

A Summary Of Texas Teacher Attrition

Pedro Reyes, Ph.D. & Celeste Alexander, Ph.D.

December 2017

What We Studied

Teachers are crucial to student achievement. It therefore becomes important to assure that teachers who can foster student achievement are present in all schools, and that they remain in the teaching field. The most effective teachers are not evenly distributed across schools. Schools with poor, high-minority, and low-achieving students are more likely to have teachers with less experience, lower certification scores, and a weaker history of success in the classroom (Clotfelter, Ladd, & Vigdor, 2007; Goldhaber et al., 2014). In addition, higher quality teachers tend to leave these types of campuses (Boyd et al., 2005; Lankford, Loeb & Wyckoff, 2002).

Nationally, the rate of attrition for teachers has been estimated to be 7% (Boe et al., 2008). However, this rate is far higher for teachers with 5 or fewer years of teaching experience, and has estimated to be 40 to 50% (Boe et al., 2008; Ingersoll, R. M. & Smith, 2003). This is significant, in that teacher attrition has been linked to reduced levels of student achievement (Levy, Fields & Jablonski, 2006; Rowan et al., 2002) and to high costs to schools and districts (Haynes, 2014).

How We Analyzed the Data

The primary data source used for the analyses is the database maintained by the Texas Education Research Center (Texas ERC) at the University of Texas at Austin. This data contain statewide, longitudinal, student-level data comprised of P-12 data provided by the Texas Education Agency (TEA) and higher education data provided by the Texas Higher Education Coordinating Board (THECB). These analytic models include all employees identified as teaching (role code of 87) in the Texas public schools.

Additionally, this study adds supplementary analyses using datasets maintained by National Center for Education Statistics (NCES). For this study the data sets that are analyzed include the Schools and Staffing Survey (SASS) and the Teacher Follow-up Survey (TFS). The SASS is a system of related questionnaires administered to a representative sample of schools across the country that provide descriptive data on the context of elementary and secondary educational institutions, most recently administered during the 2011-2012 school year.

Several comparisons are made below. The first section compares the SASS and TFS surveys between the US and Texas. Then we will turn to Texas ERC database. Multiple datasets allows us to investigate and compare Texas teachers to US teachers. It also allows us to add a qualitative context to the quantitative results. Because the national sample of Texas schools used in the NCES surveys were randomly selected, it allows for generalizations to be made about the entire state.

Figure 1 illustrates the gap in student and teacher ethnicity in the US and Texas. There is a marked gap between the percent of minority students and minority teachers. Texas Hispanic students are the majority at 50.8%. This is compared to nationally at 16.1% Hispanic students. Though about half of Texas students are Hispanic, only 24% of the

teachers are, however, the percent Hispanic teachers in Texas is much higher (about three times higher) than the US average at 7.8%. Only about 9% of the teachers in our study are Black, which is about 3% less than the percentage of Black students.

The national data reaffirms that Texas public schools serve different populations than the nation at large. For example, the majority of the nation's teachers are predominantly white and serve students who are not as diverse as in the Texas public schools. Another finding is that Texas public schools serve students who are overwhelmingly economically disadvantaged.

Almost 35% of teachers teach in schools that are least 76% economically disadvantaged students and the next highest percent is almost 29% teaching in schools that contain 51% to 75% economically disadvantaged students, see figure 2.

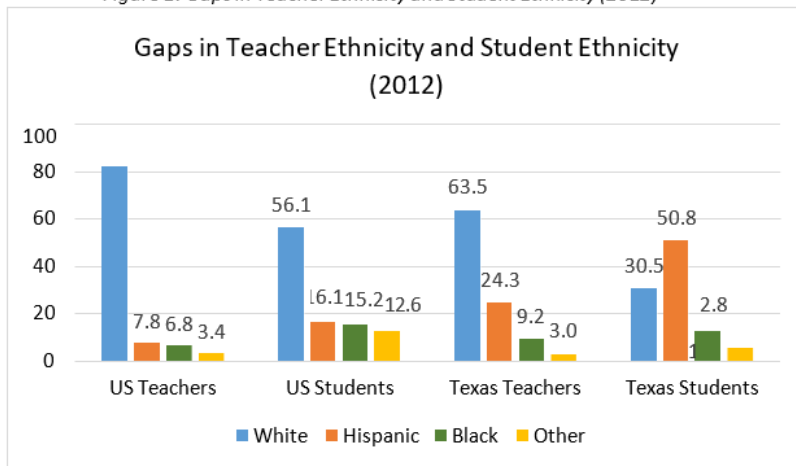
Black, Hispanic, and Asian teachers are more likely than White teachers to teach low-income and minority students. Hispanic teachers have the highest average of students who are non-white and who are economically disadvantaged. Even though Hispanic teachers only make up 24% of the teaching population and white teachers make up 64% of the teaching population, almost as many Hispanic teachers serve the highest-poverty schools as White teachers, in real numbers (figure 3).

Most teachers hold a standard certification, but a significant number (about 30%) hold an alternative certification. The number of teachers who are certified by exam or hold out of state certificates is negligible (see Figure 4). In 2015, the largest percent of teachers have been teaching six to ten years. About half of all the teachers have taught 10 or less years. More than half the teachers have zero to ten years of experience (see Figure 5).

What We Discovered

Using logistic regression, the following question is addressed: What individual, teacher preparation, school-level, and district-level factors influence three-year teacher retention, both school-specific retention and retention in the teaching profession overall? In this model we estimate the probability of a teacher being retained versus not being retained.

Figure 1: Gaps in Teacher Ethnicity and Student Ethnicity (2012) *



*US data from Common Core of Data, State Nonfiscal Survey of Public Elementary and Secondary Education: School Year 2011-12. Texas data from Public Education Information Management System (PEIMS) data from TEA 2011-12.

Figure 2: Breakdown of Percent of Teachers Teaching Ranges of School Percent Economically Disadvantaged Students

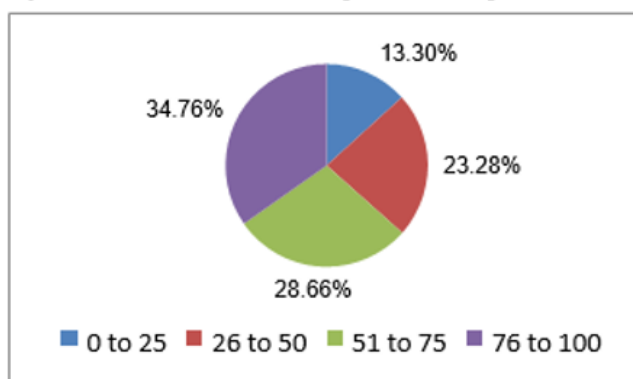


Figure 3: Race of Teachers by % Minority Students

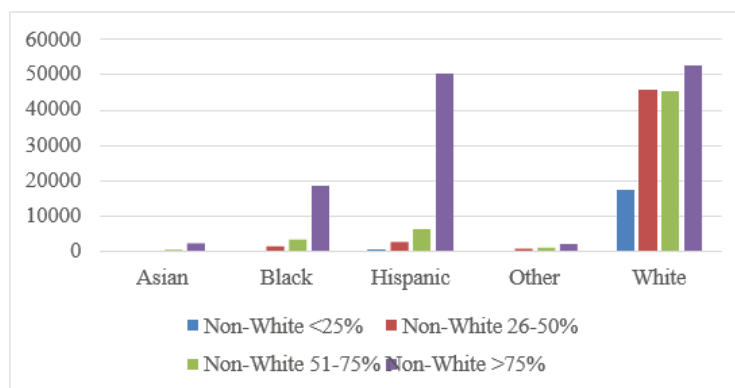


Figure 4: Certification Type

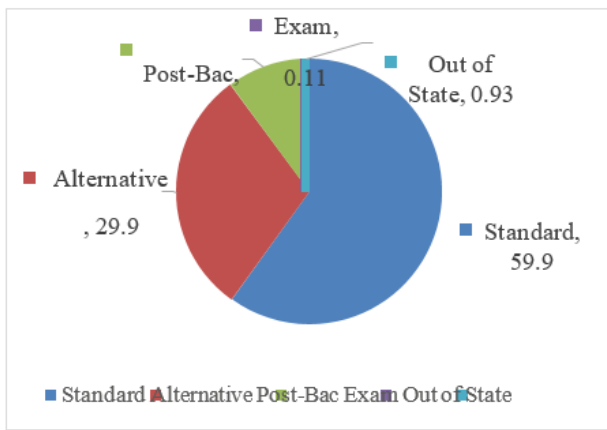


Figure 5: Teacher Experience

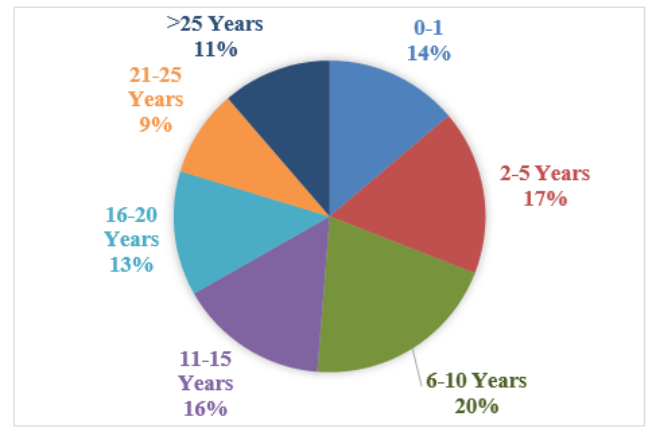


Table 1 presents the results for a teacher three-year retention model. The first column is the name of the variable in the model, the second column is the standard estimate (standard error) of the variable, the third column is the odds ratio for the variable which is calculated from the standard estimate, and the final column contains the results of a test of statistical significance (a number less than .05 is considered “statistically significant” by conventional social science standards). Table 1 is divided into three parts by the level of the variable (teacher, school, and district). For this model, teacher characteristics (race/ethnicity, experience, and teacher certification), school characteristics (percent economically disadvantaged at school, percent of White students at school, and grade-level of school), and district characteristic (type of district) were included. The estimated odds ratios presented for each analysis represents the likelihood of a teacher being retained, meaning that an odds ratio greater than 1 indicates a positive relationship between the variable and retention while an odds ratio between 0 and 1 represent a reduction in the likelihood of being retained.

Table 1 Teacher Retention Model for Three-Year Retention

Variable	Stand Error	Odds Ratio	Sig.	Variable	Stand Error	Odds Ratio	Sig.	Variable	Stand Error	Odds Ratio	Sig.
Intercept	1.399		<.0001								
Teacher Race/Ethnicity				School EcoDisadv				District Type			
Asian	0.146	1.157	0.001	25-50%	-0.069	0.933	<.0001	Charter	-0.526	0.591	<.0001
Black	0.230	1.258	<.0001	50-75%	-0.143	0.867	<.0001	Urban	-0.109	0.897	<.0001
Hispanic	0.483	1.620	<.0001	>75%	-0.213	0.807	<.0001	Rural	0.146	1.158	<.0001
Other	-0.213	0.967	0.342	School White				Other	0.087	1.090	<.0001
Teacher Experience				25-50%	0.096	1.040	0.013				
1 yr	-0.040	0.961	0.207	50-75%	0.075	1.078	<.0001				
2-5 yrs	0.026	1.027	0.309	>75%	0.185	1.203	<.0001				
6-10 yrs	0.118	1.125	<.0001	School Grade-Level							
11-15 yrs	0.220	1.246	<.0001	Mixed	-0.049	0.952	0.110				
16-25 yrs	-0.859	0.918	0.001	MS	-0.104	0.901	<.0001				
>25 yrs	-1.182	0.307	<.0001	HS	-0.085	0.918	<.0001				
Teacher Certification											
Alternate	-0.197	0.822	<.0001								
By Exam	-0.012	0.988	0.935								
Out of State	-0.189	0.827	<.0001								
Post-Bac	-0.050	0.952	0.009								

To make the odds ratio estimates of the model interpretable the indicator variables were excluded from the model and serves as the reference category which is captured by the Intercept parameter. The odds ratio estimate for each variable therefore represents the difference in the odds of a teacher being retained who is white, has zero years of experience, is traditionally certified, teaches at a school that is less than 25% economically disadvantaged, less than 25% percent white students, is an elementary campus, and teaches in a suburban school district. Therefore, the reference category (enumerated above) are not listed because they are the comparison group.

Highlights. The odds of a Hispanic teacher being retained are 1.62 times the odds of an identical white teacher being retained. In other words, a Hispanic teacher is almost twice as likely to be retained as a white teacher from a similar schools and similar district types. Black teachers also have higher odds of being retained—at 1.26 times the odds of white teachers. This finding is especially interesting given that we also find that Hispanic and black teachers tend to teach in higher minority schools and lower income schools.

Teachers with 6-10 years and 11-15 years of experience were more likely to be retained than first year teachers.

Interestingly, but not surprising, possibly due to retirements, teachers in both the 16-25 years and greater than 25 years of experience have a lower retention rate than new teachers.

The odds of a teacher teaching in a rural district being retained is approximately 1.16 times the odds of an identical teacher in a suburban district. Most noteworthy though is that teachers in Charter schools are retained at half the rate of teachers in suburban schools.

Race/Ethnicity. When looking at Table 1, the odds ratio is always relative to White teachers. This means that Asian, Black, and Hispanic teachers are all significantly more likely to be retained compared to White teachers.

Economically Disadvantaged Students. As the percentage of students who are economically disadvantaged increases, rates of teacher retention steadily decrease. The odds of retaining a teacher whose classes are 76-100% economically disadvantaged are about twenty percent lower than the odds of retaining a teacher whose classes are 0-25% economically disadvantaged (See Table 5). Asian, Black, and Hispanic teachers are more likely to teach in low-income, high-minority schools, so when school effects on retention are taken into consideration, they have significantly higher retention rates.

Minority Students. As the percentage of minority (non-white) students increases, rates of teacher retention steadily decrease. The odds of retaining a teacher whose classes are 76-100% white were ten to twenty percent higher than the odds of retaining a teacher whose classes are 0-25% white (see Table 5). Asian, Black, and Hispanic teachers are more likely to teach in low-income, high-minority schools, so when school effects on retention are taken into consideration, they have significantly higher retention rates. In other words, minority teachers are more likely to stay in high-poverty, high-minority schools than their White counterparts.

Experience. Teachers' experience relates to teacher retention in a non-linear fashion. Teachers at the end of their careers are least likely to be retained, most likely due to retirement. Teachers at the beginning of their careers are more likely to leave teaching than teachers with 6-15 years of experience.

Certification. Certification type had a significant effect on retention. The odds of retaining a teacher who holds an alternative certifications were 14-22% less likely than the odds of retaining a teacher with a standard certification. Given that around thirty percent of teachers in Texas hold alternative certifications, this is important to consider. While post-baccalaureate, certification-by-exam, and out-of-state teachers also had lower rates of retention, together they only comprise about ten percent of the teacher population.

Grade Taught. Elementary teachers had the highest rates of retention. The odds of retaining a middle or high school teacher were 4.1-9.9% percent lower than the odds of retaining an elementary teacher. Teachers in mixed-grade schools also had lower rates of retention, though the results were not significant (in part because they only make up 3.3% of teachers).

Type of District. Charter schools had the lowest rates of retention; the odds of retaining a teacher at a charter school were 41-46% lower than the odds of retaining a teacher at a traditional suburban school. Urban schools also had higher rates of turnover; the odds of retaining a teacher at an urban school were 12.9-15.8% lower than the odds of retaining a

teacher at a suburban school. Results were mixed for teachers in rural schools: they had higher rates of retention in the three-year dataset, but lower rates in the one-year dataset.

Reasons Why Teachers Leave

In general, Texas teachers have lower rates of remaining at the same school and higher rates of leaving teaching compared to the averages in the US.

US: Of the 3,377,900 public school teachers who were teaching during the 2011–12 school year, 84.3 percent remained at the same school (“stayers”), 8.1 percent moved to a different school (“movers”), and 7.7 percent left the profession (“leavers”) during the following year.

Texas: Of the 262,435 public school teachers who were teaching during the 2013–14 school year in Texas, 63.9 percent remained at the same school (“stayers”), 28.2 percent moved to a different school (“movers”), and 7.9 percent left the profession (“leavers”) during the following year.

US: Among public school teachers with 1–3 years of experience, 80 percent stayed in their base year school, 13 percent moved to another school, and 7 percent left teaching in 2012–13.

Texas: Among public school teachers with 1–3 years of experience, 62.5 percent stayed in their base year school, 28.6 percent moved to another school, and 8.9 percent left teaching in 2014–15.

US: About 10 percent of public school teacher leavers left teaching involuntarily in 2012–13.

Texas: About 7 percent of public school teacher leavers left teaching involuntarily in 2014–15.

US: About 8 percent of public school teachers who left teaching in 2012–13 were working in an occupation outside the field of education, including military service.

Texas: About 15 percent of public school teachers who left teaching in 2014–15 were working in an occupation outside the field of education, including military service.

US: About 7.6 percent of public school teachers who were former teachers indicated they were on maternity, paternity, disability leave or sabbaticals from teaching.

Texas: About 7.1 percent of public school teachers who were former teachers indicated they were on maternity, paternity, disability leave or sabbaticals from teaching.

US: About 44 percent of public school teachers who were former teachers listed that the reason they left was due to retirement from teaching.

Texas: About 31.3 percent of public school teachers who were former teachers listed that the reason they left was due to retirement from teaching.

Policy Recommendations/Conclusions

Teacher experience and race/ethnicity are strong predictors that a teacher will continue teaching in one and/or three years. Asian, Black, and Hispanic teachers are more likely to remain in teaching than their White counterparts, when holding school-level factors constant. Non-white teachers have higher retention rates overall, even when not holding school-level factors constant, as shown in Table 1. Asian, Black, and Hispanic teachers are more likely to teach in low-income, high-minority schools, so when school effects on retention are taken into consideration, they have significantly higher retention rates. In other words, minority teachers are more likely to stay in high-poverty, high-minority schools than their White counterparts. The most effective teachers are not evenly distributed across schools. Schools with poor, high-minority, and low-achieving students are more likely to have teachers with less experience, lower certification scores, and a weaker history of success in the classroom (Clotfelter, Ladd, & Vigdor, 2007; Goldhaber et al., 2014). In

addition, higher quality teachers tend to leave these types of campuses (Boyd et al., 2005; Lankford, Loeb & Wyckoff, 2002). Teachers also prefer to work near where they grew up, near places that are like where they grew up, or near their college (Boyd et al., 2005).

Charter Schools. It is recommended that the State and districts work with charter school districts to improve working conditions for teachers to incentivize retention. Given that charter schools typically employ inexperienced teachers, they should be encouraged to recruit more experienced teachers, who also typically have greater student achievement.

Teacher Salary. School districts should consider adjusting salary schedules to increase starting salaries for inexperienced teachers. New teachers, even those with work experience outside of teaching, are typically paid according to a salary ladder that provides greater increases in salary in later years of teaching. Schools should also consider increasing salaries in high-poverty schools, which may reduce the currently high rates of attrition.

Teacher Incentives. School districts should consider incentivize teachers to work at high-poverty schools by providing affordable housing near schools that struggle to recruit and retain teachers. Teachers prefer to work near their home, and given the rising cost of urban living, more teachers may choose to work in high-poverty schools if they have an affordable option for living in an urban area.

Minority Teachers. Black, Hispanic, and Asian teachers are more likely than White teachers to teach low-income and minority students. Hispanic teachers have the highest average of students who are non-white and who are economically disadvantaged. Even though Hispanic teachers only make up 24% of the teaching population and white teachers make up 64% of the teaching population, almost as many Hispanic teachers serve the highest-poverty schools as White teachers, in real numbers Teacher certification programs and school officials should try to recruit more minority teachers because they have higher rates of retention and are more likely to work in high-need schools.

Teacher Certification. Understaffed regions should focus on preparing local teacher candidates through grow-your-own programs. As discussed in the literature review, teachers desire to work near where they grew up or in similar locations, and are therefore more likely to be retained in those places. Also, schools should consider providing additional support and mentorship opportunities to new teachers to increase retention.

References

- Boe, E. E., Sunderland, R. J., & Cook, L. H. (2008). Teacher turnover: Examining exit attrition, teaching area transfer, and school migration. *Exceptional Children, 75*(1), 7-31.
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). The draw of home: How teachers' preferences for proximity disadvantage urban schools. *Journal of Policy Analysis and Management, 24*(1), 113-132.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). *Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects (CALDER Working Paper No. 11)*. Washington DC: National Center for Analysis of Longitudinal Data in Education Research.
- Goldhaber, D., Lavery, L., & Theobald, R. (2014). *Uneven playing field? Assessing the inequity of teacher characteristics and measured performance across students*. CEDR Working Paper 2014-4. Seattle, WA: University of Washington.
- Goldring, R., Taie, S., and Riddles, M. (2014). *Teacher Attrition and Mobility: Results From the 2012–13 Teacher Follow-up Survey (NCES 2014-077)*. U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsearch>.
- Haynes, M. (2014). *On the path to equity: Improving the effectiveness of beginning teachers*. Washington DC: Alliance for Excellent Education.
- Ingersoll, R. M., & Smith, T. M. (2003). The wrong solution to the teacher shortage. *Educational Leadership, 60*(8), 30–33.
- Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools: A descriptive analysis. *Educational Evaluation and Policy Analysis, 24*, 37–62.
- Levy, A. J., Fields, E. T., & Jablonski, E. S. (2006). *What we know and don't know about the consequences of science and math teacher turnover*. Newton, MA: Center for Science Education at Education Development Center, Inc.
- Rowan, B., Correnti, R., & Miller, R. (2002). What large-scale survey research tells us about teacher effects on student achievement: Insights from the prospects study of elementary schools. *The Teachers College Record, 104*(8), 1525-1567.

The University of Texas at Austin ERC is a research center and P-20/Workforce Repository site which provides access to longitudinal, student-level data for scientific inquiry and policymaking purposes. Since its inception in 2008, the Texas ERC's goal is to bridge the gap between theory and policy by providing a cooperative research environment for study by both scholars and policy makers. As part of its mission, the ERC works with researchers, practitioners, state and federal agencies, and other policymakers to help inform upon critical issues relating to education today.

The views expressed are those of the authors and should not be attributed to The University of Texas at Austin or any of the funders or supporting organizations mentioned herein including the State of Texas. Any errors are attributable to the authors.
