MEMORANDUM August 23, 2017

TO: Lance Menster
Officer, Elementary Curriculum and Development

FROM: Carla Stevens
Assistant Superintendent, Research and Accountability

SUBJECT: **EFFECTS OF HISD PREKINDERGARTEN PROGRAMS ON THIRD GRADE STUDENTS' ACADEMIC ACHIEVEMENT, 2016–2017**

This evaluation compares the academic achievement of third grade students who were previously enrolled in an HISD prekindergarten program (Pre-K) to their non-HISD Pre-K peers on the 2016–2017 STAAR English and Spanish reading and mathematics assessments.

Key findings include:

- When compared to non-HISD Pre-K alumni, HISD Pre-K students who took the STAAR reading and mathematics assessments achieved higher mean standard scores in all subtests but the English Reading Assessment, and were more likely to meet or exceed the "Approaches Grade Level" Standard (formerly the "Satisfactory" standard) across all subtests than either the district average or their non-HISD Pre-K peers.
- Comparisons of mean scale scores for students who are economically disadvantaged (EDA), at risk of dropping out before graduation, or limited English proficient (LEP) show that HISD pre-K alumni outperformed their non-HISD Pre-K peers across all subtests. Small effect sizes (Hedges g ≥ 2) were shown for EDA, at-risk and LEP students on the English reading, English math and Spanish math assessments.
- Comparisons of scores show that EDA, at-risk, and LEP students who had attended at least one year of HISD pre-K were also more likely to meet or exceed the Approaches Grade Level standard across all subtests than either the district average or their non-HISD pre-K peers.

Further distribution of this report is at your discretion. Should you have any further questions, please contact me at 713-556-6700.

Attachment

cc: Grenita Lathan
Gabrielle Coleman
Rachele Vincent

HOUSTON INDEPENDENT SCHOOL DISTRICT

RESEARCH

Educational Program Report

EFFECTS OF HISD PREKINDERGARTEN PROGRAMS ON THIRD-GRADE STUDENTS' ACADEMIC ACHIEVEMENT, 2016-2017

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EVALUATION REPORT
BUREAU OF PROGRAM EVALUATION

August 18, 2017

Effects of HISD Prekindergarten Programs on Third-Grade Students' Academic Achievement, 2016–2017

By Jessica A. Brown, Ph.D.

The Houston Independent School District (HISD) currently offers free, full-day prekindergarten programs to all eligible students within the district's attendance boundaries. This evaluation compares the academic achievement of third-grade students who were previously enrolled in HISD prekindergarten programs during the 2012–2013 school year to their non-HISD Pre-K peers. Findings in this study suggest that a positive relationship may exist between students' enrollment in an HISD Pre-K program and their academic achievement on the 2017 STAAR English and Spanish reading and mathematics assessments. The relationship of HISD Pre-K on students' achievement was especially noteworthy when demographic characteristics were taken into account. Findings show that economically-disadvantaged students, students who are at-risk of dropping out, and limited English proficient (LEP) students who attended HISD prekindergarten programs experienced higher academic achievement than similarly disadvantaged, at-risk, or LEP peers who did not attend HISD Pre-K.

Background

In compliance with the Texas Education Code § 29.153, the Houston Independent School District (HISD) has provided free prekindergarten classes for eligible Houston area four-year old students since the 1985–1986 school year: children are enrolled into one of four HISD prekindergarten program models: (1) an early childhood center (ECC), (2) a school-based program, (3) an HISD and Head Start collaborative program, or (4) a Montessori program. Preschool-age children with disabilities are enrolled according to HISD and prekindergarten eligibility guidelines (see Houston Independent School District [HISD] Prekindergarten Homepage, 2016a). Home language surveys are also administered to parents or guardians in order to place children in a linguistically-appropriate HISD prekindergarten classroom (i.e., Transitional Bilingual, English as a Second Language, English, or Dual Language). With the exception of HISD Montessori prekindergarten programs, the district uses *the Frog Street Pre-K (FSPK)* curriculum. Frog Street Pre-K focuses on the physical, social and emotional, cognitive, and language development of preschool-age children (Schiller, n.d.). The quality of implementation of this curriculum forms the foundation of children's future academic success. Presently, the HISD operates 155 campuses that provide instruction for young children (HISD, 2016a).

Literature Review

School readiness refers to children "possessing the skills, knowledge, and attitudes necessary for success in school and later learning in life" (U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start [OHS], 2015). While school readiness is important for all children, it is particularly essential for vulnerable and disadvantaged populations including "girls, children with disabilities, ethnic minorities, and those living in rural areas" (United Nations Children's Fund [UNICEF], 2012, p. 9). However, researchers suggest that inequities in children's school readiness and academic success are more prevalent among children of color and those from

economically disadvantaged backgrounds (National Research Council [NRC], 2009).

Results included in the *Houston Independent School District State of Texas Assessments of Academic Readiness (STAAR) Performance, Grades 3-8 Spring 2016* report, indicated that, rather than shrinking with time spent in formal education, the achievement gap between disadvantaged students and their more privileged peers typically widened across grade levels (Houston Independent School District [HISD], 2016b, p. 7). These results substantiate previous evidence found by Magnuson and Waldfogel who suggest achievement disparities in mathematics were related to "differences in mathematics learning experiences before school entry, and fewer meaningful pedagogical experiences once children of color entered school" (cited in NRC, 2009, p. 100). Public preschools that serve higher percentages of economically-disadvantaged children tend "to provide fewer learning opportunities and supports for [literacy and] mathematical development than ones serving their more affluent peers" (Clements and Sarama, 2008 as cited in NRC, 2009, p. 98). The negative indicators associated with young children with disadvantaged backgrounds (e.g., at-risk, poor access to resources, low income, limited parent education) can adversely alter their cognitive, socio-emotional, and physical developmental trajectories (Evans & Kim, 2013). Without high-quality comprehensive interventions, relationships among these variables may affect children with disadvantaged backgrounds throughout their lifetime, thus perpetuating the deleterious impacts of inequality across generations.

Early childhood education researchers have found that young children who are at greater risk for school failure are more likely to succeed in school if they attend well-planned, high-quality early childhood programs (National Association of the Education of Young Children & National Association of Early Childhood Specialists in State Departments of Education [NAEYC & NAECS/SDE], 2003; National Research Council [NRC], 2001). High-quality prekindergarten programs enhance children's cognitive development and improve their academic achievement, particularly for students from disadvantaged backgrounds (Brooks-Gunn, 2003; Currie, 2000; Gormley, Gayer, Phillips, & Dawson, 2005; Magnuson, Ruhm, & Waldfogel, 2007; Shager, Schindler, Magnuson, Duncan, Yoshikawa, & Hart, 2013; Baumgartner, 2017). Exigent literature also suggests that the beneficial effects of early childhood interventions are typically much larger for more disadvantaged youth (Currie, 2000; Magnuson et al., 2007).

Findings from previous research regarding the effectiveness of early childhood programs, however, have varied considerably from negative or no effects, to substantial short- and long-term effects on young children's school readiness and achievement outcomes (Del Grosso, Akers, Esposito, & Paulsell, 2014; Houston Independent School District [HISD], 2016c; U.S. Advisory Committee on Head Start Research and Evaluation, 2012; Zhai, Brooks-Gunn, & Waldfogel, 2011; Baumgartner, 2017). Reasons contributing to the divergence in findings regarding early childhood programs' true impact on young children's school readiness include (a) selection bias (U.S. Advisory Committee on Head Start Research and Evaluation, 2012; Gormley et al., 2005); (b) differences in research methodologies and scope (Del Grosso et al., 2014); and (c) variations in reliability and validity of psychometric measures.

Purpose

The purpose of this report was to inform HISD and education stakeholders about third-grade students' achievement levels in reading and mathematics following enrollment in an HISD prekindergarten program.

1. How well did third-grade students who were previously enrolled in HISD Pre-K perform on the 2017 STAAR reading and mathematics assessments in comparison to their non-"alumni" peers? Were there any differences when demographic factors, such as economic background, at-risk status, or English proficiency, were taken into account?

2. Were third-grade HISD Pre-K alumni more likely to meet the Approaches Grade Level (AGL) standard (formerly the "Level II: Satisfactory" standard), by which STAAR measures age and grade-level appropriate academic performance? Were there any differences among students when economic, at-risk or English proficiency indicators were taken into account?

Methods

Data collection

Data collection for third-grade students who were previously enrolled in an HISD prekindergarten program during the 2012–2013 school year was conducted in two phases. The first phase of data collection consisted of identifying all prekindergarten (coded 'PK') and third-grade (coded '03') students who attended HISD during the 2012–2013 and 2016–2017 school years,

respectively. This information was retrieved from the Public Education Information Management System (PEIMS) 2012–2013 and 2016–2017 HISD student databases. With the PEIMS 2016–2017 database serving as the base file, both databases were merged together, resulting in the identification of 18,082 third-grade students. The second phase of data collection involved merging students' PEIMS data to their academic data located in the STAAR 2016–2017 HISD student database, with the latter serving as the new base file. Merging the files resulted in a decrease in the third-grade student count to 16,406.

Measures

The demographic characteristics of HISD third-grade students used for this report were collected from the PEIMS 2016–2017 HISD student database. Characteristics included gender, race and ethnicity, special education eligibility, and status as economically-disadvantaged, limited English proficient (LEP), or at-risk. HISD defines at-risk students as individuals who have an increased likelihood of dropping out of school. An additional LEP variable was created to incorporate the home language category (i.e. LEP Spanish, LEP non-Spanish, non-LEP non-Spanish, and non-LEP Spanish; see **Appendix A**).

The academic achievement of HISD third-grade students was measured and collected through the State of Texas Assessments of Academic Readiness assessment system (STAAR). During the spring of 2017, HISD third-grade students were administered the STAAR reading and mathematics assessments. A Spanish version was also made available, as well as accommodations for students with disabilities (SWD) as determined by the Admission, Review, and Dismissal (ARD) Committees (HISD, 2016b). As of this year, STAAR's previous benchmark ("Level II: Satisfactory") was renamed "Approaches Grade Level" (AGL), although the minimum score cut-offs did not change (Texas Education Agency [TEA], 2017.) **Table 1** shows the minimum scale score students needed to meet the Approaches Grade Level standard on the third-grade STAAR reading and mathematics assessments (Texas Education Agency [TEA], 2017).

Table 1. Minimum Scale Scores for the 2017 Approaches Grade Level (AGL) Standards on the STAAR Third-Grade Reading and Mathematics Assessments by Language

Subject	2017 AGL benchmark	
	English	Spanish
Reading	1345	1318
Mathematics	1360	1360

Source. TEA at http://tea.texas.gov/student.assessment/staar/convtables/

Statistical Analyses

The International Business Machines Corporation Statistical Package for the Social Sciences (IBM SPSS) 22.0 was used to conduct descriptive statistical analyses of study variables. Summary statistics were computed to determine third graders' academic achievement in reading and mathematics. The information presented in this report was primarily described by mean scale scores. As such, caution should be exercised when interpreting relationships between study variables. In addition to mean scale scores, frequency analyses were also conducted to determine the percent of students who met the 2017 Approaches Grade Level benchmark on the STAAR reading and mathematics assessments.

Effect sizes were also computed to measure the magnitude of program impacts on students' academic achievement using Hedges' g. Hedge's g is a standard deviation-based measure used to compute the effect size for groups with different sample sizes. Hedge's g follows similar criteria to Cohen's d for determining the strength of an intervention with an effect size of 0.2 = small effect, 0.5= moderate effect, and 0.8=large effect. Full results are presented in **Appendix B**, **Tables 1** to **4**.

Limitations

- Comparison groups were not matched by prior academic achievement levels because the STAAR assessment is not administered before students' third grade year. Controlling for academic achievement levels prior to the beginning of third grade may have helped to explain some of the variance in academic outcomes between the groups by the end of the year. To reduce the impact of this limitation, the researcher (a) used descriptive statistics instead of inferential statistics to analyze relationships among variables, and (b) refrained from generalizing results generated in this study beyond the target population.

- Data retrieved from PEIMS represents a 'snapshot' of students who were enrolled by the last Friday in October of each school year in HISD (Texas Education Agency [TEA], 2016). Students present for the 'snapshot' may not have been actively enrolled in an HISD prekindergarten program the entire year. In contrast, students who were not present during the 'snapshot' may have actually enrolled later into a program, but were not identified as having attended HISD prekindergarten in the 2012–2013 school year.

- Academic measures retrieved for prekindergarten students eligible for special education services may not truly reflect their 2016–2017 academic outcomes as a number of four-year-old students who may have

also received prekindergarten instruction were coded as 'EE' (Early Education) during the 2012–2013 school year.

- A randomized, experimental research design was not conducted to evaluate the effects of HISD prekindergarten program intervention on students' academic achievement. As such, findings regarding the magnitude of the effect of HISD prekindergarten programs on students' short-term impact may be biased.

- The information in this report was primarily examined in the context of assessment outcomes, demographic characteristics, and prekindergarten program enrollment. However, because a detailed field study of pre-K curricula, and classroom implementation thereof, were beyond the scope of this report, causal inferences in reference to program attributes and impact were not made.

Results

Mean Scale Scores: Pre-K Alumni and Economically Disadvantaged Students

Figure 1 to **Figure 4** show comparisons of students' academic achievement on the 2017 STAAR third-grade reading and mathematics assessments. Comparisons of mean scale scores achieved by students were analyzed in the context of prekindergarten program enrollment status and language versions of each subject assessment. Because Spanish reading passages and items were uniquely developed to maintain authenticity of the Spanish assessment, results for students administered the Spanish reading assessment should be interpreted on a vertical scoring system separate from the English reading results (Texas Education Agency [TEA], 2013). Total mean scale scores for all HISD third graders were obtained by merging the 2016–2017 PEIMS and STAAR databases: these district averages are included in **Figures 1** through **8** to serve as reference points.

Results in **Figure 1** show third-grade students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1420.8) on the 2017 STAAR English reading assessment that was slightly lower than that of their non-HISD Pre-K peers (M = 1425.3). Both HISD Pre-K and non-HISD Pre-K alumni obtained mean scale scores that were comparable to the district's average (M = 1423.2). Furthermore, more than 65 percent of all HISD third graders, regardless of Pre-K enrollment status, met or exceeded the Approaches Grade Level standard on the STAAR English Reading assessment (see **Appendix C**, **Table 1**).

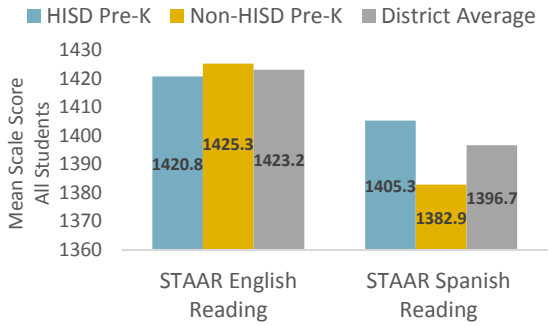

Figure 1. Mean scale scores on 2017 STAAR English and Spanish reading assessments compared by Pre-K alumni status.

Figure 1 also shows third-grade students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M =1405.3) on the 2017 STAAR Spanish reading assessment that was higher than that of their peers who did not attend HISD Pre-K (M = 1382.9). HISD Pre-K alumni obtained a mean scale score that was higher than the district's average (M = 1396.7) on the Spanish reading assessment, in contrast to their non-alumni peers who obtained a lower mean scale score. Regardless of prekindergarten program enrollment status, majorities of students in both the Pre-K and non-Pre-K groups (69.5 and 62.4 percent, respectively) obtained mean scale scores that met or exceeded the Approaches Grade Level standard (see **Appendix C**, **Table 2**).

Because students determined to be economically disadvantaged (EDA) make up a substantial majority (79.6 percent) of all HISD third graders (see **Appendix A**, **Table 1**), the impact of prekindergarten enrollment on this population's academic achievement is of particular interest. Results in **Figure 2** show economically-disadvantaged, third-grade students who were enrolled in HISD Pre-K achieved a mean scale score (M = 1409.3) on the 2017 STAAR English reading assessment that was higher than that of their economically-disadvantaged, non-alumni peers (M = 1369.4). EDA students who were previously enrolled in an HISD prekindergarten program obtained a mean scale score that was also higher than the district's average (M = 1391.1), in contrast to their non-alumni peers. Moreover, 64.2 percent of economically-disadvantaged students who had enrolled in HISD Pre-K obtained mean scale scores that met or exceeded the Approaches Grade Level standard, compared to 54.9 percent of students in the non-Pre-K group (see **Appendix C**, **Table 1**).

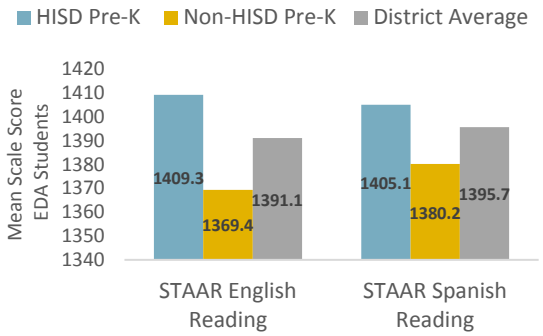

Figure 2. Mean scale scores on 2017 STAAR English and Spanish reading assessments compared by Pre-K alumni status: economically-disadvantaged students.

Figure 2 also shows economically-disadvantaged, third-grade students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1405.1) on the 2017 STAAR Spanish reading assessment that was higher than that of their economically-disadvantaged non-HISD Pre-K peers (M = 1380.2). Economically-disadvantaged Pre-K Alumni obtained a mean scale score that was higher than the district's average (M = 1395.7), in contrast to their non-alumni peers. Moreover, 69.5 percent of economically disadvantaged students in the HISD Pre-K group met or exceeded the Approaches Grade Level standard on the STAAR Spanish reading assessment compared to 62.1 percent of the non-Pre-K group (see **Appendix C**, **Table 2**).

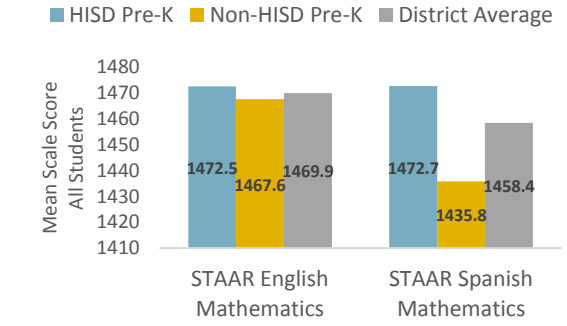

Figure 3. Mean scale scores on 2017 STAAR English and Spanish math assessments compared by Pre-K alumni status.

Results in **Figure 3** show third-grade students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1472.5) on the STAAR English mathematics assessment that was higher than that of their non-HISD Pre-K peers (M = 1467.6). HISD Pre-K students obtained a mean scale score that was also higher than the district's average (M = 1469.9), in contrast to non-alumni. For both groups, the percent meeting or exceeding the Approaches Grade Level standard was higher than 70 percent (see **Appendix C**, **Table 3**).

Figure 3 also shows third-grade students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1472.7) on the 2017 STAAR Spanish mathematics assessment that was higher than that of their non-HISD Pre-K peers (M = 1435.8). Students who previously enrolled in an HISD prekindergarten program obtained a mean scale score that was higher than the district's average (M = 1458.4). In the HISD Pre-K group, 77.6 percent of students met or exceeded the Approaches Grade Level STAAR Spanish mathematics standard compared to 70.2 percent of their non-HISD Pre-K peers (see **Appendix C**, **Table 4**).

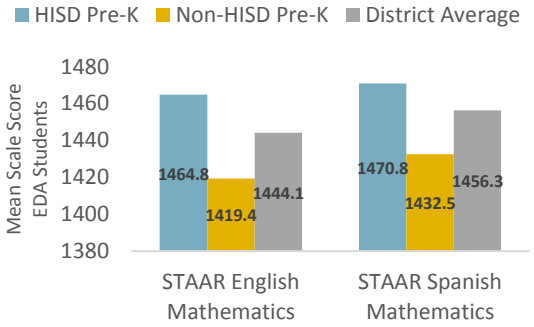

Figure 4. Mean scale scores on 2017 STAAR English and Spanish math assessments compared by Pre-K alumni status: economically-disadvantaged students.

Results in **Figure 4** show third-grade, economically-disadvantaged students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1464.8) on the 2017 STAAR English mathematics assessment that was higher than that of their economically-disadvantaged peers who did not attend an HISD prekindergarten program during the 2012–2013 school year (M = 1419.4). Students who were previously enrolled in an HISD prekindergarten program likewise obtained a mean scale score that was higher than the district's average (M = 1444.1) on the English mathematics assessment. Among economically-disadvantaged students who attended an HISD prekindergarten program, 73.3 percent achieved scores which met or exceeded the Approaches Grade Level standard, compared to 63.5 of their non-HISD Pre-K peers (see **Appendix C**, **Table 3**).

Figure 4 also shows third-grade, economically-disadvantaged students who were enrolled in an HISD prekindergarten program achieved a mean scale score (M = 1470.8) on the 2017 STAAR Spanish mathematics assessment that was higher than that of their

economically-disadvantaged peers who did not attend an HISD prekindergarten program during the 2012–2013 school year (M = 1432.5). Of students who previously enrolled in an HISD prekindergarten program, 77.1 percent obtained a mean scale scores on the Spanish math assessment that met the AGL standard, compared to 69.8 percent in the non-HISD Pre-K group (see **Appendix C**, **Table 4**).

Effect Size Measures: Pre-K Alumni and EDA Students

The overall size of the effects of HISD prekindergarten program enrollment status on students' academic achievement are shown in **Table 2,** with small positive effects noted for students who were administered the Spanish mathematics assessments (0.24).

However, the positive effects of HISD Pre-K on students' academic achievement were broadened when economically disadvantaged status was taken into account. As **Table 3** shows, for these students Pre-K alumni status has small positive effects on third-grade English reading (0.25), English mathematics (0.28), and Spanish mathematics (0.26) scores.

Mean scale scores: At-risk and LEP Students

In addition to analyzing programmatic effects on children from economically disadvantaged backgrounds, this report looks at the impact that HISD Pre-K has on two other broad demographic groups: students categorized as at-risk of dropping out and those categorized as having limited English proficiency (LEP). As is the case with economically disadvantaged students, at-risk and LEP students represent a substantive proportion of the total HISD student body, with 50.1 percent of third graders coded as at-risk of dropping out and 46 percent coded as LEP (see **Appendix A**, **Table 1**).

Table 2. Effects of HISD Pre-K on 2017 STAAR Third-Grade Reading and Math Assessments: All Students

Subtest	HISD Pre-K		Non-HISD Pre-K		Mean Diff.	Effect Size
	Mean	n	Mean	n		
English reading	1420.8	5890	1425.3	6497	-4.5	-0.03
Spanish reading	1405.3	2440	1382.9	1530	22.4	0.13
English math	1472.5	5998	1467.6	6551	4.9	0.03
Spanish math	1472.7	2330	1435.8	1479	36.9	0.24

Note: Hedge's g: small effect = 2.0, moderate effect = 0.5, and large effect = 0.8.

Table 3. Effects of HISD Pre-K on 2017 STAAR Third-Grade Reading and Math Assessments: EDA Students

Subtest	HISD Pre-K		Non-HISD Pre-K		Mean Diff.	Effect Size
	Mean	n	Mean	n		
English reading	1409.3	5048	1369.4	4244	39.9	0.25
Spanish reading	1405.1	2293	1380.2	1392	24.9	0.14
English math	1464.8	5146	1419.4	4297	45.4	0.28
Spanish math	1470.8	2193	1432.5	1339	38.3	0.26

Note: Hedge's g: small effect = 2.0, moderate effect = 0.5, and large effect = 0.8.

Results in **Figure 5** show that at-risk third-grade students who were enrolled in an HISD prekindergarten program achieved mean scale scores (M = 1401.9) on STAAR English reading tests that were higher than those of their at-risk non-HISD prekindergarten peers (M = 1344.5), as well as higher than the total district average (M = 1391.1). STAAR Spanish reading scores show a similar pattern, with at-risk students in the HISD prekindergarten alumni group scoring higher (M = 1404.6) than their at-risk non-Pre-K peers (M = 1380.2), as well as higher than the district average (M = 1395.7).

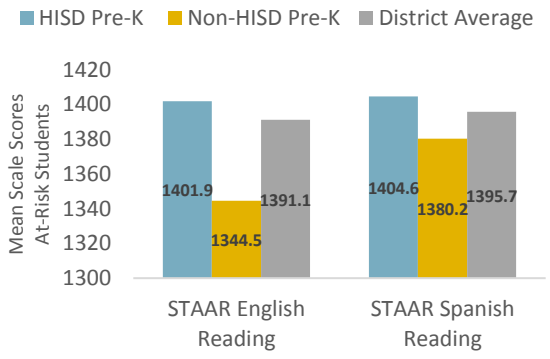

Figure 5. Mean scale scores on 2017 STAAR English and Spanish reading assessments compared by Pre-K alumni status: at-risk students.

At-risk HISD Pre-K alumni were also more likely to meet the Approaches Grade Level standard on the English (62.2 percent) and Spanish (69.3 percent) reading assessments compared to their non-HISD prekindergarten peers (48.2 and 61.8 percent, respectively (see **Appendix C**, **Tables 1** and **2**).

Results in **Figure 6** show STAAR mathematics mean scale scores with respect to students characterized as at-risk. Third graders who had attended HISD Pre-K had mean scale scores that were higher for both the English (M = 1472.7) and Spanish (M = 1471.4) math assessments, when compared to either their non-Pre-K peers (M = 1409.3 and 1431.7, respectively) or the total district averages for English (M = 1444.1) or Spanish (1456.3) mathematics. At-risk students in the Pre-K group were also more likely to meet or exceed the passing standard, with 74.7 percent of English language and 77.4 percent of Spanish language mathematics test-takers meeting the Approaches Grade Level cut off compared to 60.2 and 69.6 percent of non-PreK alumni (see **Appendix C**, **Tables 3** and **4**).

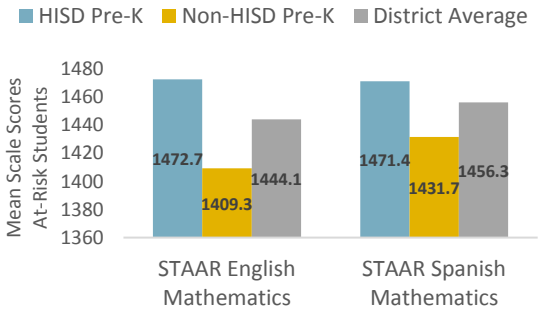

Figure 6. Mean scale scores on 2017 STAAR English and Spanish math assessments compared by Pre-K alumni status: at-risk students

Regarding students characterized as limited English proficient (LEP), **Figure 7** shows higher mean scale scores among HISD Pre-K alumni in STAAR English reading (M = 1426.2 versus 1385.4) and STAAR Spanish reading (M = 1405.2 versus 1381). LEP Pre-K students also had mean scale scores which exceeded those of the district as a whole, and were more likely to meet or exceed the Approaches Grade Level standard in both the English (67.1 versus 58.5 percent) and Spanish (69.4 versus 61.8 percent) reading subtests (see **Appendix C**, **Tables 1** and **2**).

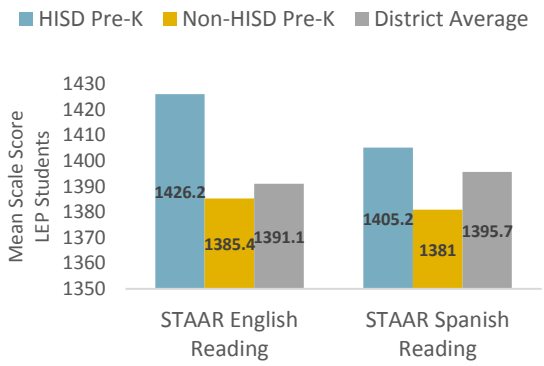

Figure 7. Mean scale scores on 2017 STAAR English and Spanish reading assessments compared by Pre-K alumni status: LEP students

As is illustrated in **Figure 8**, HISD Pre-K alumni coded as limited English proficient also performed better on STAAR mathematics assessments given in both English (M = 1493.2) and Spanish (M = 1472.2) than did their LEP, non-alumni peers (M = 1457.5 and 1435.2, respectively). LEP Pre-K alumni also scored higher than district averages on both subtests, and were more likely to meet or exceed passing standards than non-alumni (see **Appendix C**, **Tables 3** and **4**).

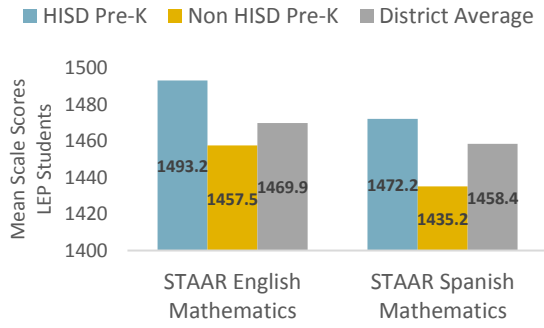

Figure 8. Mean scale scores on 2017 STAAR English and Spanish math assessments compared by Pre-K alumni status: LEP status

Effect Size Measures: At-risk and LEP Students

The overall effects of HISD prekindergarten program enrollment status on at-risk students' academic achievement on the STAAR third-grade test scores are shown in **Table 4.** Small positive effects are noted for students who were administered the English reading (0.37), English mathematics (0.40), and Spanish mathematics assessments (0.26).

Table 4. Effects of HISD Pre-K on 2017 STAAR Third-Grade Reading and Math Assessments: At-Risk Students						
Subtest	HISD Pre-K		Non-HISD Pre-K		Mean diff.	Effect Size
	Mean	n	Mean	n		
English Reading	1401.9	2228	1344.5	2106	57.4	0.37
Spanish Reading	1404.6	2406	1380.2	1473	24.4	0.14
English Math	1472.7	2326	1409.3	2161	63.4	0.40
Spanish Math	1471.4	2305	1431.7	1419	39.7	0.26

Note: Hedge's g: small effect = 2.0, moderate effect = 0.5, and large effect = 0.8.

For students with limited English proficiency, **Table 5** shows a similar pattern, with small programmatic effects indicated on the English reading (0.24), English mathematics (0.21) and Spanish mathematics (0.27) assessments. Regarding the effects of HISD Pre-K in the context of other student demographic characteristics, see **Appendix B**, **Tables 1** through **4**.

Table 5. Effects of HISD Pre-K on 2017 STAAR Third-Grade Reading and Math Assessments: LEP Students						
Subtest	HISD Pre-K		Non-HISD Pre-K		Mean diff.	Effect Size
	Mean	n	Mean	n		
English Reading	1426.2	2414	1385.4	1372	40.8	0.24
Spanish Reading	1405.2	2416	1381.0	1473	24.2	0.14
English Math	1493.2	2510	1457.5	1425	35.7	0.21
Spanish Math	1472.2	2315	1432.5	1419	37.0	0.27

Note: Hedge's g: small effect = 2.0, moderate effect = 0.5, and large effect = 0.8.

Discussion

"An effective system of early childhood education [supports the] reciprocal relationship among curriculum, child assessment, and program evaluation" (NAEYC & NAECS/SDE, 2003, p. 1). The prekindergarten program is a complex subsystem of early childhood education that is charged with making and implementing decisions to promote the equitable development, learning, and school readiness of all children. Each child-whatever her or his abilities and differences- should be respected and taken into careful consideration in order for her or him to be included in prekindergarten to the fullest extent and with the highest expectations (NAEYC & NAECS/SDE, 2003). For this report, descriptive statistical analyses and effect size computations were used to examine relationships among students' academic achievement and prekindergarten program enrollment status.

Findings from this study revealed that students who were enrolled in HISD prekindergarten were usually identified as economically disadvantaged, LEP, and/or at risk for dropping out of school. These findings were substantiated by prior evidence presented in the *District and School Profiles 2015–2016* report that indicated the majority of students enrolled in the district qualified for free or reduced lunch (76.5 %) and were at-risk (64.2%; Houston Independent School District Department of Research and Accountability [HISD/RA], p. 15, 2016). Overrepresentation of these subpopulations was expected as these students are targeted to receive a free prekindergarten education in HISD.

With the exception of the STAAR English reading subtest, third-grade students who were previously enrolled in an HISD prekindergarten program achieved higher mean scale scores on STAAR assessments than those of their non-HISD Pre-K peers. Additionally, while the majority of both HISD Pre-K and non-HISD Pre-K third-grade students were observed to have met the minimum Approaches Grade Level standard on each assessment administered, HISD Pre-K students met these standards at higher rates than both their non-HISD peers and district rates.

Results from the STAAR third-grade assessments also show that economically-disadvantaged, at-risk and limited English proficient (LEP) HISD Pre-K students obtained both higher mean scale scores and were more likely to meet the Approaches Grade Level benchmark across subtests than their similarly disadvantaged, non-HISD Pre-K peers. Effect sizes also show that economically-disadvantaged, at-risk, and LEP students were more likely to positively benefit from enrollment into HISD Pre-K, in contrast to the overall student population (see Tables 2 and 3). Further research will be needed to determine the nature of educational benefit(s).

These findings highlight noteworthy efforts made by the Early Childhood Department to prepare the district's most disadvantaged students for school readiness. However, because this evaluation primarily used quantitative measures, the nature of the efforts made by the HISD administrators and educators remains unclear. As such, one implication from this evaluation report is that the Early Childhood Department may consider conducting an implementation fidelity study grounded in best practices in early education to determine to what degree HISD prekindergarten programs are being delivered as intended to improve school readiness and to close the achievement gap among young children subpopulations (NAEYC & NAECS/SDE, 2003).

Only by understanding and measuring whether an intervention has been implemented with fidelity can education stakeholders gain a better understanding of *how* and *why* an intervention may or may not work, and the extent to which children's school readiness can be improved (Carroll, Patterson, Wood, Booth, Rick, & Balain, 2007). Examining district-, school- and classroom-level variables associated with students'

academic success (e.g., district policies, administrators' support, teacher quality, professional culture), will be necessary in order to determine which variables have the strongest relationship for improving (or depreciating) prekindergarten students' learning experiences and school readiness outcomes both across the district and within the context of demographic subpopulations.

A second implication from this report is that both the Research and Accountability and Early Childhood Departments may consider extending their research to explore the achievement gap between economically-disadvantaged, at-risk, and LEP students and their less disadvantaged peers. While findings in this study indicated economically-disadvantaged, at-risk, and LEP third-grade students who attended HISD Pre-K typically outperformed non-HISD Pre-K peers from similar backgrounds, further research is needed to determine if they are also more likely to close the achievement gap with counterparts from more privileged backgrounds. Because HISD wants all students, regardless of whether they attend HISD Pre-K, to be school ready and successful in their school careers, high-quality programs will also be necessary to meet the needs of non-HISD Pre-K students once they enroll in the district.

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Appendix A

Table 1. Demographic Characteristics of 2016–2017 Third-Grade Students by HISD Prekindergarten Enrollment Status in 2012–2013

Demographic Characteristics		HISD Pre-K		Non-HISD Pre-K		Total Third-Grade	
		n	%	n	%	n	%
Overall Sample		8,809	100.0	9,273	100.0	18,082	100.0
Gender	Female	4,462	50.7	4,375	47.2	8,837	48.9
	Male	4,347	49.3	4,898	52.8	9,245	51.1
Race & Ethnicity	Asian	175	2.0	578	6.2	753	4.2
	Black	1,664	18.9	2,456	26.5	4,120	22.8
	Hispanic	6,705	76.1	4,849	52.3	11,554	63.9
	Other	62	0.7	183	2.0	244	1.3
	White	204	2.3	1,207	13.0	1,411	7.8
Economically disadvantaged	No	1,049	11.9	2,646	28.5	3,695	20.4
	Yes	7,760	88.1	6,627	71.5	14,387	79.6
Special Education eligible	No	8,483	96.3	8,522	91.9	17,005	94.0
	Yes	326	3.7	751	8.1	1,077	6.0
Limited English Proficient (LEP)	No	3,761	42.7	5,999	64.7	9,760	54.0
	Yes	5,048	57.3	3,274	35.3	8,322	46.0
LEP-Home language	LEP Non-Spanish	205	2.3	485	5.2	690	3.8
	LEP Spanish	4,843	55.0	2,789	30.1	7,632	42.2
	Non-LEP Non-Spanish	3,576	40.6	5,714	61.6	9,290	51.4
	Non-LEP Spanish	185	2.1	285	3.1	470	2.6
At-risk	No	3,949	44.8	5,074	54.7	9,023	49.9
	Yes	4,860	55.2	4,199	45.3	9,059	50.1

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.

Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Appendix B

Table 1. Academic Achievement on the 2017 STAAR Third-Grade English Reading Assessment Based on Students' HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K			Non-HISD Pre-K				
Demographic Characteristics		**Mean**	**SD**	**n**	**Mean**	**SD**	**n**	**Mean Difference**	**Effect Size**
Overall Sample		1420.8	163.6	5,890	1425.3	180.0	6,497	-4.5	-0.03
Gender	Female	1436.2	163.2	3,032	1441.5	183.0	3,084	-5.3	-0.03
	Male	1404.5	162.4	2,858	1410.6	176.0	3,413	-6.1	-0.04
Race & Ethnicity	Asian	1585.6	167.0	163	1568.8	165.4	482	16.8	0.10
	Black	1376.1	147.3	1,546	1359.6	157.1	2068	16.5	0.12
	Hispanic	1425.4	161.5	3,956	1391.9	165.3	2,735	33.5	0.21
	Other	1505.2	196.2	50	1536.6	164.3	156	-31.4	-0.18
	White	1535.6	155.8	175	1558.4	153.7	1,056	-22.8	-0.15
Economically disadvantaged	No	1489.8	166.2	842	1530.4	168.6	2,253	-40.6	-0.24
	Yes	1409.3	160.3	5,048	1369.4	159.8	4,244	39.9	0.25
Special Education eligible	No	1424.8	162.7	5,728	1432.5	178.8	6,122	-7.7	-0.05
	Yes	1279.8	129.6	162	1307.5	158.8	375	-27.7	-0.18
Limited English Proficient (LEP)	No	1417.1	160.3	3,478	1436.0	182.3	5,125	-18.9	-0.11
	Yes	1426.2	168.1	2,412	1385.4	165.4	1,372	40.8	0.24
LEP-Home language	LEP Non-Spanish	1535.8	181.5	183	1459.8	168.6	335	76	0.44
	LEP Spanish	1417.2	163.8	2,229	1361.3	157.1	1,037	55.9	0.35
	Non-LEP Non-Spanish	1414.1	159.6	3,317	1436.6	181.7	4,935	-22.5	-0.13
	Non-LEP Spanish	1478.2	163.0	161	1418.3	196.0	190	59.9	0.33
At-risk	No	1432.3	163.3	3,662	1464.0	179.8	4,391	-31.7	-0.18
	Yes	1401.9	162.3	2,228	1344.5	151.4	2,106	57.4	0.37

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.
Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Table 2. Academic Achievement on the 2017 STAAR Third-Grade Spanish Reading Assessment Based on Students' HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K			Non-HISD Pre-K				
Demographic Characteristics		**Mean**	**SD**	**n**	**Mean**	**SD**	**n**	**Mean difference**	**Effect size**
Overall Sample		1405.3	175.3	2,440	1382.9	172.9	1,530	22.4	0.13
Gender	Female	1432.1	176.0	1,225	1402.3	165.8	742	29.8	0.17
	Male	1378.2	170.4	1,215	1364.6	177.5	788	13.6	0.08
Race & Ethnicity	Asian	–	–	0	–	–	0	–	–
	Black	1313.7	121.3	6	1372.6	193.1	5	-58.9	-0.34
	Hispanic	1405.2	175.4	2,420	1381.4	172.1	1,509	23.8	0.14
	Other	*	*	4	*	*	4	*	*
	White	1466.7	163.3	10	1535.9	215.8	12	-69.2	-0.34
Economically disadvantaged	No	1407.6	171.3	147	1410.9	166.2	138	-3.3	-0.02
	Yes	1405.1	175.6	2,293	1380.2	173.4	1,392	24.9	0.14
Special Education eligible	No	1407.8	174.8	2,402	1388.1	172.3	1,468	19.7	0.11
	Yes	1242.6	121.3	38	1261.4	140.6	62	-18.8	-0.14
Limited English Proficient (LEP)	No	1408.3	185.2	24	1433.2	176.8	57	-24.9	-0.14
	Yes	1405.2	175.2	2,416	1381.0	172.5	1,473	24.2	0.14
LEP-Home language	LEP Non-Spanish	*	*	1	*	*	2	*	*
	LEP Spanish	1405.3	175.3	2,415	1380.5	172.0	1,471	24.8	0.14
	Non-LEP Non-Spanish	1399.7	182.7	22	1411.2	185.4	34	-11.5	-0.06
	Non-LEP Spanish	*	*	2	1465.8	161.6	23	*	*
At-risk	No	1453.0	180.2	34	1453.5	182.1	57	-0.5	0.00
	Yes	1404.6	175.2	2,406	1380.2	172.0	1,473	24.4	0.14

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.
Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.
Note: '*' denotes fewer than five students tested
Note: '–' denotes insufficient data available for students.

Table 3. Academic Achievement on the 2017 STAAR Third-Grade English Math Assessment Based on Students' HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K			Non-HISD Pre-K				
Demographic Characteristics		**Mean**	**SD**	**n**	**Mean**	**SD**	**n**	**Mean difference**	**Effect size**
Overall Sample		1472.5	164.0	5,998	1467.6	175.0	6,551	4.9	0.03
Gender	Female	1473.6	161.8	3,088	1468.6	173.0	3,113	5.0	0.03
	Male	1471.3	166.3	2,910	1466.6	176.9	3,438	4.7	0.03
Race & Ethnicity	Asian	1660.0	137.8	163	1635.6	156.8	483	24.4	0.16
	Black	1418.0	153.4	1,548	1398.4	151.9	2,069	19.6	0.13
	Hispanic	1481.1	158.8	4,060	1441.3	160.6	2,786	39.8	0.25
	Other	1540.9	199.0	50	1563.9	165.6	156	-23.0	-0.13
	White	1559.5	172.4	177	1581.2	152.2	1,057	-21.7	-0.14
Economically disadvantaged	No	1519.1	163.5	852	1559.5	170.7	2,254	-40.4	-0.24
	Yes	1464.8	162.8	5,146	1419.4	157.1	4,297	45.4	0.28
Special Education eligible	No	1476.7	162.5	5,835	1475.0	172.4	6,170	1.7	0.01
	Yes	1321.2	141.7	163	1347.9	173.6	381	-26.7	-0.16
Limited English Proficient (LEP)	No	1457.6	159.1	3,488	1470.4	176.7	5,126	-12.8	-0.08
	Yes	1493.2	168.3	2,510	1457.5	168.7	1,425	35.7	0.21
LEP-Home language	LEP Non-Spanish	1606.2	166.7	183	1532.1	172.9	335	74.1	0.43
	LEP Spanish	1484.3	165.2	2,327	1434.6	160.6	1,090	49.7	0.30
	Non-LEP Non-Spanish	1455.6	159.6	3,328	1470.4	176.8	4,937	-14.8	-0.09
	Non-LEP Spanish	1498.1	142.9	160	1469.0	174.0	189	29.1	0.18
At-risk	No	1472.3	163.5	3,672	1496.3	175.2	4,390	-24.0	-0.14
	Yes	1472.7	164.7	2,326	1409.3	159.5	2,161	63.4	0.4

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.

Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Table 4. Academic Achievement on the 2017 STAAR Third-Grade Spanish Math Assessment Based on Students' HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K			Non-HISD Pre-K				
Demographic Characteristics		**Mean**	**SD**	**n**	**Mean**	**SD**	**n**	**Mean difference**	**Effect size**
Overall Sample		1472.7	153.3	2,330	1435.8	147.6	1,479	36.9	0.24
Gender	Female	1471.3	154.5	1,172	1439.3	147.3	711	32.0	0.21
	Male	1474.0	152.1	1,158	1432.6	147.9	768	41.4	0.28
Race & Ethnicity	Asian	–	–	0	–	–	0	–	–
	Black	*	*	4	1495.4	88.1	5	*	*
	Hispanic	1472.5	153.2	2,313	1433.6	146.2	1,458	38.9	0.26
	Other	*	*	4	*	*	4	*	*
	White	1439.1	134.5	9	1643.4	176.9	12	-204.3	-1.22
Economically disadvantaged	No	1502.3	155.1	137	1467.4	165.6	169	34.9	0.22
	Yes	1470.8	153.0	2,193	1432.5	145.1	1,339	38.3	0.26
Special Education eligible	No	1474.8	152.7	2,294	1440.6	146.3	1,421	34.2	0.25
	Yes	1337.1	130.0	36	1319.4	131.2	58	17.7	0.13
Limited English Proficient (LEP)	No	1550.1	156.3	15	1522.5	168.0	60	27.6	0.16
	Yes	1472.2	153.2	2,315	1435.2	145.6	1,419	37.0	0.27
LEP-Home language	LEP Non-Spanish	*	*	1	*	*	2	*	*
	LEP Spanish	1472.1	153.2	2,314	1432.0	145.6	1,417	40.1	0.27
	Non-LEP Non-Spanish	1532.1	107.1	12	1539.8	153.4	36	-7.7	-0.05
	Non-LEP Spanish	*	*	3	1496.5	188.2	24	*	*
At-risk	No	1586.4	153.6	25	1534.0	173.8	60	52.4	0.31
	Yes	1471.4	152.9	2,305	1431.7	145.0	1,419	39.7	0.26

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.

Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Note: '*' denotes fewer than five students tested.

Note: '–' denotes insufficient data available for students.

Appendix C

Table 1. Count and Percent of Students who met the 2017 Approaches Grade Level Standard on the Third-Grade STAAR English Reading Assessment by HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K		Non-HISD Pre-K		Percent gap
Demographic Characteristics		**n**	**%**	**n**	**%**	**%**
Overall Sample		3,931	66.6	4,264	65.6	1.0
Gender	Female	2,127	70.1	2,121	68.8	1.3
	Male	1,794	62.8	2,143	62.8	0.0
Race & Ethnicity	Asian	149	91.4	445	92.3	-0.9
	Black	879	56.9	1079	52.2	4.7
	Hispanic	2698	68.2	1,629	59.6	8.6
	Other	37	74.0	136	87.2	-13.2
	White	158	90.3	975	92.3	-2.0
Economically disadvantaged	No	680	80.8	1,935	85.9	-5.1
	Yes	3,241	64.2	2,329	54.9	9.3
Special Education eligible	No	3,875	67.7	4,141	67.6	0.1
	Yes	46	28.4	123	32.8	-4.4
Limited English Proficient (LEP)	No	2,303	66.2	3,462	67.6	-1.4
	Yes	1,618	67.1	802	58.5	8.6
LEP-Home language	LEP Non-Spanish	153	83.6	259	77.3	6.3
	LEP Spanish	1,465	65.7	543	52.4	13.3
	Non-LEP Non-Spanish	2,177	65.6	3,344	67.8	-2.2
	Non-LEP Spanish	126	78.3	118	62.1	16.2
At-risk	No	2,536	69.3	3,249	74.0	-4.7
	Yes	1,385	62.2	1,015	48.2	14.0

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.

Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Table 2. Count and Percent of Students who met the 2017 Approaches Grade Level Standard on the Third- Grade STAAR Spanish Reading Assessment by HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K		Non-HISD Pre-K		Percent gap
Demographic Characteristics		**n**	**%**	**n**	**%**	**%**
Overall Sample		1,696	69.5	954	62.4	7.1
Gender	Female	915	74.7	517	69.7	5.0
	Male	781	64.3	437	55.5	8.8
Race & Ethnicity	Asian	0	–	0	–	–
	Black	4	*	3	*	*
	Hispanic	1,681	69.5	936	62.0	7.5
	Other	2	*	4	*	*
	White	9	90.0	11	91.7	-1.7
Economically disadvantaged	No	103	70.1	102	73.9	-3.8
	Yes	1,593	69.5	852	62.1	7.4
Special Education eligible	No	1,687	70.2	938	63.9	6.3
	Yes	9	23.7	16	25.8	-2.1
Limited English proficient (LEP)	No	19	79.2	43	75.4	3.8
	Yes	1,677	69.4	911	61.8	7.6
LEP-Home language	LEP Non-Spanish	0	–	2	*	*
	LEP Spanish	1,677	69.4	909	61.8	7.6
	Non-LEP Non-Spanish	17	77.3	25	73.5	3.8
	Non-LEP Spanish	2	*	18	78.3	*
At-risk	No	29	85.3	44	77.2	8.1
	Yes	1,667	69.3	910	61.8	7.5

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.
Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.
Note: '*' denotes fewer than five students tested.
Note: '–' denotes insufficient data available for students.

Table 3. Count and Percent of Students who met the 2017 Approaches Grade Level Standard on the Third-Grade STAAR English Math Assessment by HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K		Non-HISD Pre-K		Percent gap
Demographic characteristics		**n**	**%**	**n**	**%**	**%**
Overall sample		4,485	74.8	4,702	71.8	3.0
Gender	Female	2,331	75.5	2,258	72.5	3.0
	Male	2,154	74.0	2,444	71.1	2.9
Race & Ethnicity	Asian	160	98.2	459	95.0	3.2
	Black	970	62.7	1,215	58.7	4.0
	Hispanic	3,161	77.9	1,902	68.3	9.6
	Other	39	78.0	140	89.7	-11.7
	White	155	87.6	986	93.3	-5.7
Economically disadvantaged	No	711	83.5	1,974	87.6	-4.1
	Yes	3,774	73.3	2,728	63.5	9.8
Special Education eligible	No	4,426	75.9	4,545	73.7	2.2
	Yes	59	36.2	157	41.2	-5.0
Limited English Proficient (LEP)	No	2,526	72.4	3,693	72.0	0.4
	Yes	1,959	78.0	1,009	70.8	7.2
LEP-Home language	LEP Non-Spanish	165	90.2	277	82.7	7.5
	LEP Spanish	1,794	77.1	732	67.2	9.9
	Non-LEP Non-Spanish	2,392	71.9	3,553	72.0	-0.1
	Non-LEP Spanish	134	83.8	140	74.1	9.7
At-risk	No	2,784	74.8	3,402	77.5	-2.7
	Yes	1,737	74.7	1,300	60.2	14.5

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.
Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.

Table 4. Count and Percent of Students who met the 2017 Approaches Grade Level Standard on the Third-Grade STAAR Spanish Math Assessment by HISD Prekindergarten Enrollment Status (2012–2013) and Demographic Characteristics (2016–2017)

		HISD Pre-K		Non-HISD Pre-K		Percent gap
Demographic Characteristics		**n**	**%**	**n**	**%**	**%**
Overall Sample		1,807	77.6	1,038	70.2	7.4
Gender	Female	898	76.6	501	70.5	6.1
	Male	909	78.5	537	69.9	8.6
Race & Ethnicity	Asian	0	–	0	–	–
	Black	3	*	5	100.0	*
	Hispanic	1,794	77.6	1,018	69.8	7.8
	Other	4	*	4	*	*
	White	6	66.7	11	91.7	-25.0
Economically disadvantaged	No	117	85.4	103	73.6	11.8
	Yes	1,690	77.1	935	69.8	7.3
Special Education eligible	No	1,791	78.1	1,017	71.6	6.5
	Yes	16	44.4	21	36.2	8.2
Limited English Proficient (LEP)	No	14	93.3	51	85.0	8.3
	Yes	1,793	77.5	987	69.6	7.9
LEP-Home language	LEP Non-Spanish	1	*	2	*	*
	LEP Spanish	1,792	77.4	985	69.5	7.9
	Non-LEP Non-Spanish	11	91.7	33	91.7	0.0
	Non-LEP Spanish	3	*	18	75.0	*
At-risk	No	24	96.0	51	85.0	11
	Yes	1,783	77.4	947	69.6	7.8

Source: PEIMS 2012–2013 and 2016–2017 HISD student databases and STAAR 2017 third-grade student databases.
Note: The demographic information used in this table was based on student information from the PEIMS 2016–2017 HISD student database. The LEP-Home language variable was created by combining LEP status and home language status characteristics with Spanish serving as the reference language.
Note: '*' denotes fewer than five students tested.
Note: '–' denotes insufficient data available for students.