





High School Persistence and Completion of Houston-Area Youth

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The Texas Education Research Center (TERC) is located at The University of Texas at Austin. The TERC is an independent, non-partisan, and non-profit organization focused on generating data-based solutions for Texas education and workforce demands. The goal of the TERC is to supply policymakers, opinion leaders, the media, and the general public with academically sound research surrounding today's critical education issues.

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Executive Summary

In the current information- and technology-based economy, a high school diploma is no longer sufficient as a terminal degree....However, due to what is often characterized as a leaky educational pipeline, too many students fail to complete high school and make a successful transition to postsecondary education and careers.

As the above quote highlights, it is increasingly clear that the current generation of students will likely require more education and training than previous generations in order to successfully enter the workforce and secure a livable wage. While postsecondary access has increased over the past few decades, school districts across the country continue to lose significant numbers of students before high school graduation, especially in regards to black, Hispanic, and low-income students compared to their white and higher-income peers (National Center for Education Statistics, 2010). Given the strong link between education, personal earnings, and overall economic growth, states are increasingly looking for ways to foster success for high school students and ensure their transitions to college or career.

The State of Texas has recently implemented several initiatives designed to strengthen the college readiness of its high school graduates as well as increase the number of postsecondary degrees awarded in the state. The Texas Higher Education Coordinating Board (THECB) adopted the *Closing the Gaps* plan in October of 2000, a plan that outlines the goals of significantly reducing many of the racial disparities in higher

education participation and success. The ambitious plan proposed to significantly overhaul higher education in Texas by 2015 and argued that stagnant college attendance and completion rates would soon produce an under-educated workforce unable to support a growing state economy (THECB, 2005). By the 2015 deadline, the Closing the Gaps initiative set the targets of expanding postsecondary enrollment in Texas by 630,000 and increasing the number of postsecondary degrees awarded in the state by 210,000 overall, as well as significantly reducing the racial and socioeconomic disparities in college enrollment and attainment.

Moreover, in 2006 the Texas P-16 Council recommended a college success and readiness plan to the commissioners of Texas public education (K-12) and the THECB. The P-16 College and Career Readiness and Success (CCRS) plan, as it is called, seeks to ensure that all students, upon high school graduation, have the skills necessary to succeed in a postsecondary institution (TEA P-16 Council, 2006). In the same year, in response to an executive order from Governor Perry, the Texas Education Agency (TEA) implemented a college readiness indicator system designed to evaluate the college



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readiness of Texas high school graduates (TEA P-16, 2006). Innovations under the CCRS plan are large in scope; they cover teacher preparation, student achievement, college preparedness, and community college transition among other reforms.

In total, the goals set by Texas' *Closing the Gaps* and implemented under

various CCRS programming represent a huge step in ensuring a stable and educated Texas workforce in the future. The goals of these reforms hold the potential to ensure the continued growth of the Texas economy through maintaining a supply of highly qualified workers capable of meeting the demands of the 21st Century labor market. Indeed, in a recent study estimating the potential economic benefits *Closing the Gaps* reforms could have on the state, the Perryman Group concluded that the economic gains associated with a more educated work force amount to \$200 billion per year in incremental gross product and more than 1 million additional jobs (Perryman Group, 2007).

Summary of Results

In light of the significant steps being taken at the federal and state level to strengthen the college and career readiness of public high school graduates, the Houston Endowment Inc, a philanthropic organization serving the greater Houston area, commissioned The University of Texas at Austin Education Research Center (TERC) in 2008 to conduct a longitudinal study of state and Houston area public school students. While the larger study analyzes high school persistence and graduation rates as well as patterns and predictors of postsecondary access, persistence, and completion, the current report focuses solely on high school persistence patterns and serves as a primer to the analyses of postsecondary access, persistence, and completion.

A number of results from this study are of primary importance for policymakers and educational leaders to consider when thinking of ways to help the state meet its ambitious college enrollment targets:

There is great variation between districts in their rates of high school persistence and graduation. The percentage of students that persisted through all years of high school in the district with the highest percentage was more than twice as high as the persistence rate of the lowest performing district, a difference of about 35%.

✤ Even among students who make it through all four years of high school, their likelihood of successfully graduating appears related to the district they attend. Approximately 10% more students that persist through high school earn a high school diploma in the district with the highest graduation rate compared to the district with the lowest graduation rate.

Race and socioeconomic status appear to be strongly related to the likelihood that students will successfully complete their high school education. In Houston Independent School District (HISD), Hispanic and African-American students are roughly half as likely as their white and Asian peers to persist through all four years of high school and more than 20% of low-income students that make it to their senior year still fail to graduate on time.

Special populations are also at particularly high risk of failing to earn a high school diploma. Approximately one out of every four special education students and one out of every three LEP students drops out before graduating, and even among students that make it through high school only about half of LEP students leave their senior year with a diploma.

The results of this study also highlight the growing gender disparity in educational outcomes. More than 9% fewer males than females in HISD persisted through high school and graduated on time.

Finally, there is also tremendous variation between high schools within districts in their high school persistence and completion patterns. Within HISD, the dropout rate among the ten largest high schools ranged from 8.3%-32.1%, meaning nearly four times more students drop out from the lowest performing high schools within the district.



Literature Background

National Trends in High School Persistence and Completion

At the national level, much attention has been paid to the issues of high school persistence and completion and how these rates have changed over time. Figure 1 below presents the status completion rates¹ for different racial/ethnic subgroups from 1972 to 2008 (NCES, 2010, p. 25). On a positive note, this figure shows that there has been an improvement in the percentage of students that hold a high school diploma or equivalent for every racial subgroup over the past three and a half decades. While only slightly more than 80% of 18- to 24-year-olds held a high school diploma or equivalent in 1972, by 2008 about 90% of students held such a credential. Additionally, the gap in high school completion rates between black and Hispanic students on the one hand and white students on the other has closed over time. However, significant gaps still exist between different racial subgroups. Hispanics were the least likely to hold a diploma or equivalent in 2008 with a rate of about 75.5%, still approximately 20% lower than whites and Asians.

Figure 1: National Status Completion Rates by Race/Ethnicity, 1972-2008.



Literature Background

¹ The National Center for Educational Statistics (NCES) defines status completion rates as "the percentage of 18- through 24-year-olds who are not enrolled in high school and who also hold a high school diploma or equivalent credential, such as a General Educational

Development (GED) certificate" (NCES, 2010, p. 25).





Similar trends are evident when students are disaggregated by their families' level of income. Figure 2 above presents the trends in event dropout rates² for students of different income levels from 1972-2008 (NCES, 2010, p. 22). Once again, it is promising that dropout rates have declined for all students overall and for every income subgroup over the past thirty-six years. Also promising is the decrease in the dropout rate of low-income students over this time period of more than five percentage points, the largest decrease out of the three income groups. However, even with this improvement in the dropout rate for low-income students a significant disparity exists between these students and their more affluent peers. As only 2% of high-income students drop out each year as of 2008, low-income students are more than four times as likely as high-income students to drop out given that their dropout rate is greater than 8%. Additionally, when the dropout rates of low-income and middle-income students are compared

over time we see that their proportional difference has actually worsened since the early 1970s. The low-income dropout rate was approximately twice as high as the middle-income rate in 1972, and by 2008 the low-income rate was nearly three

times as high as that of middle-income students. Put differently, while the low-income dropout rate has declined over time, the rate of decline for these students has not kept pace with the decline in dropping out among middle-income students.



² The NCES defines event dropout rates as "the percentage of youth ages 15 through 24 who dropped out of grades 10-12 between one October and the next. Dropping out is defined as leaving school without a high school diploma or equivalent credential" (NCES, 2010, p. 22).

Texas Trends in High School Persistence and Completion

While the NCES estimates of national dropout and completion rates are often regarded as accurate and reliable, there is more controversy surrounding the ways in which Texas calculates its rates. The NCES estimated that Texas' averaged freshman graduation rate³ for the 2007-08 cohort was approximately 73%, about 2% lower than the national average (NCES, 2010, p. 27). However, TEA's estimate of the high school graduation rate for this same cohort was 79.1%, 6% higher than the NCES estimate (TEA, 2011).

Additionally, the rate that is often presented in policy discussions in Texas is not a graduation rate per se but a completion or continuation rate. Figure 3 below presents estimates for different graduation and completion rate calculations for Texas students disaggregated by demographic group (TEA, 2011, p. 70). The left bar for each subgroup represents the percentage of the ninth grade cohort that graduated from high school and received a diploma within four years, the middle bar indicates the percentage of each cohort that either graduated or continued in school, and the right bar also includes all GED recipients in the calculation of completion. If this more liberal definition of high school completion is used, the disparities between groups seem much less severe; no two groups have a double-digit difference in completion rates. However, if completion is defined as only students who graduated on time and received a high school diploma, the completion rate for Asian students, the top-performing student subgroup, is 15% greater than the rates for African-American and Hispanic students.

While there is a slight discrepancy between the NCES completion rate estimate



Figure 3: High School Completion Rates for Texas Students by Subgroup, 2007-10 Cohort

³ The NCES defines the averaged freshman graduation rate as "an estimate of the percentage of an entering freshman class graduating in 4 years" (NCES, 2010, p. 27).



Figure 4: Total Fall Enrollment of Degree Granting Institutions Nationally, 1970-2005

for Texas students and TEA's calculated rate, other researchers in Texas have proposed completely different methodologies for estimating high school completion that result in even larger discrepancies. The Intercultural Development Research Association (IDRA) is one such organization whose estimates of completion are significantly lower than the TEA estimates. Figure 4 presents IDRA's calculation of attrition rates⁴ for all Texas students from the 1985-86 school year through 2009-10 (IDRA, 2010, p. 3). Using IDRA's methodology, it is estimated that only 71% of the entering ninth grade cohort even made it to the twelfth grade in 2009-10, and it is therefore likely that the percentage of the cohort that actually graduates on time and receives a high school diploma is even lower. As shown in Figure 3, TEA estimated that 84% of the 2009-10 cohort not only made it to twelfth grade but also received a diploma, evidence of a significant discrepancy between these organizations. Additionally, the gaps in attrition and completion between Hispanic and black students on the one hand and white students on the other is much larger under IDRA's definition. While the attrition rate for white students in 2009-10 was 15%, the rates for black and Hispanic students were 33% and 39%, respectively, by this calculation. IDRA even claims that "the gaps between the attrition rates of White students and rates of Hispanic students and Black students are dramatically higher [today] than 25 years ago" (IDRA, 2010, p. 1).

The specific estimates of dropout, completion, and graduation rates for Texas are both difficult to determine and quite contested, but there appear to be a few common threads among all the organizations and their estimates. First, IDRA, TEA, and the NCES do all agree that Texas' completion rate has been rising over the past decade or so. This is a promising sign given the increasing importance of holding a high school diploma or equivalent at minimum in order to successfully enter the job market. Second, in each organization's analysis at least 15% of the entering ninth grade cohort failed to earn a high school diploma within four years, indicating the continued need to focus on

high school persistence and completion. Finally, each analysis also highlights the persistent disparities between students that come from historically disadvantaged groups and their more advantaged peers. Given the increasing diversification of the Texas population overall and the student body in particular, this finding reinforces the idea that is not enough to increase the overall graduation rate of Texas students. Special attention must be paid to the rates of completion for disadvantaged groups, specifically racial minorities and low-income students.



⁴ IDRA calculates attrition by dividing the total number of twelfth graders that are still present from a given cohort over the number of students that were predicted to be enrolled in twelfth grade that year. IDRA calculates

High School Predictors of Postsecondary Transition and Success

Given these persistent gaps in postsecondary transition and success, educational researchers have devoted significant attention to the role that high schools play in postsecondary outcomes. Extant research has identified several facets of a student's secondary education that significantly predict postsecondary outcomes. The purpose of this section is not to provide a comprehensive review of this vast literature, or to disentangle the many ongoing debates regarding the relative importance of specific variables. Rather, this section provides a brief synopsis of the more robust findings to-date. In a widely cited Department of Education study, Adelman (1999) examined student transcript data to assess the relationship between high school characteristics and postsecondary outcomes for a national sample of students who were high school sophomores in 1980. Adelman found student high school GPA, achievement test scores and the rigor of their coursework to be signifi-

cant predictors of postsecondary completion. The rigor of the coursework a student pursues while in high school was an especially strong predictor of college outcomes, explaining 41% of the variation in college completion rates of his sample. A number of other studies have identified similar relationships between student academic resources and postsecondary outcomes (ACT, 2004; NCES, 2001). For example, Bowen, Chingos and McPherson (2009) analyzed the college going patterns of a sample of 150,000 high school seniors, graduating in 1999. The study found that high school GPA is a much stronger predictor of 6-year graduation rates than student SAT/ACT scores. In fact, for the 52 universities included in the study, SAT/ACT scores are often non-significant predictors, suggesting they have no measurable effect on 6-year graduation rates. This relationship holds across selective and non-selective universities and for all racial/ethnic subgroups. It is important

to note, however, that it is not surprising that SAT/ACT scores fail to predict college completion. Such assessments are not designed to predict completion rates, but rather to predict students' GPA in their freshman year of college.

Bowen. Chingos and McPherson (2009) conducted a secondary analysis predicting cumulative college GPA. The results of this analysis suggest that SAT/ACT scores are much better at predicting college GPA than college completion. However, as with 6-year completion rates, high school GPA is a stronger predictor of college GPA than SAT/ACT. Again, this relationship holds across selective and nonselective universities. However SAT/ ACT scores were found to be nearly as strong of predictors as high school GPA among those students attending the most selective universities in the country.

Advanced Course Taking

Another important facet of this research area is the extent to which there are significant racial/ethnic and socioeconomic differences in the relationship between student academic resources and postsecondary outcomes. Extant research has found that non-white and poor students graduate from high school less prepared for college than their white and economically privileged counterparts (Barth, 2003). For example, according to a NCES (1997) study conducted on high school graduates in 1992, less than half of black and Hispanic graduates had the necessary qualifications for admission into a 4-year university. Comparatively, nearly 70% of whites met the admissions criteria for 4-year universities. More recently, a 2007 NCES report found that black and Hispanic students have among the lowest advanced coursework completion rates. Figure 5 on the next page reveals this trend, with whites completing significantly more advanced courses in math, science, and English than both black and Hispanic students.

This unequal distribution of advanced coursework completion is particularly problematic because the amount and level of advanced coursework taken by a student in high school is highly predictive of their postsecondary success. For example, Adelman (1999) found that the level of high school mathematics a student reaches is highly predictive of their likelihood of obtaining a bachelor's degree. Among student finishing high school with Algebra 2, 40% obtained a bachelor's degree. Comparatively, 80% of the students that completed calculus obtained bachelor's degrees.



Figure 5: Percent of Students Completing Some Advanced Coursework in Math, Science and English Nationally, by Race/Ethnicity, 2004

Exposure to College-Credit Courses

College-credit courses allow students to receive college credit for the same classes they are taking to meet their high school diploma requirements. There are two main types of college-credit courses, Advanced Placement (AP) and dual-credit. The first allows students to take a national test at the end of the school year covering their course content; this test will allow them either to test out of base level college courses or to be granted course credit for them upon entrance to a higher education institution. Dual-credit courses are a bit different in that they are classes where the student is simultaneously enrolled at a high school and a higher education institution. Students in dual-credit courses gain credit to both institutions through course content and assessments. While dual-credit coursework allows students to earn college credits, not all dualcredit courses are considered to be advanced by TEA. For example, technical courses taken at a community college can count as dual-credit but may not be considered to be advanced. Both AP courses and dual-credit have been shown to positively impact student success in high school and greater participation in higher education, especially for minority and poor students (Flowers, 2008; Hoffman, 2003; Kirst, Venezia, & Nodine, 2009; Santoli, 2002; TEA P-16 Council, 2006).



Advanced Placement Courses

The AP program run by the College Board has been active in schools for more than fifty years and has more than 16,000 high schools participating (Flowers, 2008). Students at these schools are able to enroll in advanced courses and test out of 34 different college level courses (The College Board, 2011). While the individual credit policies differ according to the institution. usually students with average or better scores on AP exams can either be granted course credit or test out of foundation type courses. This allows them to move forward faster in their degree plan than students who have to take the introductory courses.

AP coursework in high school is linked to a variety of positive outcomes. Santoli (2002) conducted a literature review of research on AP participation and found that the research suggests positive impacts of the program on college enrollment, persistence, and degree completion. Morgan and Ramist (1998) found that students who placed out of their first college course due to AP scores made higher grades in their consecutive advanced college courses than those who had to take the introductory courses. Morgan and Maneckshana (2000) found that students who participated in AP during high school were more likely to graduate in four years and have higher GPAs

Participation in AP courses seems to be especially beneficial to traditionally disadvantaged students. For example, African American and Hispanic students who participated in the AP program scored higher on college entrance exams and had higher college GPAs (Flowers, 2008). Further, they were more likely both to complete their undergraduate studies but also go on for additional graduate work than their peers who did not participate in the AP program. Currently though, minority and low-socioeconomic students are vastly underrepresented in AP programs (Klopfenstein, 2004; Ndura, Robinson, & Ochs, 2003: Solorzano & Ornelas, 2002, 2004: The College Board, 2004; 2006; Venkateswaran, 2004).

Dual Credit/Dual-Enrollment Courses

Courses that are considered for dual-credit in high school necessitate a partnership with a local college or university. These higher education institutions either provide instructors (or train and certify high school teachers) to teach advanced coursework either on the high school campus or at a nearby college campus (Karp & Jeong, 2008). These courses count for both high school credit and college credit, even giving the student a college transcript before graduation. Unlike AP courses, dual-credit courses are actual college credits and not subject to the rules of the higher education institution a student enrolls in later.

Each year, thousands of high school students take advantage of dual-credit opportunities. A vast majority of both two- and four-year higher education institutions enroll high school students with over 800,000 students taking part in college credits while still in high school (Kleiner & Lewis, 2005).

Bailey and Karp (2003) conducted a review of the early research on dual-credit courses

finding little support for the program at the time. Lerner and Brand (2006) found similar results but both studies evinced the need for further scrutiny and better statistical methodologies (Karp & Jeong, 2008). More recent reports from several different states report more promising evidence for dual-credit programs' effects on academic achievement and attainment. Studies from New York City (Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Michalowski, 2006; Skadberg, 2005) suggest positive impact of the city's College Now dual-enrollment program. Dual-credit programs in Florida also show positive impacts on student enrollment in higher education (Florida Department of Education, 2004; Hoffman, Vargos, & Santos, 2009; Karp & Jeong, 2008). Further, early study of Texas' and California's dual-credit programs show a positive influence for participating students on higher education enrollment (Kirst et al, 2009; TEAP-16, 2006). Lastly, a growing body of research suggests that their use can directly help students who would not otherwise continue their education past high school (Hoffman, 2003; Kirst et al, 2009; TEA P-16, 2006).

A California program "Ramp Up" focused on middle and low-achieving students and the impact of dual enrollment on their academic career (Kirst et al, 2009). Researchers found that the "Ramp Up" program increased average proficiency on state assessments, increased retention rates, increased ontime graduation rates, increase earned college credit rates, and reduced timeto-degree for these students (Kirst et al, 2009). In Texas, dual-credit programs have particularly benefited the Hispanic population, whose participation in college courses through the program has tripled since its inception (TEA P-16, 2006). In addition, those who participated in the dual-credit program were more likely to attend college and earn a Bachelor's degree, with significantly different and positive rates for African Americans and Hispanic who participated in these programs in comparison to those who did not. In all, both dualcredit and AP course offerings have the potential to impact traditionally disadvantaged students (TEA P-16, 2006).

Methodology and Study Sample

As mentioned previously, this report is part of a larger study that analyzes patterns and predictors of postsecondary access, persistence, and completion, as well as persistence and completion rates at the high school level. This brief focuses solely on high school persistence and completion rates and is meant as a primer to the other analyses of postsecondary outcomes. The primary research questions driving this section of the study are: 1) What do high school persistence patterns look like both for the state as a whole and for other cohorts in the study; 2) What are the rates of high school completion for students in the sample, and; 3) What demographic characteristics appear to influence high school persistence and completion?

In order to address this set of research questions a cohort of students that began high school in the 2003-04 year was followed throughout high school. Figure 6 below displays the grade progression for this cohort. For the purposes of this study we were only interested in following students who remained in the cohort for all years of focus. This means that if a student changed districts, dropped out, was held back, moved out of the state, or attended a private school at any time from their freshman year to their senior year of high school they were no longer part of the cohort.

Following cohorts in this way has both advantages and disadvantages. The benefit of this type of analysis is that it ensures that a student we identify as being in a particular district remains in that district all four years of high school. When analyzing the relationship be-



tween the district a student attends and the student's chances of accessing and completing college (as done in the larger study) it is important that the student received the entirety of their high school education in that district, making a cohort analysis an appropriate technique. However, one obvious disadvantage of this approach is that significant numbers of the 9th grade cohort

Figure 6: Study Student Cohort Timeline

School Year	2003-04	2004-05	2005-06	2006-07	2007-08
Grade	9 th	10^{th}	11^{th}	12^{th}	1 st post

are excluded from the analyses of postsecondary access, and the students that are excluded likely differ in systematic ways from students that remain in the cohort. For example, excluded students are likely to be lower achieving (students held back in school and dropouts) and more mobile (students that change districts) than included students. Our full report addresses this limitation by presenting data on high school persistence, dropout, and graduation figures for this cohort.

While the study focused primarily on the educational patterns of HISD students, the research team was also inter-

Methodology

ested in comparing the performance of HISD to the state as a whole, Region IV, and ten neighboring districts. Thus, results are often reported for these other groups of students as well in order to allow the performance of HISD students to be compared to that of their peers. A list of these ten neighboring districts and their demographic characteristics are presented below in Table 1. Additionally, this report will provide a few analyses of the ten largest high schools within HISD. Once again, the purpose of this project is to investigate differences in high school and postsecondary outcomes between districts rather than high schools, so the data presented on high schools is simply meant to provide a brief glimpse at some of the variability in these outcomes between schools.

The data for this report were provided by TERC. This research center is one of three in the state created by the 79th Texas Legislature, 3rd called session, in 2006. These ERCs contain nearly all education data collected by the TEA, the THECB, and the Texas Workforce Commission and combine them into a single database. The integrated nature of the database allows researchers to follow the educational trajectory students take from elementary school through postsecondary institutions and into their careers. TEA and THECB datasets were merged in order to allow the researchers to study the transition patterns students made from K-12 to postsecondary institutions. As mentioned earlier, it should be noted that data for postsecondary enrollment in this study is limited to Texas institutions of higher education only.



Table 1: Total State, Region IV, and Select District Demographics, 2003-04*

Level	#Students	Amer. Ind./	Asian Pacific	Afr. Amer.	Hispanic	White	Econo. Disadv.	LEP	Spec Ed
		Alaska	Isld.						
State	4,311,502	0.3%	2.9%	14.3%	43.8%	38.7%	52.8%	15.3%	11.6%
Region IV	944,176	0.2%	5.4%	21.5%	40.5%	32.5%	51.5%	17.9%	10.0%
Houston	211,157	0.1%	3.0%	29.8%	58.1%	9.1%	81.7%	29.0%	10.0%
Aldine	56,127	0.1%	2.4%	33.1%	58.0%	6.4%	76.6%	24.9%	9.7%
Alief	45,292	0.1%	13.3%	36.8%	43.1%	6.7%	59.6%	31.5%	11.7%
Clr Creek	32,706	0.3%	9.4%	7.4%	15.7%	67.2%	15.1%	6.7%	8.9%
Cy-Fair	74,730	0.2%	8.2%	11.1%	28.7%	51.8%	25.7%	12.9%	9.2%
Humble	26,832	0.4%	3.4%	12.4%	18.2%	65.6%	19.3%	5.8%	9.7%
Katy	41,690	0.2%	7.5%	6.7%	22.1%	63.5%	17.3%	9.6%	9.2%
Klein	35,474	0.3%	7.9%	13.7%	23.8%	54.4%	23.0%	9.9%	10.3%
Pasadena	46,002	0.2%	3.2%	6.4%	70.7%	19.4%	63.2%	25.6%	7.7%
Spring	26,664	0.2%	5.8%	31.9%	31.1%	31.0%	46.5%	13.4%	10.3%
Sprg Brnch	32,920	0.1%	6.2%	6.3%	52.7%	34.7%	54.1%	30.5%	10.9%

*AEIS Data, 2003-04

Methodology

High School Persistence,	Dropouts,
and Completion	

The state of Texas educates over 4 million students in the public K-12 schools every year. Enrollment in Texas schools is composed primarily of non-white students with 43.8% of Texas students being Hispanic and 14.3% African-American as of 2003-04; only 38.7% of Texas students are white (see Table 1). The percentage of lower-income students in the state has also increased over time with approximately 53% of Texas students being classified as economically disadvantaged in 2003-04 as defined by enrollment in federally funded free- or reduced-priced lunch.

HISD is the largest school district in Texas and the seventh largest in the United States, encompassing 301 square miles and serving 211,157 students in 307 schools. While the percentage of nonwhite, low-income, and limited-English proficient (LEP) students has increased across the state and Region IV, HISD boasts significantly higher numbers of all three subgroups than both Region IV and the state. As presented in Table 1, in 2003, the student population in this district was composed of 58.1% Hispanic students and 29.8% African American students while less than 10% of enrolled students were white. The diversity of this population is reflected in the 60 different languages spoken in the district. Much of this language diversity is a result of international immigration; thus, the district provides programs for students with limited English proficiency through bilingual and English as a second language classes. Approximately 29% of all HISD students are considered to be LEP, a significantly higher percentage than that of the state or Region IV. Also of note, 81.7% of the student population is economically disadvantaged, approximately 30% higher than both the state and Region IV figures. The African American and White populations have decreased over the last decade by

approximately 7% and 3%, respectively, while the Hispanic population has grown by 9%. The bilingual/LEP population has also grown by 4.9% and the economically disadvantaged subgroup has seen a dramatic increase of 23.3% over the same time period.

As shown in Table 1, the districts included in the study differ significantly both in terms of their size and their demographic composition even though they are located in the same educational region. HISD is by far the largest district in the study, as well as the state, at more than 200,000 students, while Spring has less than 27,000 students. More than 60% of the student body of Clear Creek, Humble, and Katy is white and less than 20% is economically disadvantaged, while less than 10% of HISD and Aldine is white and more than 75% of the students in both districts are classified as low-income. These demographic differences should be kept in

Table 2: Same-District Student Persistence Percentages, 2003-07

	9th Grade Cohort #	10th grade Remaining %	11th grade Remaining %	12th grade Remaining %	All Years Remaining %
Houston	18,524	55.7%	43.8%	41.0%	36.7%
Aldine	4,908	59.0%	42.3%	45.1%	37.0%
Alief	4,205	56.5%	42.1%	40.9%	35.8%
Clr Creek	2,852	79.1%	70.2%	66.0%	64.1%
Cy-Fair	6,589	80.0%	71.8%	68.3%	66.0%
Humble	2,187	91.2%	81.2%	71.9%	71.7%
Katy	3,973	77.4%	71.1%	68.5%	65.1%
Klein	3,681	68.6%	54.7%	58.8%	50.8%
Pasadena	4,028	54.7%	45.7%	48.9%	39.8%
Spring	2,523	61.5%	55.7%	50.8%	46.8%
Sprg Brnch	2,832	72.2%	61.3%	56.3%	54.9%

mind as we begin to explore high school persistence and completion rates for the districts.

Table 2 on the previous page shows some of the differences in the high school persistence patterns between the districts. It should be noted that students did not need to be present in every previous grade in order to be counted in a following year for these rates. For example, a student could be excluded in grade 11 but could reappear in the cohort in grade 12. In fact, a number of cohorts actually did increase between 11th and 12th grade, indicating that districts are possibly recapturing students who may have left school previously. However, for the final cohort a student must have been present in every grade as indicated by the "All Years" column in the table.

While approximately 65% of the 9th grade cohort was present in the same district for all four years in Clear Creek, Cypress-Fairbanks, and Katy, and more than 70% of the Humble cohort was present all years, five out of the eleven districts had four-year persistence rates of less than 40% with Alief's 35.8% being the lowest. HISD students fared only slightly better than those students who began 9th grade in Alief with 36.7% of the HISD cohort being present in the appropriate grade all four years of high school. Figure 7 below provides a visual representation of these persistence patterns. This figure also illustrates a phenomenon common to all districts in the study which is the fact that the transition between 9th and 10th grade appears to be particularly treacherous for students. Every district in the study lost more than 20% of their students between 9th and 10th grade, and the cohorts for some districts decreased by nearly 50% over this transition.

As alluded to previously, these data must be interpreted cautiously as many factors can cause a student to be excluded from the cohort, such as repeating a grade, moving to a private school, or changing districts. These figures are not four-year completion rates and the inverse of these figures are not the district dropout rates. With that being said, the variability between districts is once again stark and the apparent relationship between demographic characteristics and high school persistence rates is troubling.

Figure 7: High School Persistence Rates for HISD and 10 other Districts



High School

Another way to visualize the persistence patterns of high school youth is to graph the trends in dropout rates. Figure 8 provides such visualization, but once again a number of caveats should be mentioned regarding this figure and the calculation of dropout rates in Texas generally. At first glance, the figure below seems to contradict the previous graph of persistence rates over time. While the graph of persistence seems to indicate that the majority of students leave by the end of 10th grade, the inverse seems to be true regarding dropouts with few 9th and 10th grade students dropping out and significantly higher rates of dropouts in 11th and 12th grade. In fact, this contradiction can be explained by educational policy changes that occurred in Texas before the 2005-06 year. Prior to this year, many students who left school were not considered dropouts but were in-

stead classified as "leavers." For example, students who completed all of their coursework but failed their high school exit exam or students who left school with an intention to pursue a General Educational Development (GED) certificate were not considered dropouts. Around 2005, Texas adopted the NCES definition of dropouts which reclassified students who were previously considered leavers, such as the two aforementioned categories of students. This is the primary reason why the dropout rates for 9th and 10th grade appear significantly lower than those for 11th and 12th grade; this policy change took effect during the 11th grade year for students in this cohort. It is likely that the 9th and 10th grade dropout rates would have been in the double-digits if the more stringent NCES definition had been applied in these years.







High School

While the different dropout definitions used for different years makes interpretation of this figure difficult, it is still useful for pointing out some of the variability in dropout rates between districts. For example, in grade 12 the dropout rate ranged from approximately 1.5% in Katy to more than 8.5% in Pasadena, with the state and Region IV averages were both around 5.0%. Figure 9 contains the four-year dropout rates, the total percentage of students from the grade 9 cohort that were classified as dropouts at any time during their four years of high school, for the state, Region IV, and the districts in the study. Unfortunately, HISD students were at greatest risk of dropping out, with more than 20% of the cohort dropping out at some point during high school.

As discussed previously, the percentage of students in each district that persist through high school appears to vary significantly by race, socioeconomic status, English proficiency sta-



tus, and educational program. However, in order to better understand these precise relationships it is important to disaggregate persistence patterns by demographic characteristics. Figure 10 provides these persistence rates for HISD students by demographic group. While approximately 60% of white and Asian students in the cohort persisted through all four years of high school, about 38% and 31% of African-American and Hispanic students, respectively, were likewise present for all four years. The persistence rate for economically disadvantaged students was 34%, close to the district average due to the large percentage of low-income students in the district. And while only 27% and 19% of HISD's special education and LEP student population, respectively, made it through all four years of high school, more than 80% of students classified as being gifted and talented were present all years. A moderate disparity in persistence rates is also apparent between males and females. While about 41% of female students were present all years, the same was true for only 32% of male students, a difference of approximately 9%.

Figure 9: 4-year Dropout Rates for State, Region IV, and all Districts





Figure 10: Persistence Rates for HISD Students by Demographic Group

Figure 11 also highlights some of the disparities between demographic groups for HISD students in terms of dropout rates. While HISD has the highest 4-year dropout rate out of any of the districts

in the sample, certain student groups are at significantly higher risk than others. Approximately 7% and 5% of white and Asian students, respectively, dropped out at some point during high school,



Figure 11: 4-Year Dropout Rates for HISD Students by Demographic Group

but 21% and 23% of African-American and Hispanic students, respectively, dropped out. LEP students were the subgroup with the highest rate at nearly 30% with special education students having the second highest at 25%. At the other end of the spectrum less than 2% of gifted and talented students dropped out at any point during high school. And once again, male students were more likely than their female peers to dropout by a margin of more than 4%. It should also be reiterated that these figures are probably conservative estimates of the actual number of students that dropped out due to the lenient criteria applied to classifying students as dropouts prior to the 2005-06 school year, although it is difficult to determine exactly how much higher the 9th and 10th grade rates would be by the NCES definition.

The final outcome of interest at the high school level that we investigated for the current report was that of high school graduation rates. Table 3 contains graduation data for the state, Region IV, HISD, and the other ten districts. Three different methods of calculating graduation rates were used for the data in this table. In the "percent of beginners that graduate" column, a student was counted as a graduate if they were in the 9th grade cohort and they graduated from any district at any time by the 2006-07 school year. This number serves as the percentage of the entering cohort that graduates ontime somewhere in the state. The "percent of persisters that graduate" column restricts the sample to only those students that were present in the same district for all four years of high school and then calculates the percentage of those students that graduates. This graduation rate is expected to be high given the fact that all of these students made it through all four years of high school without repeating a grade or dropping out, making it somewhat disheartening to see that more than 16% of students in HISD that made it through all four years of high school in the same district still failed to graduate, the highest rate of nongraduation for the cohort of persisters among any of the sample districts. The final rate presented in Table 3 is likely the most disheartening as it represents the percentage of the original 9th grade cohort that persisted in the same district through all four years of high school and graduated on time. While more than 60% of the 9th grade cohorts for Clear Creek, Cypress-Fairbanks, Humble, and Katy persisted through all four years

of high school in the same district and graduated on time, HISD, Aldine, Alief and Pasadena all had rates in the low-to mid-30% range. Texas and Region IV both had rates in the mid-40% range for this same graduation rate.

Figure 12 provides a general illustration of the disparities in graduation rates for HISD students that persisted through all four years of high school in HISD. While approximately 95% of both white and Asian persisters do graduate on-time, only 83% and 79% of African-American and Hispanic persisters, respectively, receive their degree. LEP students have by far the lowest graduation rate while gifted students have the highest. The difference between the graduation rates of male and female students is less than 1%.

	9th	# of	% of	All	# of	% of	% of total
	Graders	Graduates,	Beginners	Years,	Graduates,	Persisters	that Persist
	2003-04	Any	that	Same	Same	that	and
		District	Graduate	District	District	Graduate	Graduate
State	391,557	224,398	57.31%	197,056	178,142	90.40%	45.50%
Region IV	85,844	47,616	55.47%	41,481	37,344	90.03%	43.50%
Houston	18,524	7,986	43.11%	6,793	5,676	83.56%	30.64%
Aldine	4,908	2,383	48.55%	1,815	1,573	86.67%	32.05%
Alief	4,205	1,937	46.06%	1,505	1,302	86.51%	30.96%
Clr Creek	2,852	2,008	70.41%	1,829	1,723	94.20%	60.41%
Cy-Fair	6,589	4,575	69.43%	4,351	4,000	91.93%	60.71%
Humble	2,187	1,586	72.52%	1,568	1,410	89.92%	64.47%
Katy	3,973	2,900	72.99%	2,588	2,509	96.95%	63.15%
Klein	3,681	2,299	62.46%	1,871	1,765	94.33%	47.95%
Pasadena	4,028	1,896	47.07%	1,603	1,387	86.53%	34.43%
Spring	2,523	1,504	59.61%	1,181	1,064	90.09%	42.17%
Sprg Brnch	2,832	1,720	60.73%	1,555	1,441	92.67%	50.88%

Table 3: Student Persistence and Graduation Rates for State, Region IV, and Study Districts



Figure 12: Graduation Rates of 4-Year Persisters (2007) in HISD by Demographic Group

While the data on high school persistence, dropouts, and graduation rates presented thus far have only been disaggregated to the level of district, there is surely a great deal of variability in these outcomes between schools within a district. While an extensive analysis of the performance of high schools is beyond the scope of this current report as the current study is focused primarily on district performance, we present some preliminary data for the outcomes of interest for the ten HISD high schools with the largest 9th grade cohort sizes in the district. Figure 13 illustrates demographic and persistence data, for the ten high schools in HISD.



As shown in Figure 13, these schools differ significantly in terms of their demographic makeup. While no school's student body consists of more than 40% white students it is evident that some schools are still far more segregated than others. Contrasting Lamar HS to Austin HS reveals these differences. Lamar's student body is relatively evenly distributed between African-American, Hispanic, and white students, with each group contributing between 27% and 35% of the total school population. Additionally, only 32% of Lamar's student body is economically disadvantaged. On the other hand, 97% of Austin HS's population is Hispanic while African-Americans and whites make up only slightly more than 1.3% each, and nearly 90% of the student body is classified as being economically disadvantaged. The percentage of LEP, special education, and gifted students also varies widely between schools; the proportion of LEP students ranges from 6.7%-41.1%, special education students compose between 5.1%-13.1%, and gifted students make up as little as 0.5% of the student body in Sharpstown to as much as 23% of the total population in Bellaire.





High School

These ten high schools also differ widely in terms of the persistence, dropout, and graduation rates of their students. We once again calculated the four-year persistence rate (the "All Years" column in Table 2) by only including those students that were present in the correct grade at the same school for each consecutive year (see Table 4). In terms of high school persistence, dropout rates, and graduation rates, Lamar and Bellaire are the two highest performing HISD high schools while Lee appears to be the lowest performing. Approximately 66% and 59% of Lamar and Bellaire 9th grade cohorts, respectively, made it through all four years of high school while only 19% of Lee's cohort persisted. Lee's four-year dropout rate of 32% was the highest of the ten schools while Bellaire's 8% was the lowest. In regards to graduation rates, less than 30% of Lee and Sam Houston's cohorts graduated on time while approximately 65% of Lamar and Bellaire's student bodies did (as a caveat, the graduation rate presented in the table was calculated simply by taking the 9th grade cohort and seeing what percentage graduated by 2007 regardless of what school or district they graduated from).

	9th	10th	11th	12th	All	Drop-	Drop-	Drop-	Drop-	Drop-	Grad-
	Grade	Grade	Grade	Grade	Years	out 9th	out	out	out	out	uate
	03-04					Grade	10th	11th	12th	Ever	On-
	Cohort						Grade	Grade	Grade		time
Sharpstown	750	55%	42%	41%	35%	6%	3%	7%	8%	23%	33%
Westbury	787	48%	42%	41%	32%	2%	4%	7%	9%	21%	35%
Madison	909	60%	47%	44%	40%	2%	3%	8%	8%	20%	47%
Westside	936	65%	60%	61%	52%	3%	2%	5%	4%	13%	59%
Chavez	983	53%	46%	45%	37%	4%	3%	8%	8%	23%	41%
Austin	993	47%	32%	33%	24%	4%	4%	8%	7%	23%	38%
Lamar	1009	86%	71%	70%	66%	2%	1%	3%	4%	10%	65%
Bellaire	1016	73%	65%	68%	59%	1%	1%	3%	3%	8%	65%
Lee	1115	39%	31%	29%	19%	9%	5%	8%	11%	32%	22%
Sam Houston	1248	59%	41%	39%	32%	3%	3%	7%	5%	19%	29%

Table 4: High School Persistence, Dropouts, and Graduation Rates for 10 Largest HISD High Schools

Once again, certain relationships between demographic composition and high school persistence, dropout, and graduation rates are apparent when comparing the performance of different HISD high schools. Schools with larger non-Asian minority, lowincome, and LEP populations were far more likely to have lower persistence rates, higher dropout rates, and lower eventual graduation rates.

Future studies should continue to analyze the factors that influence high school persistence, dropping out, and graduation, and specifically those school-level variables that affect students' chances of successfully completing their high school education.



Conclusion

As discussed in the introduction to this report, schools and districts are under increased pressure to ensure that their students persist through high school and graduate on-time ready for college or a career. While calculating the rates of high school persistence and graduation appears intuitively straightforward, the variety of methodologies employed by various organizations often results in significantly different estimates of these rates. This brief provides a unique contribution to the discussion of high school persistence and graduation in Texas by employing a student-level dataset that allowed us to track students individually and, as we would argue, arrive at more accurate estimates of persistence and graduation.

The strength of our methodology notwithstanding, we believe it is prudent to mention a few caveats and limitations of this study before presenting our final conclusions. The most obvious limitation of this type of study is that we did not conduct any statistical analyses of the potential causes of persistence and graduation. While we did explore correlations between a variety of demographic characteristics and our outcomes of interest, it is beyond the scope of this report to attribute causation to these or any other variables as the purpose was solely to provide a descriptive overview of these patterns. We also would recommend that the results of these analyses be accurately understood and interpreted cautiously. For example, while we estimated that only about 30% of students in certain districts persisted through high school, by this we mean that only 30% persisted in the same district each year and progressed sequentially through each grade. The percent of the original cohort that graduated from the same district might actually be significantly higher than this estimate. With these limitations in mind, the conclusions that we have drawn from these analyses are provided:

Even among students who make it through all four years of high school, their likelihood of successfully graduating appears related to the district they attend. Approximately 10.0% more students that persist through high school earn a high school diploma in the district with the highest graduation rate compared to the district with the lowest graduation rate.

Race and socioeconomic status appear to be strongly related to the likelihood that students will successfully complete their high school education. In HISD, Hispanic and African-American students are roughly half as likely as their white and Asian peers to persist through all four years of high school and more than 20% of lowincome students that make it to their senior year still fail to graduate on time.

Special populations are also at particularly high risk of failing to earn a high school diploma. Approximately one out of every four special education students and one out of every three LEP students drops out before graduating, and even among students that make it through high school only about half of LEP students leave their senior year with a diploma.

✦ The results of this study also highlight the growing gender disparity in educational outcomes. More than 9% fewer males than females in HISD persisted through high school and graduated on time.

✦ Finally, there is also tremendous variation between high schools within districts in their high school persistence and completion patterns. Within HISD, the dropout rate among the ten largest high schools ranged from 8.3%-32.1%, meaning nearly four times more students drop out from the lowest performing high schools within the district.



Conclusion

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