,364) 49.91, p<.05. Whereas there is an overrepresentation of teachers in the top quartile for teachers prepared in through the standard pathway.

Table 3. Novice with VAM by preparation pathway

Pathway	Count	%	Cum %
Alt Cert	15,638	55.33	55.33
Standard	12,331	43.63	98.97
TTAT	106	.38	99.34
TT	186	.66	100
Total	28,261		

The chi-square test was significant for ELA, χ^2 (9,18,319) 48.98, p<.05. Relevant to TTU EPP, is the small proportion of teachers in the top quartile for the TTAT pathway. We further disaggregated the data by year to understand in which year or years, the proportion of teachers in the top quartile was less than expected. Small samples in several cells limit the reporting and interpretation of the results, however, by the year 2018, the distribution of teacher effectiveness measures is evenly distributed across the performance quartiles.

Table 4. Crosstabulation ethnicity by pathway

Ethnicity	AC	Standard	TTAT	TT	Row Totals
Black	**3,143** (2,218.52) [385.24]	**869** (1,763.59) [453.79]	**7** (14.85) [4.15]	**5** (27.03) [17.96]	4024
Hispanic	**4,201** (4,356.00) [5.52]	**3,609** (3462.76) [6.18]	**55** (29.16) [22.89]	**36** (53.08) [5.49]	7901
White	**7,593** (8,362.47) [70.80]	**7,396** (6,647.65) [84.24]	**38** (55.98) [5.78]	**141** (101.89) [15.01]	15168
Column Totals	**14,937**	**11,874**	**100**	**182**	**27,093**

() Expected value
[] Chi-Square statistic

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Table 5. Crosstabulation VAM math quartiles by pathway

VAM math	Alt Cert	Standard	TTAT	TT	Total
1st (bottom)	**2,215** (2085.50) [8.04]	**1,829** (1956.00) [8.25]	**20** (18.75) [.08]	**27** (30.75) [.46]	4091
2nd	**2,170** (2085.50) [3.42]	**1,876** (1956.00) [3.27]	**18** (18.75) [.03]	**27** (30.75) [.46]	4091
3rd	**2,018** (2085.50) [2.18]	**2,021** (1956.00) [2.16]	**18** (18.75) [.03]	**34** (30.75) [.34]	4091
4th (top)	**1,939** (2085.50) [10.29]	**2,098** (1956.00) [10.31]	**19** (18.75) [.00]	**35** (30.75) [.59]	4091
Total	**8,342**	**7,824**	**75**	**123**	**16,364**

() Expected value
[] Chi-Square statistic

The newness of the TTAT pathway yielded a relatively small sample of graduates who had been certified long enough to qualify for two- and three-year retention rate evaluation. The respective retention rates for both pathways are displayed in Table 7. In general, both pathways outperform state averages when aggregated for all teacher certification pathways and for all pathway categories with one exception. The retention rate for TTAT did fall slightly behind the Texas three-year retention rate for teachers prepared via university undergraduate EPPs (See TEA retention data report).

Table 6. Crosstabulation VAM ela by quartiles by pathway

VAM ela	Alt Cert	Standard	TTAT	TT	Total
1st (bottom)	**2,599** (2555.39) [.74]	**1,926** (1982.11) [1.59]	**25** (17) [3.76]	**30** (25.50) [.79]	4580
2nd	**2,628** (2555.39) [2.06]	**1,901** (1982.11) [3.32]	**23** (17) [2.12]	**28** (25.50) [.24]	4580
3rd	**2,597** (2555.39) [.68]	1,959 (1982.11) [.27]	**9** (17) [3.77]	**15** (25.50) [.24]	4580
4th (top)	**2,397** (2555.39) [9.75]	**2,142** (1982.11) [12.97]	**11** (17) [2.12]	**29** (25.50) [.48]	4579
Total	**10,221**	**7,928**	**68**	**102**	**18,319**

() Expected value [] Chi-Square statistic

Table 7. Retention rate at second and third year

	n	2-year Retention Rate through SY2018	n	3-year Retention Rate through SY2018
TTAT	185	97%	76	82%
TT	509	98%	258	90%

A limitation worth noting is the small number of teachers with VAMs from the TT and TTAT sample. In part, this small sample is due to the number of teachers who teach in subjects that are not included in the repertoire of STAAR annual assessments. It is important to recognize that STAAR-test-dependent VAMs cannot paint a comprehensive picture of EPP graduate teacher effectiveness. Thus, and as currently designed, this study examined less than half of the possible grade level and subject possibilities open to a Texas certified teacher. Also, and in retrospect, a much richer analysis could have been attained in this study if measures of teacher candidate selectivity (e.g., GPA, TExES PPR scores) and identifiers of if and where a teacher candidate completed their associate's degree (i.e., community college names) were included.

Policy Recommendations

University-based teacher education programs in Texas must act intentionally to strategically address the issue of teacher quality and teacher diversity in high-need communities. One strategy that that seems to mitigate the issue of lack of ethnically diverse teaching body is to leverage graduates from community college Associate of Arts in Teaching programs.

However, as several scholars have suggested that university-based teacher educators and policy makers alike are unaware, or greatly underestimate, the contribution community colleges can make to establishing a robust and diverse teacher-talent pipelines (i.e., Hutcheson, 2010; Perkins & Arvidson, 2017; Walker, Downey & Kuehl, 2008). Although not always recognized, community college students who transfer to four-year institutions typically perform at comparable levels and graduate at comparable rates to those students who complete their entire course of study at a university (Xi et al., 2018). Transfer students who first complete their associate degree at community college tend to fare even better since they are less likely to experience credit loss (Bailey, Jaggars, & Jenkins, 2015; Cullinane, 2014; Lee et al., 2018; Jenkins & Fink, 2015). Results from the present study seem to indicate that the success that community college transfers experience during their preparation extends into the classroom as they become teachers. In both subjects where measures of effectiveness were calculated, teachers with community college roots performed similar to, or better, than peers from other preparation pathways. Also, three-year retention rates appeared to higher than the current trends reported by the state (TEA, n.d.). These findings are significant and should motivate a growth in breadth and strength of partnerships between EPPs and community colleges.

Nearly two decades ago, community colleges were believed to hold great promise for helping increase the number and diversity of teacher talent in the United States (Floyd & Walker, 2003). Yet, as financial incentives for these initiatives disappeared, so did the priority that post-secondary institutions could allocate to teacher preparation. Governmental levers such as transfer policies in Texas have also done very little to strengthen community college transfer (Bailey, Jenkins, Fink, Cullinane, & Schudde, 2016). The result is that in 2020, community colleges remain virtually alone in their teacher preparation efforts while state and national teacher shortages persist.

This program review sought to better understand how an educator preparation pathway that recruits community college graduates faired in terms of diversity, quality, and retention of its graduates. Comparisons with other pathways were strictly done for benchmarking purposes and not to make determinations of quality or adequacy of a preparation pathway. Our findings hold promise that recruiting, preparing, and graduating individuals with associate degrees a) can enhance the ethnic diversity of teachers in the classroom, b) will yield teachers who are effective at impacting student learning, and c) remain employed in the profession at similar rates to other teachers in the state.

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