

MEMORANDUM

September 18, 2012

TO: Board Members

FROM: Terry B. Grier, Ed.D.
Superintendent of Schools

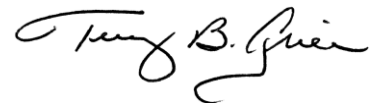
SUBJECT: **A PERFORMANCE COMPARISON OF THE EARLY CHILDHOOD CENTERS AND SCHOOL-BASED PROGRAMS EVALUATION REPORT**

CONTACT: Carla Stevens, (713) 556-6700

Attached is the 2011–2012 evaluation report examining the variation in 2011–2012 kindergarten performance of students who attended an Early Childhood Center or the school-based prekindergarten program in 2010–2011. The purpose of the current report was to compare the kindergarten performance of students across the Early Childhood Centers and the school-based programs as assessed by both norm-referenced and criterion-referenced exams administered by the district. Because a students' economic status and LEP classification may influence achievement, these two characteristics were taken into consideration when attempting to understand the variation in student performance across centers and across programs.

The 2011–2012 Stanford reading and math performance of students varied substantially by the Early Childhood Center students attended in 2010–2011. Even after accounting for economic status, variations still existed in the average 2012 kindergarten Stanford reading and math scores across the four Early Childhood Centers and between the centers and the school-based program. However, it appears that LEP classification may help explain some of the variation in 2012 Stanford scores across Early Childhood Centers.

Analyses of performance differences within prekindergarten program models for 2011–2012 kindergarten students indicated that among the Early Childhood Centers, it appears that students who attended MLK outperformed their counterparts who attended the other three ECC centers on the Stanford and Aprenda reading and math subtests. These students also tend to perform better on the TPRI and Tejas LEE assessments. In addition, students who attended MLK consistently had higher mean scores on standardized assessments than students who attended prekindergarten at a school-based program.



TBG

Attachment

cc: Superintendent's Cabinet
Chief School Officers
Nancy Gregory
Mary Jane Gomez
Alison Heath



RESEARCH

Educational Program Report

PREKINDERGARTEN EDUCATION PROGRAM: PERFORMANCE COMPARISON OF THE EARLY CHILDHOOD CENTERS AND SCHOOL-BASED PROGRAMS, 2011–2012

DEPARTMENT OF RESEARCH AND ACCOUNTABILITY
HOUSTON INDEPENDENT SCHOOL DISTRICT



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Houston Independent School District

Hattie Mae White Educational Support Center
4400 West 18th Street
Houston, Texas 77092-8501

www.houstonisd.org

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PREKINDERGARTEN EDUCATION PROGRAM: A PERFORMANCE COMPARISON OF THE EARLY CHILDHOOD CENTERS AND SCHOOL-BASED PROGRAMS, 2011–2012

Executive Summary

Program Description

The vision of the HISD Early Childhood Center (ECC) initiative is to serve as a model for the district by providing a comprehensive state-of-the-art preschool program. The primary focus of this program is to develop academic readiness and to meet the developmental needs of preschool-age children. The district's Rebuild HISD Construction and Renovation Program included plans for a number of early childhood centers to become beacons for the community schools. Currently, there are four Early Childhood Centers: Armandina Farias, Gabriela Mistral, Martin Luther King, Jr. (MLK), and Ninfa Laurenzo. MLK and Laurenzo opened their doors to prekindergarten students in 2004–2005, with Farias and Mistral following the next school year.

The HISD school-based prekindergarten program was initiated in 1984 (T.E.C 29.1532) when House Bill 72 established the Texas prekindergarten program requiring school districts to provide half-day education-based programming to four-year-old children. The purpose of this initiative was to develop skills necessary for success in the regular public school curriculum, including language, mathematics, and social skills (Texas Education Code 29.1532). Currently, HISD offers full-day school-based prekindergarten to all students within the attendance boundaries. In 2010–2011, the year that students in the current program assessment attended prekindergarten, there were a total of 173 HISD elementary schools that offered prekindergarten, and of those schools, 162 offered school-based programs¹ (Appendix A). Three of the multi-level Early Childhood Centers: Bellfort (PK-K), Halpin (PK-K), and Ashford (PK-2), are classified as school-based programs.

The purpose of this evaluation is to examine the variation in the performance of students enrolled in kindergarten during the 2011–2012 academic year, who attended one of the four Early Childhood Centers or the school-based prekindergarten program in 2010–2011. Specific measures of student performance include:

- Stanford 10 and Aprenda 3 reading and math scores; and
- Reading comprehension levels on the TPRI Early Reading Assessment and Tejas LEE.

Highlights

- The 2011–2012 Stanford reading and math performance of students varied substantially by the Early Childhood Center students attended in 2010–2011.

¹ Four schools that only had students classified under Early Education (early childhood programs other than state-approved prekindergarten and kindergarten) were not included in this count because the students accessed in current analyses all were coded as "PK" (prekindergarten).

- Even after accounting for economic status, variations still existed in the average 2012 kindergarten Stanford reading and math scores across the four Early Childhood Centers and between the centers and the school-based program.
- After accounting for LEP classification, the variation in the average 2012 kindergarten Stanford reading scores between Mistral and Farias was reduced among non-LEP students.
- When controlling for LEP classification, the difference in the average 2012 kindergarten Stanford reading scores between students who attended Mistral and students who attended a school-based program in 2010–2011 disappeared among the non-LEP student population.
- LEP classification may help explain some of the variation in 2012 Stanford scores across Early Childhood Centers.
- The average 2012 Stanford reading and math performance of students who attended MLK was higher than the average score of all 2011–2012 kindergarten students who were enrolled in HISD prekindergarten in 2010–2011.
- The average 2012 Stanford reading performance of students who attended MLK was statistically significantly higher compared to the overall average reading performance of students who attended a school-based program in 2010–2011 (7 NCEs).
- On both the 2012 Stanford and Aprenda assessments, kindergarten students who attended MLK in 2010–2011 consistently outperformed students who attended the other three Early Childhood Centers and the school-based programs.
- The 2012 Aprenda reading and math scores varied for Early Childhood Center students who attended in 2010–2011, but not to the extent that they varied on the 2012 Stanford.
- On the 2011–2012 End-of-Year TPRI screening assessment, a slightly greater percentage of students who attended MLK scored at the “developed” level compared to the percent “developed” of all kindergarten students who had attended a school-based program in 2010–2011.
- On the 2011–2012 End-of-Year TPRI screening assessment, a greater percentage of students who attended MLK scored at the “developed” level compared to percentage of students that scored at the “developed” level who attended Farias, Mistral, and Lorenzo in 2010–2011.
- On the 2011–2012 End-of-Year TPRI “Rhyming” inventory, a greater percentage of students who attended MLK scored at the “developed” level compared to the percent “developed” of all kindergarten students who had attended Farias, Mistral, and Lorenzo or a school-based program in 2010–2011.
- On the 2011–2012 End-of-Year TPRI “Letter Name Identification” inventory, a greater percentage of students who had attended Mistral, Farias, MLK, and Lorenzo scored at the “developed” level compared to the percent “developed” out of all kindergarten students who had attended a school-based program 2010–2011.
- On the 2011–2012 End-of-Year TPRI “Letter Naming” inventory, all Early Childhood Centers and the school-based program overall had over 94 percent of students score at the “developed” level.
- On the 2011–2012 End-of-Year TPRI “Rhyming” inventory, a greater percentage of students at MLK, Mistral, and Lorenzo scored at the “developed” level compared to the percent “developed” out of all kindergarten students who had attended a school-based program in 2010–2011.

Recommendations

1. Future evaluations should examine school-level factors that may help explain the kindergarten performance disparities between MLK students and students who attended other Early Childhood Centers.
2. Future evaluations of the Early Childhood Centers should include focus group interviews with the principal and personnel at MLK to work on identifying best practices that other centers may consider implementing. This information would be valuable to determine practical and appropriate interventions that would enhance student learning.

Administrative Response

The Early Childhood Department will continue to use Martin Luther King Jr. Early Childhood Center as an educational center of excellence for professional development. Teachers and administrators will be provided opportunities to understand the importance of effective best practices that can be adopted by other Early Childhood Centers and School-based prekindergarten programs to increase student achievement.

Introduction

The HISD Early Childhood Centers are regarded in the Houston Independent School District as high quality prekindergarten programs. Research studies have found that high quality early childhood centers promote students' school-readiness, enhance students' cognitive development, and reduce the risk of students' having reading difficulties as they progress through school (see Butin & Woolums, 2009). Students from economically-disadvantaged backgrounds in particular gain the most benefits from these programs (Brooks-Gunn, 2003; Currie, 2001; Gormley, Gayer, Phillips, Dawson, 2005; Magnuson, Rhum, and Waldfogel, 2007).

Early childhood centers have increasingly become necessary in the lives of American parents given the growth of women in the workforce and the increase in amount of hours that parents spend at work (see Butin & Woolums, 2009). Another contributing factor of why the number of early childhood centers has risen is brain research highlighting the integral role that early childhood education can have in promoting the healthy development of children (Center on the Developing Child at Harvard University, 2010). Because educators understand that early childhood centers play an important role in a child's school-readiness, early childhood centers within schools, also known as school-based programs, are also a growing trend.

Currently, in the Texas Gulf Coast region, over a third of children between the ages of zero to five attend either an early childhood center or some other form of regulated early childhood education (Collaborative for Children, 2012).

Methods

Data Collection and Analysis

- Data compiled for this report included student enrollment and individual identification numbers collected from the Texas Education Agency's (TEA) Public Education Information Management System (PEIMS).
- The current analysis focused on the performance of the 2011–2012 HISD kindergarten students enrolled in an Early Childhood Center or a school-based program in 2010–2011. Early Childhood Center students were enrolled at (A) Farias, (B) Mistral, (C) Martin Luther King, or (D) Lorenzo.
- Table 1 (p. 19) presents a breakdown of the demographic characteristics of the 2011–2012 HISD kindergarteners who were enrolled in one of the four Early Childhood Centers or a school-based program in 2010–2011.
- The students attending the four Early Childhood Centers and school-based prekindergarten were predominantly Hispanic, with Lorenzo (97.1) having the highest percent of Hispanic student enrollment followed by Farias (94.1). Almost half of the students who attended MLK were African-American (45.3).
- Over half of the students attending Farias and Mistral were limited English proficient (LEP). MLK had the lowest percentage of LEP students at 34.0 percent compared to the other three ECCs and compared to the school-based programs combined.

- The vast majority of students enrolled in the Early Childhood Centers and a school-based program were economically-disadvantaged, with MLK having the lowest percent of economically-disadvantaged students (85.7 percent).
- The campus number in the PEIMS database was used to identify the Early Childhood Center that a particular student attended in 2011–2012 to create the four ECC groups.
- Students who had been enrolled in prekindergarten in all other HISD campuses were classified as attending a school-based program except for students who attended a school offering a Montessori program.
- It is important to note that students included in the current analyses who attended an ECC or a school-based prekindergarten program may have also been dually enrolled in a Head Start program.
- Student performance data were collected from the following test assessments: the Stanford Achievement Test (Stanford 10), the Aprenda: La Prueba de Logros en Espanol (Aprenda 3), the Texas Primary Reading Inventory (TPRI), and El Inventario de Lectura en Español de Tejas (Tejas LEE).
 - Stanford Achievement Test (Stanford 10). The Stanford 10 assesses students' academic achievement in various academic subjects across 12 grade levels (kindergarten through grade 11). Kindergarten students take the Stanford at the end of the fall semester of the academic year. Normal curve equivalent scores (NCE; a normalized standard score) are reported in the current evaluation to assess student kindergarten performance.
 - La prueba de logros en español, Tercera edición (Aprenda 3). The Aprenda 3 is a norm-referenced, standardized achievement test in Spanish, and is used to assess the level of content mastery for students who receive instruction in Spanish. The Aprenda assesses students' academic achievement in the same content areas as the Stanford (i.e., reading and math); however, the Aprenda is not a translation of the Stanford.
 - Texas Primary Reading Inventory (TPRI, 2010). The Texas Primary Reading Inventory (TPRI) is a teacher-administered assessment of reading skills for children. The primary purposes of the TPRI are to facilitate a teacher's capacity to identify children at-risk for reading difficulties and to determine the appropriate instructional objectives and interventions for these students. The TPRI is also administered three times a year. Kindergarten students first take the TPRI screening test, which assesses their letter knowledge and phonemic awareness to determine whether they are developed (D) or are still developing (SD). Students classified as developed on the screening section are not likely at risk of developing reading difficulties. For students who score still developing on the screening section, additional portions of the inventory are administered. The current evaluation gathered students' results on the Screening assessment, Phonological Awareness Inventory 1 (Rhyming) and Graphophonemic Knowledge Inventory 6 (Letter Name Identification).
 - El Inventario de Lectura en Español de Tejas (Tejas LEE). The Tejas LEE measures reading skills important to the development of Spanish reading and comprehension in kindergarten through 3rd grade. The Tejas LEE is administered three times a year and is used to determine appropriate instructional interventions. The current evaluation examined students' beginning of the year performance levels on Inventory 1 (Identificación de las letras/Letter Naming) assessing graphophonemic knowledge and Inventory 3 (Conocimiento de rimas/Rhyming) assessing phonological awareness.

- Because economic status² has been consistently found to have a strong effect on student achievement (see Aikens & Barbarin, 2008), the current analysis took into account economic status and students' Limited English Proficiency classification to understand the extent that these characteristics played a role in the variation of performance across Early Childhood Centers and across prekindergarten programs.
- One-way analyses of variance (ANOVAs) were conducted to examine variations in student kindergarten performance on the 2012 Stanford reading, Stanford math, Aprenda reading, and Aprenda math tests using NCE scores across Early Childhood Centers and prekindergarten programs.
- Type III sums of squares (tests of independent effects of variables) were used for significance testing, and the Tukey's HSD (Honestly Significant Difference) test was used to conduct post-hoc comparisons.
- Several ANOVA assumptions were tested (i.e., normality, independence, homogeneity of variance). When the homogeneity of variance assumption was not met, a Welch F-test was run to test for significance and a Dunnett T3 test for post-hoc comparisons.
- Pairwise comparisons of mean scores on Stanford and Aprenda tests among the four Early Childhood Centers and the school-based programs were conducted using the Bonferroni correction. Because there were five comparisons, a $p < .01$ level was used to identify statistically significant differences ($.05/5 = .01$).
- An overall "district average score" was included in the current evaluation to capture the average score on the Stanford or Aprenda of all 2011–2012 kindergarten students who attended HISD prekindergarten in 2010–2011.

Data Limitations

- The current evaluation has a few limitations that should be addressed. The first limitation is that additional school-level data were not collected to help explain the variation in school performance. However, with that said, several observable student demographic characteristics were included in the current report to analyze the extent that these characteristics played a role in the variation of student achievement across centers. A second limitation is that despite the fact that an overall-school-based program average was used as a comparison group, it would enhance the veracity of the analysis, if it were possible, to identify the school-based campuses that students attended, who originally attempted to enroll in one of the Early Childhood Centers but were not admitted. These schools may serve as a better comparison group given that these students were interested in attending an Early Childhood Center but due to space limitations, were not able to attend.

Results

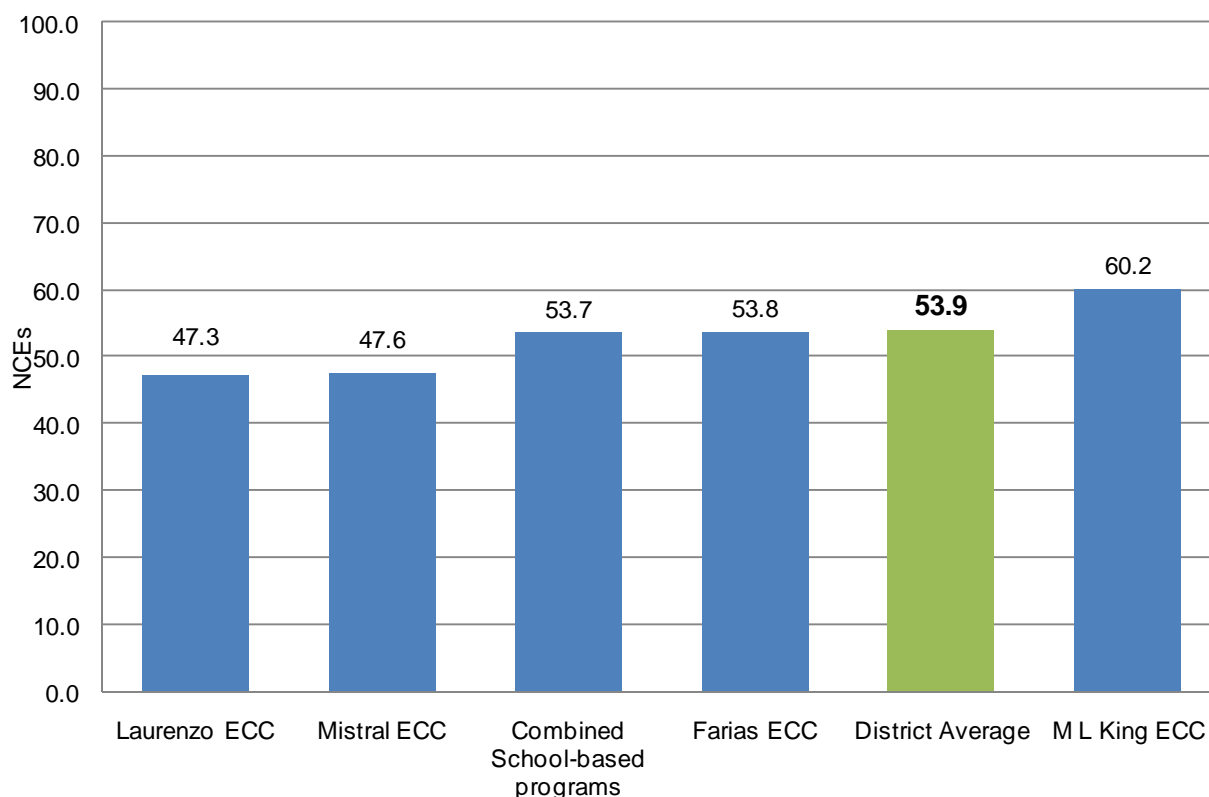
How does the 2011–2012 kindergarten performance of students enrolled in HISD prekindergarten in 2010–2011 vary among Early Childhood Centers and school-based programs?

² Economic status was determined by whether students were eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program. Students who meet this eligibility requirement are classified as economically disadvantaged.

Stanford Reading

- Stanford mean NCE reading scores for students who attended an Early Childhood Center or the school-based program in 2010–2011 are displayed in **Figure 1**. Table 2 (p. 20) presents the number of students who took the Stanford reading subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and the school-based program.
- The 2011–2012 Stanford reading scores in kindergarten varied substantially by which Early Childhood Center students attended.
- The average 2011–2012 Stanford reading performance of students who attended MLK was higher than the average score of all 2011–2012 kindergarten students who were enrolled in HISD prekindergarten in 2010–2011 (district average; 6 NCEs).
- The average 2011–2012 Stanford reading performance of students who attended MLK was statistically significantly higher compared to the average reading performance of students who attended Mistral (13 NCEs; $p < .001$) and Laurenzo (13 NCEs; $p < .01$) in 2010–2011.
- The average 2011–2012 Stanford reading performance of students who attended MLK was statistically significantly higher compared to the overall average reading performance of students who attended a school-based program (7 NCEs; $p < .01$) in 2010–2011.

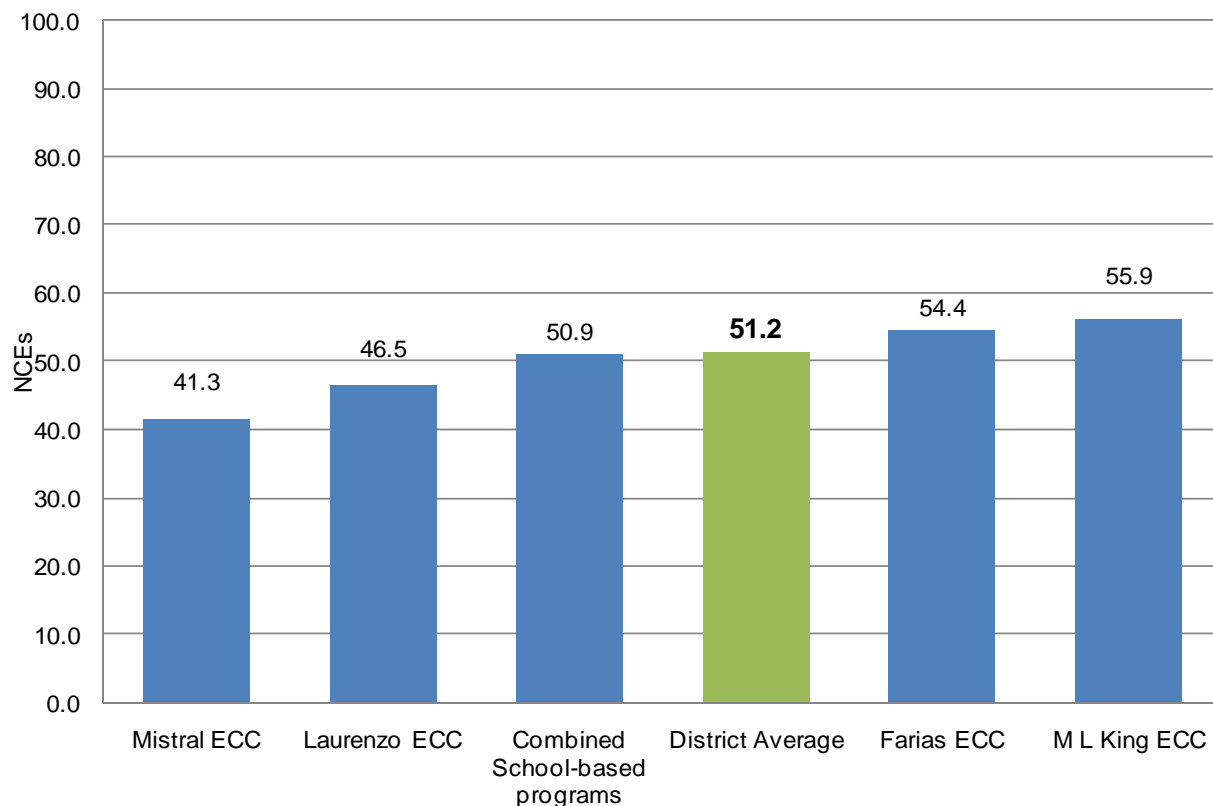
Figure 1. 2011–2012 mean Stanford reading scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year.



Stanford Math

- Stanford mean NCE math scores for students who attended an Early Childhood Center or school-based programs in 2010–2011 are displayed in **Figure 2**. Table 2 (p. 20) presents the number of students who took the Stanford math subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and the school-based program.
- The 2011–2012 Stanford math scores in kindergarten also vary substantially by which Early Childhood Center students attended in 2010–2011.
- The average 2011–2012 Stanford math performance of students who attended MLK was higher than the district average (5 NCEs).
- The average 2011–2012 Stanford math performance of students who attended MLK was statistically significantly higher compared to the average math performance of students who attended Mistral (15 NCEs; $p < .001$) in 2010–2011.
- The average 2011–2012 Stanford math performance of students who attended Farias was statistically significantly higher compared to the average math performance of students who attended Mistral (13 NCEs; $p < .001$) in 2010–2011.
- The overall average 2011–2012 Stanford math performance of students who attended a school-based program was statistically significantly higher than students who attended Mistral (10 NCEs; $p < .001$) in 2010–2011.

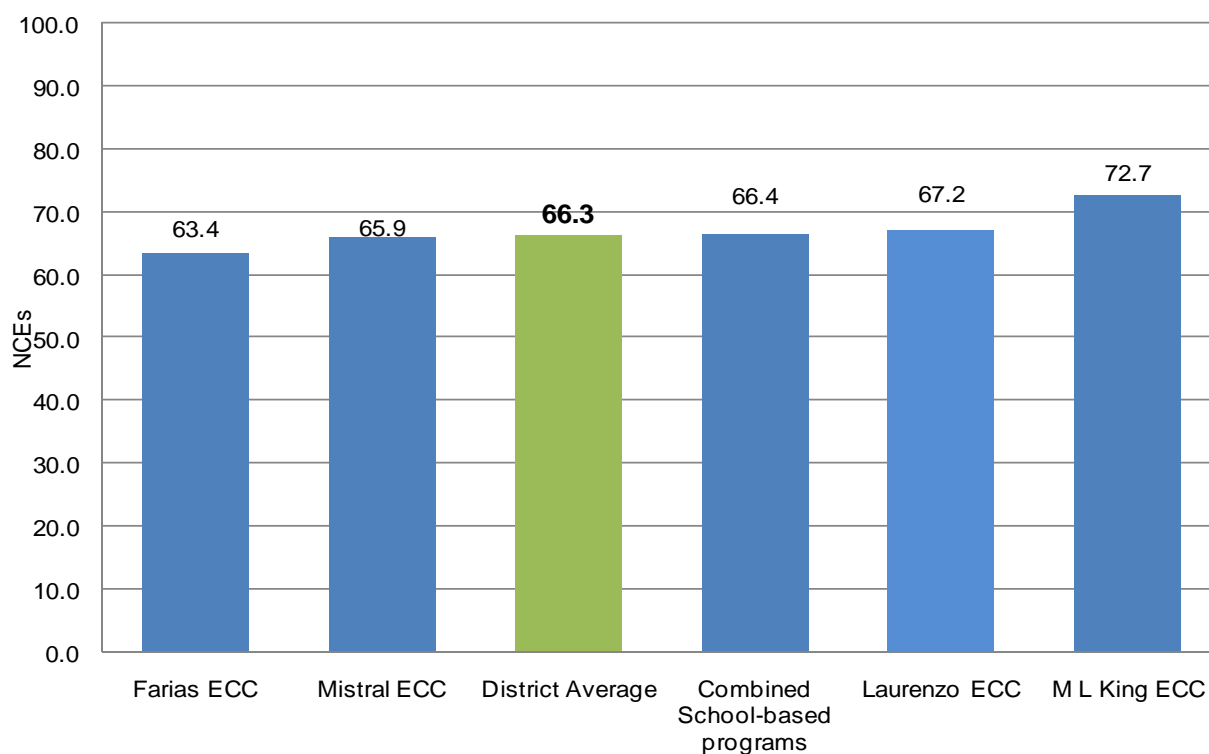
Figure 2. 2011–2012 mean Stanford math scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year.



Apr enda Reading

- Apr enda mean NCE reading scores for students who attended an Early Childhood Center or a school-based program in 2010–2011 are displayed in **Figure 3**. Table 3 (p. 20) presents the number of students who took the Apr enda reading subtest in 2011–2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and the school-based program.
- The 2011–2012 Apr enda reading scores in kindergarten varied by which Early Childhood Center students attended, but not to the extent that the 2011–2012 Stanford scores varied across centers.
- The average 2011–2012 Apr enda reading performance of students who attended MLK was higher than the district average (6 NCEs).
- The average 2011–2012 Apr enda reading score of students who attended Lorenzo in 2010–2011 was slightly higher than the district average (1 NCE).
- Students who attended MLK did have a higher average score on the 2011–2012 Apr enda reading subtest compared to students who attended Mistral, Lorenzo, Farias, or a school-based program; however, these differences did not reach statistical significance ($p > .05$).

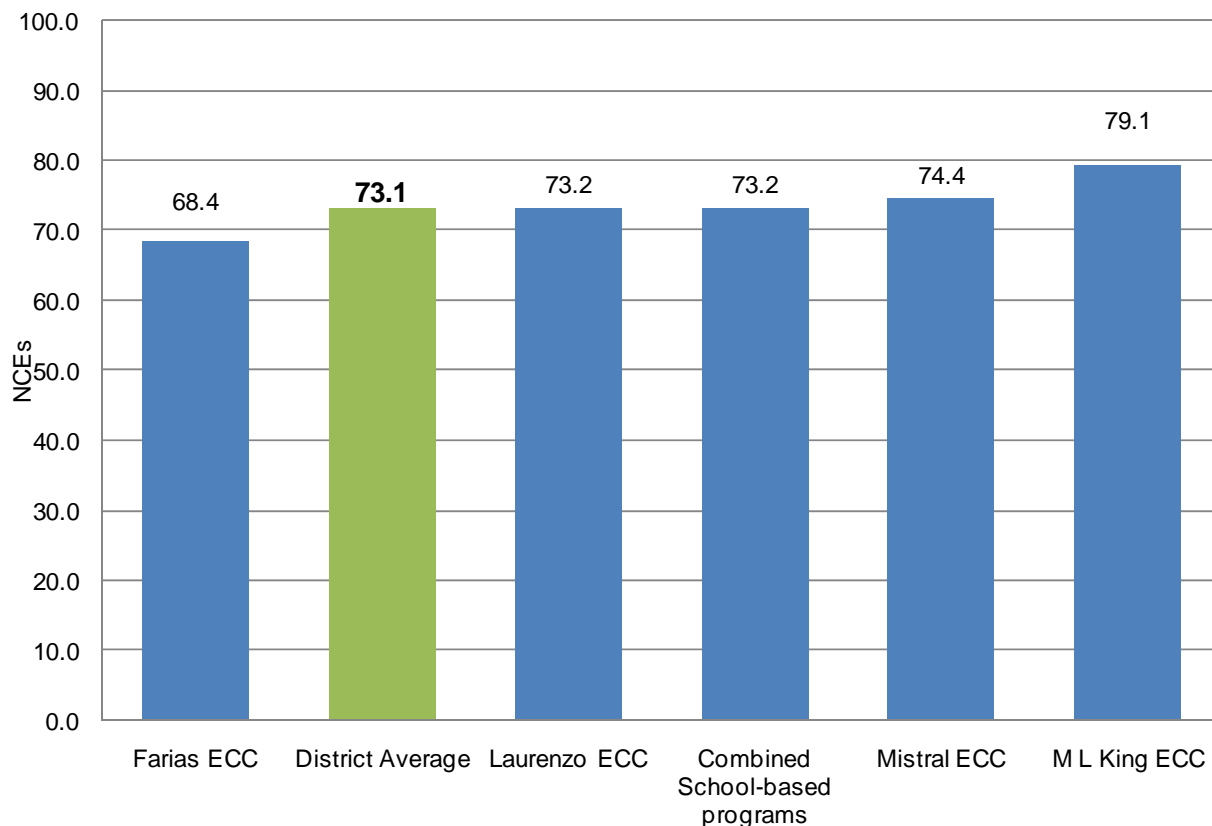
Figure 3. 2011–2012 mean Apr enda reading scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year.



Apranda Math

- Apranda mean NCE math scores for students who attended an Early Childhood Center or school-based programs in 2010–2011 are displayed in **Figure 4** (p. 10). Table 3 (p. 20) presents the number of students who took the Apranda math subtest in 2011–2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and school-based programs.
- The 2011–2012 Apranda math scores in kindergarten varied by which Early Childhood Center students attended, but not quite, to the extent that the 2011–2012 Stanford math scores varied.
- The average 2011–2012 Apranda math performance of students who attended MLK was higher than the district average (6 NCEs).
- The average 2011–2012 Apranda math score of students who attended MLK in 2010–2011 was statistically significantly higher than the average score of students who attended Farias (11 NCEs; $p < .01$).

Figure 4. 2011–2012 mean Apranda math scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year.

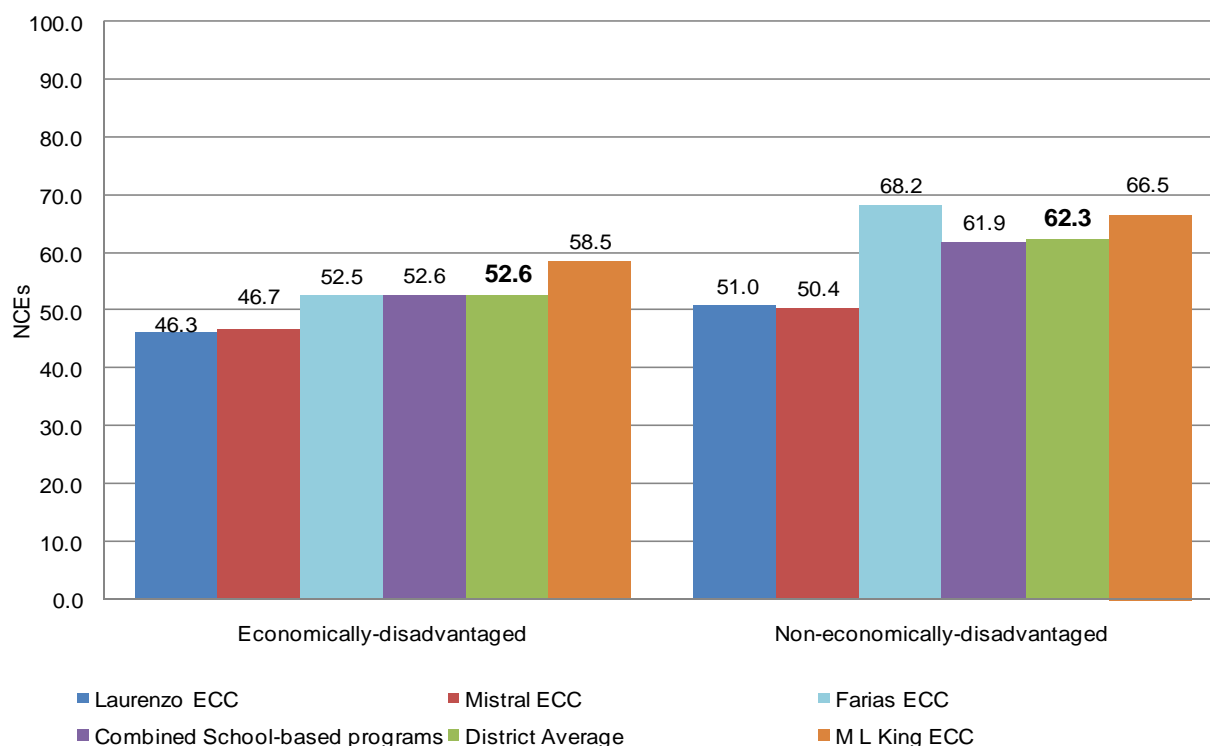


Do differences in students' economic status explain the variation in Stanford performance among Early Childhood Centers and school-based programs?

Stanford Reading

- Stanford mean NCE reading scores for students who attended an Early Childhood Center or the school-based program in 2010–2011 by economic status are displayed in **Figure 5**. Tables 4 and 5 (p. 21) present the number of students who took the Stanford reading subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and school-based programs by economic status.
- After accounting for economic status, variations still existed in the average 2011–2012 kindergarten Stanford reading scores across the four Early Childhood Centers and between the centers and school-based programs.
- The average 2011–2012 Stanford reading performance of economically-disadvantaged students who attended MLK in 2010–2011 was higher than the average score of all 2011–2012 economically-disadvantaged kindergarten students who were enrolled in HISD prekindergarten in 2010–2011 (6 NCEs).
- The average 2011–2012 Stanford reading performance of economically-disadvantaged students who attended MLK was statistically significantly higher compared to the average reading performance of economically-disadvantaged students who attended Mistral (12 NCEs; $p < .01$) and Lorenzo (12 NCEs; $p < .01$) in 2010–2011.

Figure 5. 2011–2012 mean Stanford reading scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year by economic status.



- Among non-economically-disadvantaged students, no statistically significant differences in the average 2011–2012 Stanford reading performance were found across the four Early Childhood Centers or between the Early Childhood Centers and the school-based program. The lack of statistical significance may have been due to the small number of non-economically-disadvantaged students within each center who took the Stanford.

Stanford Math

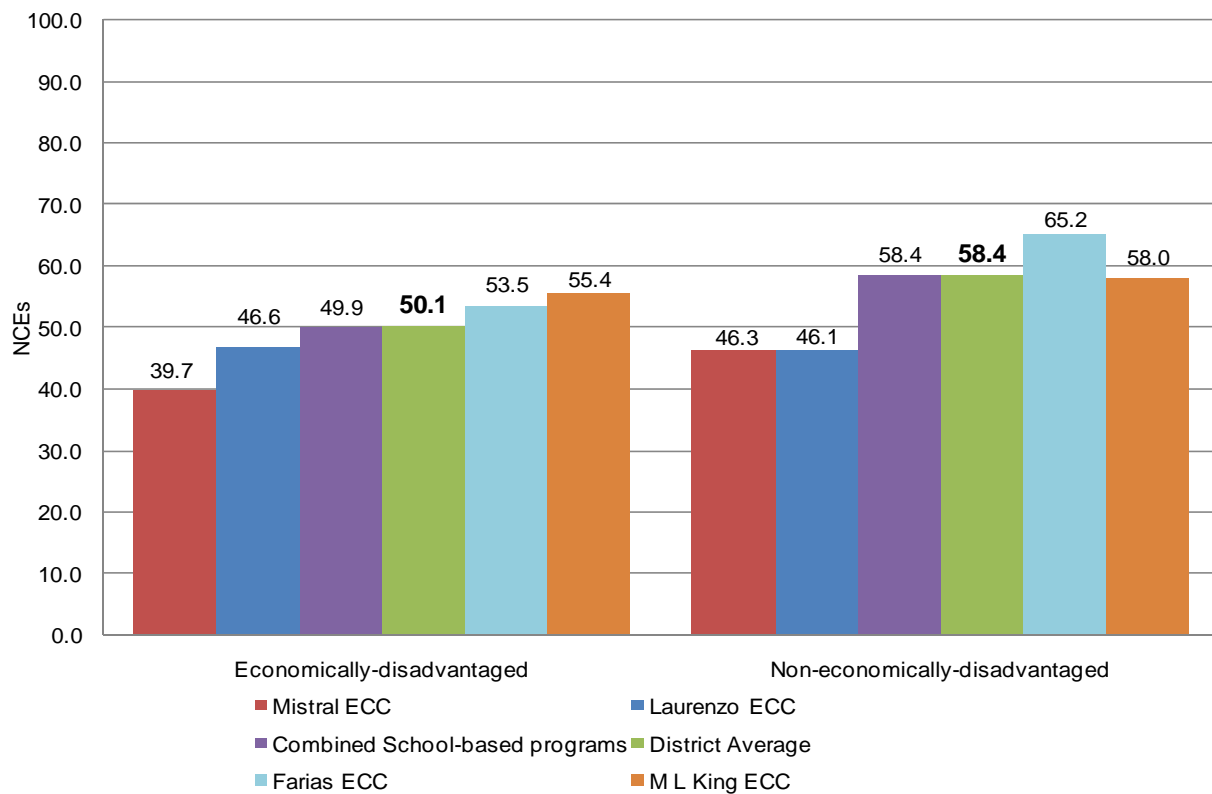
- Stanford mean NCE math scores for students who attended an Early Childhood Center or the school-based program in 2010–2011 by economic status are displayed in **Figure 6** (p. 13). Tables 4 and 5 (p. 21) present the number of students who took the Stanford reading subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and the school-based program by economic status.
- After accounting for economic status, variations still exist in the average 2011–2012 kindergarten Stanford math scores across the four Early Childhood Centers.
- The average 2011–2012 Stanford math performance of economically-disadvantaged students who attended MLK and Farias in 2010–2011 was higher than the average score of all economically-disadvantaged kindergarten students who had been enrolled in HISD prekindergarten by 5 NCEs and 4 NCEs, respectively.
- The average 2011–2012 Stanford math performance of economically-disadvantaged students who attended MLK was statistically significantly higher compared to the average math performance of economically-disadvantaged students who attended Mistral (16 NCEs; $p < .001$) in 2010–2011.
- The average 2011–2012 Stanford math performance of economically-disadvantaged students who attended Farias was also statistically significantly higher compared to the average math performance of economically-disadvantaged students who attended Mistral (14 NCEs; $p < .001$) in 2010–2011.
- The average 2011–2012 Stanford math performance of economically-disadvantaged students who attended a school-based program was statistically significantly higher compared to the average math performance of economically-disadvantaged students who attended Mistral (10 NCEs; $p < .01$) in 2010–2011.
- Among non-economically-disadvantaged students, no statistically significant differences in the average 2011–2012 Stanford math performance were found across the four Early Childhood Centers or between the Early Childhood Centers and the school-based program. The lack of statistical significance may have been due to the small number of non-economically-disadvantaged students within each center who took the Stanford.

Do differences in students' Limited English Proficiency (LEP) classification in kindergarten explain the variation in Stanford performance across Early Childhood Centers?

Stanford Reading

- 2011–2012 Stanford mean NCE reading scores for students who attended an Early Childhood Center or a school-based program in 2010–2011 by LEP classification are displayed in **Figure 7** (p. 14). Tables 6 and 7 (p. 22) present the number of students who took the Stanford reading subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers and school-based programs based on LEP classification.

Figure 6. 2011–2012 Mean Stanford math scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year by economic status.



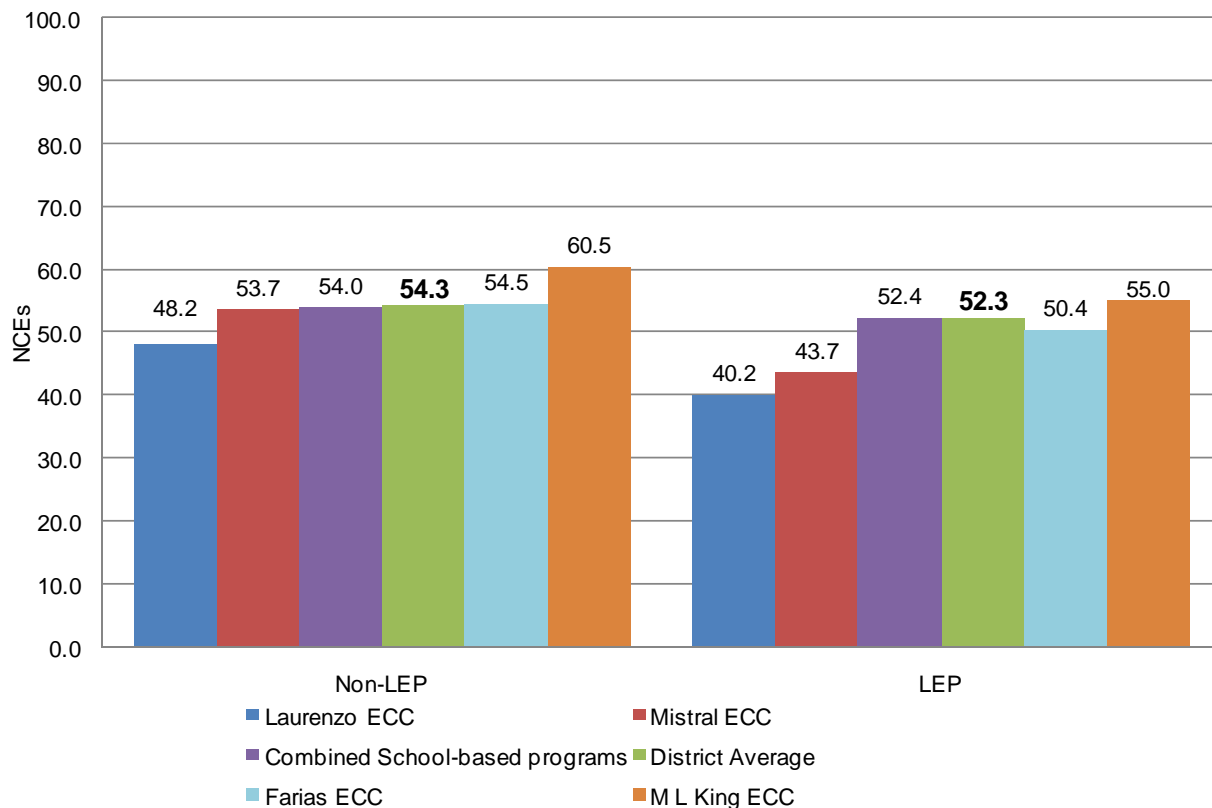
- After accounting for LEP classification, the variation in the average 2011–2012 kindergarten Stanford reading scores between Mistral and Farias, was substantially reduced among non-LEP students.
- The difference in the average 2011–2012 kindergarten Stanford reading scores between students who attended Mistral and students who attended a school-based program in 2010–2011 was minimal among non-LEP students.
- Results suggest that LEP classification may explain some of the variation in Stanford reading scores across Early Childhood Centers, and in particular, between Mistral and Farias as well as between Mistral and combined school-based programs overall.
- The average 2011–2012 Stanford reading performance of non-LEP students who attended MLK in 2010–2011 was higher than the average score of all 2011–2012 non-LEP kindergarten students who were enrolled in HISD prekindergarten in 2010–2011 (7 NCEs).
- The average 2011–2012 Stanford reading performance of non-LEP students who attended MLK in 2010–2011 was statistically significantly higher compared to the average reading performance of non-LEP students who attended Laurenzo (12 NCEs; $p < .001$), and school-based programs (7 NCEs; $p < .01$) in 2010–2011.
- Among students classified as LEP, no statistically significant differences in the average 2011–2012 Stanford reading performance were found across the Early Childhood Centers or between

the Early Childhood Centers and school-based programs. The lack of statistical significance among centers and the school-based program may have been due to the small number of students classified as LEP within each center that took the Stanford.

Stanford Math

- 2011–2012 Stanford mean NCE math scores for students who attended an Early Childhood Center or the school-based program in 2010–2011 by LEP classification are displayed in **Figure 8** (p. 15). Tables 6 and 7 (p. 22) present the number of students who took the Stanford math subtest in 2012, and the means and standard deviations of the NCE scores by the four Early Childhood Centers as well as school-based programs by LEP classification.
- After accounting for LEP classification, the variation in the average 2011–2012 kindergarten Stanford math scores between most of the centers was reduced among non-LEP students. For example, the difference in average scores between Mistral and the other three centers was reduced. In addition, the average score difference between Lorenzo and Farias was also reduced.
- The difference in the average 2011–2012 kindergarten Stanford math scores between Mistral, Lorenzo, and students who attended a school-based program was also reduced among non-LEP students.

Figure 7. 2011–2012 mean Stanford reading scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year by LEP classification.

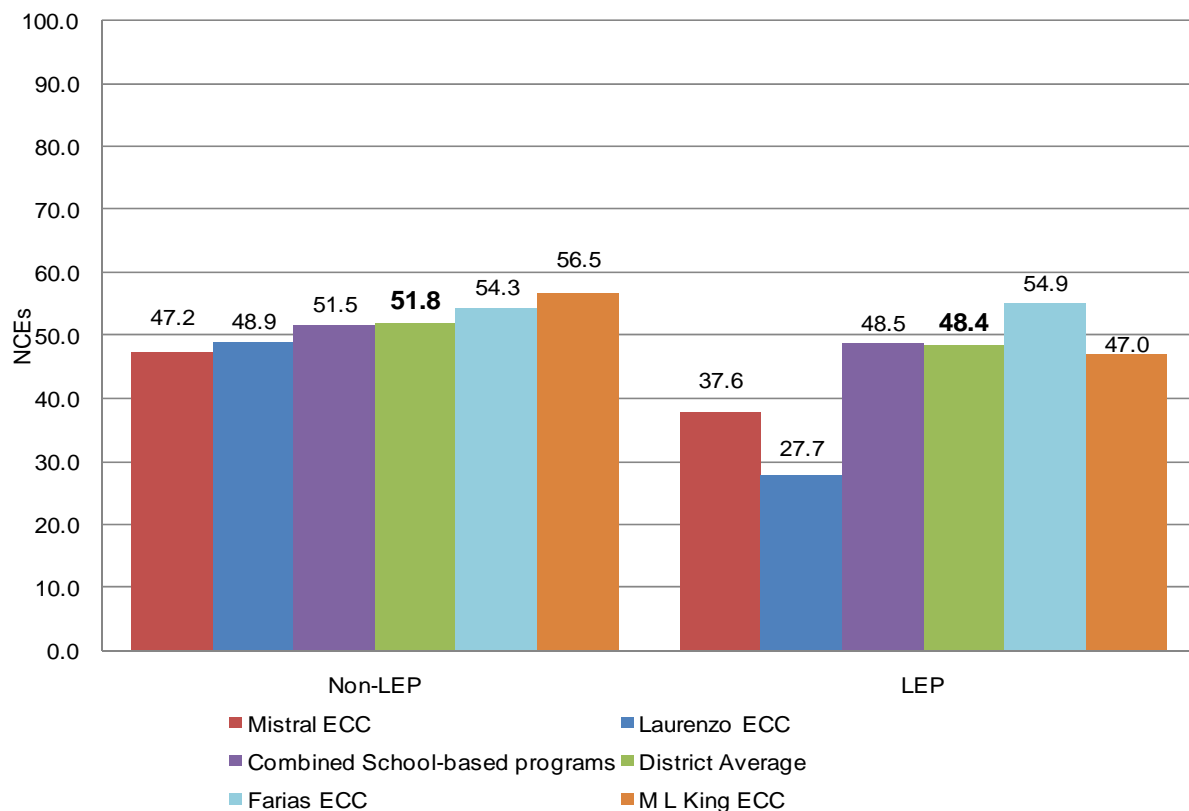


- Results suggest that LEP classification may explain some of the variation in Stanford math scores across centers.
- The average 2011–2012 Stanford math performance of non-LEP students who attended MLK in 2010–2011 was higher than the average score of all 2011–2012 non-LEP kindergarten students who were enrolled in HISD prekindergarten in 2010–2011 (5 NCEs).
- Among students classified as non-LEP, no statistically significant differences in the average 2011–2012 Stanford math performance were found across the Early Childhood Centers or between the Early Childhood Centers and school-based programs.
- The average 2011–2012 Stanford math performance of LEP students who attended a school-based program in 2010–2011 was statistically significantly higher compared to students who attended Mistral (11 NCEs; $p < .01$).

How did kindergarten students who attended HISD’s Early Childhood Centers and school-based programs perform on the 2011–2012 End-of-Year TPRI screening and inventories?

- MLK and the overall school-based group had a slightly greater percentage of students scoring at the “developed” level on the 2011–2012 End-of-year TPRI screening assessment compared to the percent “developed” out of all kindergarten students who had attended HISD prekindergarten in 2010–2011 (district overall; Figure 9, p. 17).

Figure 8. 2011–2012 mean Stanford math scores for HISD kindergarten students enrolled in HISD Early Childhood Centers and school-based programs the previous year by LEP classification.



- On the 2011–2012 end-of-year TPRI screening assessment, MLK had a slightly greater percentage of students scoring at the “developed” level compared to the percent “developed” out of all kindergarten students who had attended a school-based program in 2010–2011.
- The largest difference in the percent of students scoring at the “developed” level within each school was between MLK and Lorenzo, with a 21 percent-point differential.
- Because it is optional for students who are classified as “developed” on the screening section to take Inventories 1 and 6, the only students included in the analyses of the TPRI inventories were those identified by the screening section as “still developing.”

TPRI Inventory 1–Rhyming and Inventory 6–Letter Name Identification

- On the 2011–2012 end-of-year TPRI “Rhyming” inventory (see **Figure 9**, p. 17), a greater percentage of students within MLK, Lorenzo, and Farias scored at the “developed” level compared to the percent “developed” out of all kindergarten students who had attended HISD prekindergarten in 2010–2011.
- On the 2011–2012 end-of-year TPRI “Rhyming” inventory, the largest difference in the percent of students scoring at the “developed” level within each school was between MLK and Mistral, with a 31 percent-point differential.
- On the 2011–2012 end-of-year TPRI “Letter Name Identification” inventory, a greater percentage of students within Mistral, Farias, and MLK scored at the “developed” level compared to the percent “developed” out of all kindergarten students who had attended HISD prekindergarten or attended school-based programs in 2010–2011.
- On the 2011–2012 end-of-year TPRI “Letter Name Identification” inventory, the largest difference in the percent of students scoring at the “developed” level at each school was between Mistral and school-based programs, with a 12 percent-point differential.

How did kindergarten students who attended HISD’s Early Childhood Centers and school-based programs perform on the 2011–2012 End-of-Year Tejas LEE inventories?

Tejas LEE Inventory 1–Letter Naming and Inventory 3–Rhyming

- On the 2011–2012 end-of-year Tejas LEE “Letter Naming” inventory (see **Figure 10**, p. 17), a greater percentage of students at MLK and Mistral scored at the “developed” level compared to the percentage of students who scored “developed” out of all kindergarten students who attended HISD prekindergarten in 2010–2011 (district overall percentage).
- On the 2011–2012 end-of-year Tejas LEE “Letter Naming” inventory, all Early Childhood Centers and school-based programs overall had over 94 percent of students scoring at the “developed” level.
- On the 2011–2012 end-of-year Tejas LEE “Rhyming” inventory, a greater percentage of students at MLK, Mistral, and Lorenzo scored at the “developed” level compared to the percentage of students who scored “developed” out of all kindergarten students who attended a school-based program in 2010–2011.
- On the 2011–2012 end-of-year Tejas LEE “Letter Name Identification” inventory, the highest difference in the percent of students scoring at the “developed” level at each school was between MLK and Farias, with a 14 percent-point differential.

Figure 9. Percent of kindergarten students identified as “Developed” on the 2011–2012 End-of-Year TPRI Screening assessment and Inventories by HISD Early Childhood Centers and school-based programs.

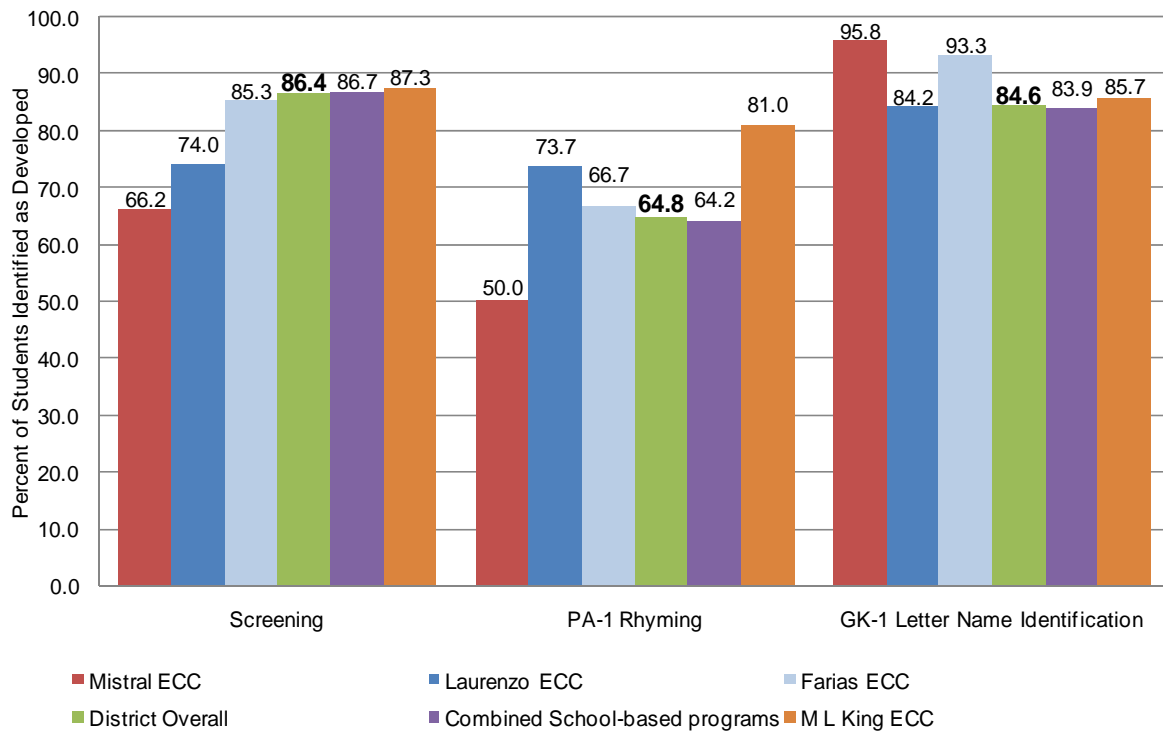
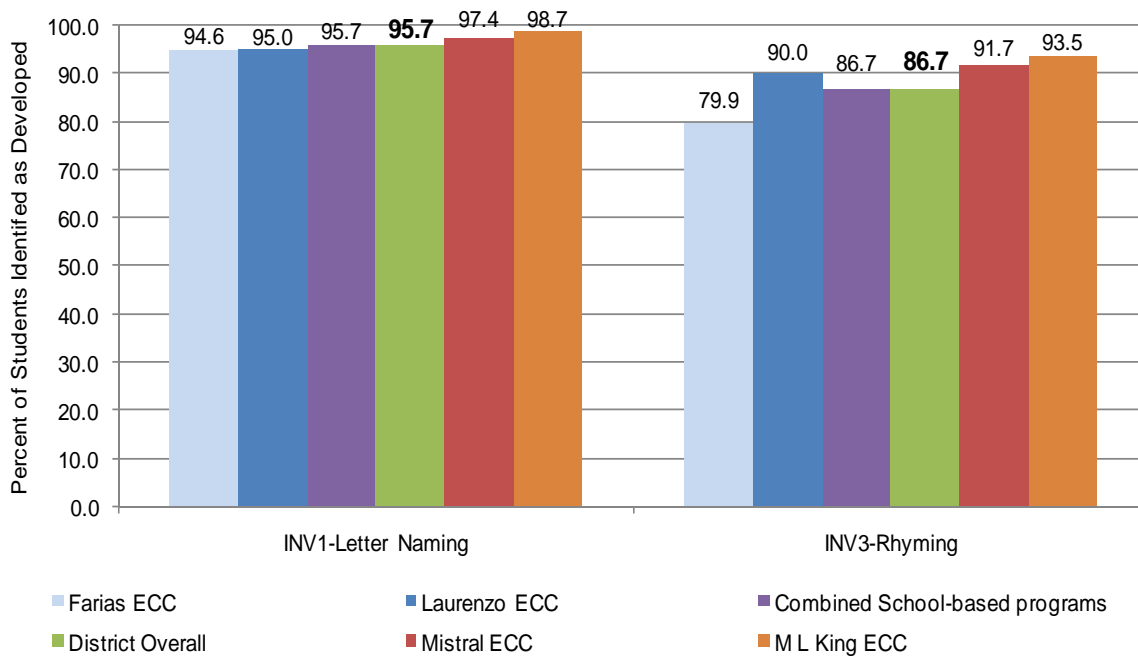


Figure 10. Percent of kindergarten students identified as “Developed” on the 2011–2012 End-of-Year Tejas LEE Inventories by HISD Early Childhood Centers and school-based programs.



Discussion

Analyses of performance differences within prekindergarten program models for 2011–2012 kindergarten students indicated that among the Early Childhood Centers, it appears that students who attended MLK outperformed their counterparts who attended the other three ECC centers on the Stanford reading and Aprenda reading and math subtests. These students also tend to perform better on the TPRI and Tejas LEE assessments. In addition, students who attended MLK consistently had higher mean scores on standardized assessments than students who attended prekindergarten at a school-based program.

The variations in the performance across Early Childhood Centers do not appear to be explained by students' economic status, given that variations in performance across the centers persisted even after isolating this characteristic. However, it appears that a small part of the variation in performance on the Stanford is explained by students' LEP status. For example, some of the variations in Stanford performance across Early Childhood centers were reduced when only examining the average NCE scores of non-LEP students. Future evaluations of the HISD Early Childhood Centers might examine how school-level factors vary between MLK and the other three Early Childhood Centers in the district to further explain the variation in kindergarten performance across all four Early Childhood Centers. Based on findings from the current evaluation, MLK may have the potential to serve as a center for best practices that can be implemented by the other Early Childhood Centers and school-based programs.

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Table 1: 2011–2012 Demographic Characteristics of HISD Kindergarteners by Early Childhood Centers

	Farias (N = 324)		Mistral (N = 249)		M L King (N = 265)		Laurenzo (N = 137)		School-based (N = 10,309)	
	N	%	N	%	N	%	N	%		
Gender										
Female	161	49.7	116	46.6	136	51.3	69	50.4	5,110	49.6
Male	163	50.3	133	53.4	129	48.7	69	50	5,199	50.4
Race/Ethnicity										
African American	11	3.4	12	4.8	120	45.3	--	--	2,232	21.7
Hispanic	305	94.1	211	84.7	141	53.2	133	97.1	7,546	73.2
White	--	--	7	2.8	--	--	--	--	256	2.5
Asian	--	--	15	6	--	--	--	--	209	2.0
American Indian	--	--	--	--	--	--	--	--	25	0.2
Pacific Islander	--	--	--	--	--	--	--	--	7	0.1
More than 2 Races	--	--	--	--	--	--	--	--	34	0.3
Limited English Proficient (LEP)	228	70.4	215	86.3	90	34.0	68	49.6	5,684	55.1
Economically disadvantaged	309	95.4	225	90.4	227	85.7	121	88.3	9,509	92.2
Special Education	18	5.6	8	3.2	3	1.1	15	10.9	347	3.4

Note. All data retrieved from PEIMS 2011–2012. “--”denotes less than 5 students fell under this category.

Table 2: Means and Standard Deviations of 2011–2012 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>Stanford</u>	n	M	n	M	n	M	n	M	n	M
Reading	113	53.77 (18.93)	85	47.57 ^a (22.75)	182	60.20 ^{a****b**c**} (21.62)	72	47.28 ^b (18.96)	5,463	53.69 ^c (19.72)
Math	114	54.43 ^{d***} (19.37)	86	41.26 ^{def} (24.08)	182	55.94 ^{e***} (20.93)	72	46.51 (19.62)	5,490	50.93 ^{****} (20.76)

Note. Standard deviations appear in parentheses below means. Differences in means with similar superscripts within rows were statistically significant. ** $p < .01$. *** $p < .001$.

Table 3: Means and Standard Deviations of 2011–2012 Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>Aprenda</u>	n	M	n	M	n	M	n	M	n	M
Reading	205	63.41 (21.8)	159	65.90 (21.55)	77	72.72 (22.54)	60	67.17 (19.31)	4,570	66.43 (22.29)
Math	205	68.39 ^a (21.53)	161	74.44 (22.06)	77	79.14 ^{a**} (19.05)	60	73.17 (16.78)	4,573	73.18 (20.74)

Note. Standard deviations appear in parentheses below means. Differences in means with similar superscripts within rows were statistically significant. ** $p < .01$.

Table 4: Means and Standard Deviations of 2011–2012 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program (for Economically-Disadvantaged Students ONLY)

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>Stanford</u>	n	M	n	M	n	M	n	M	n	M
Reading	104	52.52 (18.86)	66	46.74 ^a (21.43)	144	58.55 ^{a***b**} (21.23)	57	46.29 ^b (17.78)	4,794	52.55 (19.28)
Math	105	53.50 ^{c***} (19.30)	66	39.73 ^{cde} (22.41)	144	55.40 ^{d***} (21.42)	57	46.61 (18.36)	4,820	49.89 ^{e**} (20.73)

Note. Standard deviations appear in parentheses below means. Differences in means with similar superscripts within rows were statistically significant. ** $p < .01$. *** $p < .001$.

Table 5: Means and Standard Deviations of 2011–2012 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program (for Non-Economically Disadvantaged Students ONLY)

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>Stanford</u>	n	M	n	M	n	M	n	M	n	M
Reading	9	68.19 (13.67)	19	50.43 (27.30)	38	66.49 (22.22)	15	51.05 (23.24)	669	61.86 (20.89)
Math	9	65.23 (17.67)	20	46.30 (28.98)	38	58.00 (19.11)	15	46.13 (24.55)	670	58.44 (19.41)

Note. Standard deviations appear in parentheses below means.

Table 6: Means and Standard Deviations of 2011–2012 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program (for Non-LEP Students ONLY)

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
Stanford	n	M	n	M	n	M	n	M	n	M
Reading	92	54.53 (18.71)	33	53.66 (22.37)	171	60.54 ^{a***b**} (21.56)	64	48.17 ^a (18.86)	4,424	53.99 ^b (19.68)
Math	93	54.31 (19.4)	33	47.20 (23.28)	171	56.52 (21.20)	64	48.86 (18.19)	4,445	51.50 (20.73)

Notes. Standard deviations appear in parentheses below means. Differences in means with similar superscripts within rows were statistically significant. ** $p < .01$. *** $p < .001$.

Table 7: Means and Standard Deviations of 2011–2012 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Early Childhood Centers and the School-based Program (for LEP Students ONLY)

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
Stanford	n	M	n	M	n	M	n	M	n	M
Reading	21	50.44 (19.99)	52	43.70 (22.33)	11	55.00 (22.96)	8	40.16 (19.48)	1,039	52.43 (19.86)
Math	21	54.93 (19.69)	53	37.56 ^{a**} (24.03)	11	47.01 (13.89)	8	27.69 (21.70)	1,045	48.54 ^a (20.75)

Notes. Standard deviations appear in parentheses below means. Differences in means with similar superscripts within rows were statistically significant. ** $p < .01$.

Table 8: Percent of Students Identified as Developed on the 2012 End-of-Year TPRI Screening Assessment and Inventories by Early Childhood Centers and the School-based Program

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>TPRI</u>	n	%D	n	%D	n	%D	n	%D	n	%D
Screening	102	85.3	71	66.2	166	87.3	73	74.0	4,913	86.7
PA-1 Rhyming	15	66.7	24	50.0	21	81.0	19	73.7	651	64.2
GK-1 Letter Name Identification	15	93.3	24	95.8	21	85.7	19	84.2	651	83.9

Note. D = "Developed."

Table 9: Percent of Students Identified as Developed on the 2012 End-of-Year Tejas LEE Inventories by Early Childhood Centers and the School-based Program

	Farias ECC		Mistral ECC		M L King ECC		Laurenzo ECC		School-based	
<u>Tejas LEE</u>	n	%D	n	%D	n	%D	n	%D	n	%D
INV-1 Letter Naming	204	94.6	156	97.4	77	98.7	60	95.0	4,292	95.7
INV-3 Rhyming	204	79.9	156	91.7	77	93.5	60	90.0	3,890	86.7

Note. D = "Developed."

APPENDIX A

SCHOOL-BASED PREKINDERGARTEN CAMPUSES 2010–2011

Campus Number	Campus Name
102	ALCOTT
104	ALMEDA
105	ANDERSON
106	ATHERTON
107	BARRICK
108	BASTIAN
109	BERRY
110	BLACKSHEAR
111	BONHAM
112	BONNER
113	PAIGE, RODERICK
114	BRAEBURN
115	DURHAM
117	BRISCOE
119	BROOKLINE
120	BROWNING
121	BRUCE
122	BURBANK
123	CODWELL
125	BURRUS
127	WOODSON
128	LYONS
130	CONDIT
131	HALPIN CENTER
132	COOP
133	CORNELIUS
134	CRAWFORD
135	CROCKETT
136	CUNNINGHAM
137	DECHAUMES
138	DEZAVALA
140	DOGAN
143	BRIARMEADOW
147	ELIOT
148	ELROD
149	EMERSON
151	BELL
152	FIELD

APPENDIX A CONT.

153	FONDREN
154	FOSTER
155	FRANKLIN
156	FROST
158	GARDEN VILLAS
159	GOLFCREST
160	GORDON
162	GREGG
164	GRIMES
166	HARRIS, JR
167	HARRIS, RP
168	HARTSFIELD
169	HARVARD
170	HELMS
171	HENDERSON, JP
172	HENDERSON, NQ
173	HEROD
174	HIGHLAND HEIGHTS
175	HOBBY
179	HOUSTON GARDENS
180	ISAACS
181	JANOWSKI
182	JEFFERSON
185	KASHMERE GARDENS
186	ROBINSON
187	KELSO
188	KENNEDY
189	KOLTER
192	LANTRIP
195	LOCKHART
196	LONGFELLOW
197	LOOSCAN
198	LOVE
200	H S FOR BUS AND ECON SUCCESS
201	MACGREGOR
202	MCDADE
203	MADING
204	MEMORIAL
207	MONTGOMERY
209	NEFF
210	NORTHLINE
211	OAK FOREST

APPENDIX A CONT.

212	OATES
213	OSBORNE
214	PARK PLACE
215	PARKER
216	PATTERSON
217	PECK
218	PILGRIM ACADEMY
219	PINEY POINT
220	PLEASANTVILLE
221	POE
222	PORT HOUSTON
223	PUGH
224	RED
225	REYNOLDS
226	RHOADS
227	MCNAMARA
229	ROBERTS
231	ROOSEVELT
232	ROSS
233	RUCKER
234	THE RUSK SCHOOL
237	SCARBOROUGH
238	SCOTT
239	SHEARN
240	SHERMAN
241	SINCLAIR
242	SMITH, KATE
243	THOMPSON
244	SOUTHMAYD
245	STEVENS
246	STEVENSON
247	YOUNG
248	SUTTON
249	TRAVIS
252	WAINWRIGHT
253	WALNUT BEND
254	WESLEY
256	WHARTON ACADEMY
257	WHIDBY
258	WHITTIER
260	WINDSOR VILLAGE
262	GRISSOM

APPENDIX A CONT.

263	LAW
264	MITCHELL
265	PETERSEN
266	SMITH, E.O.
267	WHITE
268	BENBROOK
269	SCROGGINS
271	FOERSTER
273	ASHFORD
274	ASKEW
275	BUSH
279	TIJERINA
281	SANCHEZ
282	GREG/LINCOLN ED CTR
283	GARCIA
285	VALLEY WEST
286	HERRERA
287	CAGE
289	MARTINEZ, C
290	CRESPO
291	GALLEGOS
292	CARRILLO
295	BENAVIDEZ
297	DAVILA
298	MARTINEZ, R
299	MILNE
328	TSU CHARTER LAB-SCHOOL
350	ENERG FOR EXCELL ECA
353	SCHOOL AT ST. GEORGE PLACE
358	COOK JR., FELIX
360	BELLFORT ECC
369	GROSS
371	YOUNG SCHOLARS ACADEMY
372	RODRIGUEZ
373	SEGUIN
378	KANDY STRIPE ACADEMY
389	KETELSEN
392	YOUNG LEARNERS
395	HINES-CALDWELL
396	DAILY, RAY
