MEMORANDUM August 15, 2013

TO: Board Members

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

SUBJECT: **PREKINDERGARTEN EDUCATION PROGRAM: ACADEMIC PERFORMANCE COMPARISON OF HEAD START PROGRAMS, 2012–2013**

CONTACT: Carla Stevens, (713) 556-6700

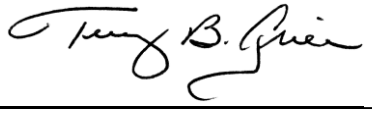
Attached is the evaluation report examining the kindergarten performance of students enrolled in Head Start in 2011–2012. HISD collaborates with four federally funded Head Start agencies: AVANCE, Gulf Coast Community Services Association (GCCSA), Harris County Department of Education, and Neighborhood Centers, Inc. (NCI). This evaluation examined the variation in the 2012–2013 kindergarten performance of students across the four Head Start programs as assessed by norm-referenced and criterion-referenced exams. Kindergarten performance between students who attended Head Start and were primarily economically disadvantaged (ED) versus their ED peers who were not enrolled in HISD prekindergarten or Head Start the previous year was also examined.

There was little variation between Head Start programs on the norm-referenced reading and math subtests. There was almost none on the 2012–2013 Stanford. Kindergarten students who attended NCI performed slightly better than students who attended other programs with the largest gap being over Harris County, and students attending any Head Start program outperformed the district average for economically disadvantaged students on the Aprenda in both reading and math.

Findings indicate that students who attended any local Head Start agency performed better on the Stanford reading and math subtests compared to their ED peers who did not attend HISD prekindergarten or Head Start; the relationship was even stronger after accounting for LEP status. Because HISD kindergarten students may have been dually enrolled in both Head Start and HISD prekindergarten or attended a Head Start standalone program, performance comparisons were also distinguished by these programs within each of the Head Start agencies. For the most part, Head Start students enrolled in the HISD partnership program outperformed their peers enrolled in the standalone programs on the Stanford and Aprenda reading and math subtests.

Administrative Response: HISD will work with the participating Head Start agencies to identify interventions that could be implemented to enhance student performance. HISD will request a list of students waitlisted for Head Start programs to use as a comparison group in future evaluations.

Should you have any questions or require any further information, please contact me or Carla Stevens in the Department of Research and Accountability, at 713-556-6700.



TBG

TBG/CS:jao

cc: Superintendent's Cabinet
Chief School Officers
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RESEARCH

Educational Program Report

Prekindergarten Education Program: Academic Performance Comparison of Head Start Programs, 2012–2013

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HOUSTON INDEPENDENT SCHOOL DISTRICT

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PREKINDERGARTEN EDUCATION PROGRAM: ACADEMIC PERFORMANCE COMPARISON OF HEAD START PROGRAMS, 2012–2013

Executive Summary

The goal of Head Start is to develop the cognitive and social-emotional skills of children from low-income backgrounds to prepare them to succeed in kindergarten and beyond. Presently, HISD collaborates with four federally-funded Head Start agencies: AVANCE, Gulf Coast Community Services Association (GCCSA), Harris County Department of Education, and Neighborhood Centers, Inc. (NCI). Collectively, all four agencies collaborate with thirty-two HISD schools (**Appendix A**). The purpose of this evaluation is to examine the variation in the performance of students enrolled in kindergarten during the 2012–2013 academic year across the four Head Start programs they attended in 2011–2012, as well as to explore the extent to which students' benefitted academically from attending Head Start. To determine the academic benefits of Head Start, the academic performance of students who attended Head Start were compared to students who were identified as not enrolled in HISD prekindergarten or Head Start the previous year. Specific measures of student performance include:

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

Highlights

- The average 2012–2013 Stanford reading scores in kindergarten did not vary greatly by the Head Start agency students attended in 2011–2012. The largest difference found was 2 normal curve equivalents (NCEs).
- The average 2012–2013 Stanford math scores in kindergarten varied slightly by the Head Start agency students attended in 2011–2012. The largest difference found was 4 NCEs.
- The average 2012–2013 Aprenda reading scores in kindergarten varied by the Head Start agency students attended in 2011–2012, with the largest difference between NCI and Harris County (6 NCEs).
- The average 2012–2013 Aprenda math scores in kindergarten varied by the Head Start agency students attended in 2011–2012, with the largest difference between NCI and Harris County (5 NCEs).
- The average 2012–2013 Aprenda reading and math performance of students who attended a Head Start agency was higher than the average score of all 2012–2013 kindergarten students in HISD.
- Among the four Head Start agencies, NCI had the highest percentage of students scoring at the "developed" level on the majority of beginning-of-year TPRI and Tejas LEE kindergarten assessments.
- Economically disadvantaged kindergarten students who attended Head Start in 2011–2012 outperformed their peers who did not attend HISD prekindergarten/Head Start on the Stanford

reading and math subtests with differences in reading scores ranging from 4 to 7 NCEs and differences in math scores ranging from 2 to 7 NCEs.

- Once accounting for LEP status, there were greater differences in the average Stanford reading and math scores between the economically disadvantaged kindergarten student group who attended Head Start in 2011–2012 and the student group who did not attend HISD prekindergarten/Head Start.
- For the most part, Head Start students enrolled in the HISD partnership program outperformed their peers enrolled in the standalone programs on the Stanford and Aprenda reading and math subtests.

Recommendations

1. The Early Childhood Curriculum department and the Research and Accountability department should continue to work with the Head Start collaborative to develop additional research and program evaluation questions that further enhance our understanding of the performance differences between and within Head Start programs. Understanding what factors contribute to performance differences across programs can help to identify the types of interventions that should be implemented to enhance student performance.
2. In addition to their student enrollment information, collaborating Head Start agencies should provide HISD with a list of students who are assigned to their waiting list. These students serve as potentially good candidates for a comparison group in future evaluations given that they meet Head Start requirements and have parents motivated to enroll them in an early childhood education program.

Administrative Response

HISD will work with the participating Head Start agencies to identify interventions that could be implemented to enhance student performance. HISD will request a list of students waitlisted for Head Start programs to use as a comparison group in future evaluations.

Introduction

Head Start programs are publicly-funded and managed at the local level but must adhere to federal quality guidelines. These guidelines suggest that Head Start agencies provide a learning environment that promotes cognitive and social-emotional development to enhance the school-readiness of low-income students. In addition, Head Start agencies are expected to provide a wide array of social services to assist families. Presently, HISD collaborates with four federally-funded Head Start agencies: AVANCE, Gulf Coast Community Services Association (GCCSA), Harris County Department of Education, and Neighborhood Centers, Inc. (NCI).

Literature Review

Variations in the quality level of Head Start programs have been found to exist; however, previous research suggests that, on average, Head Start centers are of higher quality than other preschool programs and unregulated childcare (See Currie, 2001; Collaborative for Children, 2012). Past evaluations of Head Start programs suggest that a Head Start intervention can have both short-term and long-term benefits for children. For example, short-term benefits include improvements in cognitive and achievement outcomes (Shager et al., 2013). Longer-term benefits of Head Start include a reduction in the likelihood of special education placement, and a reduction in the incidence of early grade retention. In addition, some studies have found that a quality Head Start intervention increases the likelihood of high school graduation (See Currie, 2001; Currie & Neidell, 2007).

Variations in findings regarding the benefits of Head Start sometimes have to do with methodological differences and the selection of comparison groups (Zhai, Brooks-Gunn, & Waldfogel, 2011; Shager et al., 2013). Previous studies have compared students who received a formal preschool education to all other students who did not receive a formal preschool education without controlling for demographic characteristics, such as economic status, that influence student performance (Gormley et al., 2005). Given the negative effects of low socio-economic status on academic outcomes (e.g., Aikens & Barbarin, 2008; Brooks-Gunn, 2003; Chatterji, 2006), the current evaluation has taken into consideration a students' socioeconomic status when comparing the Stanford performance of Head Start students versus their peers who did not attend HISD prekindergarten or Head Start. The four Head Start agencies reviewed in this report are AVANCE, Gulf Coast Community Services Association (GCCSA), Harris County Department of Education, and Neighborhood Centers, Inc. (NCI).

Methods

Data Collection and Analysis

- Each of the four Head Start agencies provided a list of students enrolled in their program in 2012–2013. These lists included both students who were dually enrolled in HISD prekindergarten and Head Start, and stand-alone Head Start students. The students were matched to the PEIMS 2012–2013 database of HISD kindergarteners by either social security number or by a composite of last name, first name, and date of birth, depending on the amount of information provided by the Head Start agency. For a portion of the analysis, students were disaggregated by whether they were enrolled in a Head Start dual-enrollment program or in one of the stand-alone programs. For AVANCE, 329 students were identified as

2012–2013 HISD kindergarteners; for GCCSA, 721 students; for Harris County, 212 students; and for NCI, 689 students.

- 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). 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 nine grade levels (kindergarten through grade 8). 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. This evaluation gathered students' results on the Screening assessment, Phonological Awareness Inventory 1 (Rhyming), Graphophonemic Knowledge Inventory 6 (Letter Name Identification), and Listening Comprehension.
    - 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 levels of performance on the Beginning-of-Year inventories include Desarrollado/Developed, Nivel Esperado/Expected performance, and Nivel de Intervencion/Needs Intervention. The current evaluation examined students' beginning of the year performance levels on Inventory 1 (Identificación de las letras/Letter Naming) assessing graphophonemic knowledge, Inventory 3 (Conocimiento de rimas/Rhyming) assessing phonological awareness, and Listening Comprehension.
- Data analysis focused on the performance of the 2012–2013 HISD kindergarten students enrolled in four Head Start programs in 2011–2012. **Table 1** (p. 26) provides a breakdown of

the demographic characteristics of the 2012–2013 HISD kindergarteners by the Head Start program they attended in 2011–2012. The four programs were (1) AVANCE, (2) GCCSA, (3) Harris County, and (4) NCI. The HISD prekindergarten (non-Head Start) and the HISD non-prekindergarten cohort served as comparison groups. The HISD non-prekindergarten cohort included students who did not attend Head Start or HISD prekindergarten.

- Economic status has a strong effect on student achievement (Aikens & Barbarin, 2008); therefore, student groups were disaggregated by economic status.[1]
- Limited English proficiency (LEP) status is also associated with student performance; thus, student groups were also disaggregated by LEP classification for English language assessments to control for the effect of limited English proficiency on the Stanford exams.
- The Stanford and Aprenda reading and math NCE scores of 2012–2013 kindergarten students across the Head Start agencies they attended in 2011–2012 served as outcome variables when examining the extent to which students within a particular Head Start outperformed their peers enrolled within other Head Start agencies.
- An overall "district average score" was included in the evaluation to capture the average score on the Stanford or Aprenda of all 2012–2013 kindergarten students.

Data Limitations

- This report has several limitations that should be addressed. The first limitation is that it is not known for certain whether students who did not attend Head Start or HISD prekindergarten received some other form of early childhood educational intervention. The second limitation is that comparison groups were not matched by prior performance levels because students within each of these groups are not administered the same assessments in prekindergarten. Controlling for performance levels in prekindergarten may help explain some of the variance in performance between groups. Collecting performance information for students will be possible given that Frog Street Press assessments were administered to almost all prekindergarten students in the district in 2012–2013. Another limitation is that the data provided by the Head Start agencies did not always contain a unique identifier for their students, which forced the researcher to use a less reliable method of linking students from Head Start to their HISD kindergarten enrollment data by using their first name, last name, and date of birth as the unique identification method. For this reason, it is possible that some students who attended Head Start were not captured as enrolled in Head Start in this analysis. Approximately 40 percent of students who attended a local Head Start were identified as attending HISD kindergarten. Finally, differences in scores between Head Start programs (dual vs. standalone) should be interpreted with caution given the disparity between the number of students across programs.

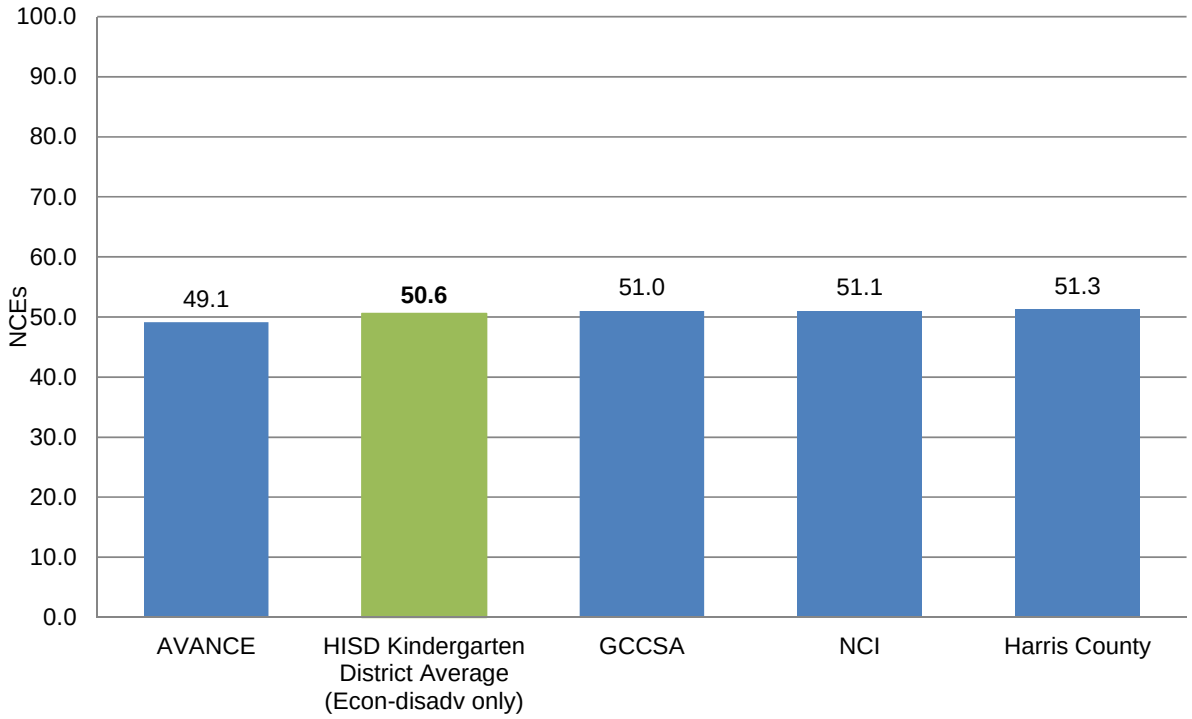
[1] Students who are eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program were classified as economically disadvantaged.

Results

What were the kindergarten performance differences among the four Head Start Agencies (AVANCE, GCCSA, Harris County, and NCI) that partner with HISD?

Stanford Reading

Figure 1. 2012–2013 mean Stanford reading scores for HISD kindergarten students enrolled in Head Start the previous year.

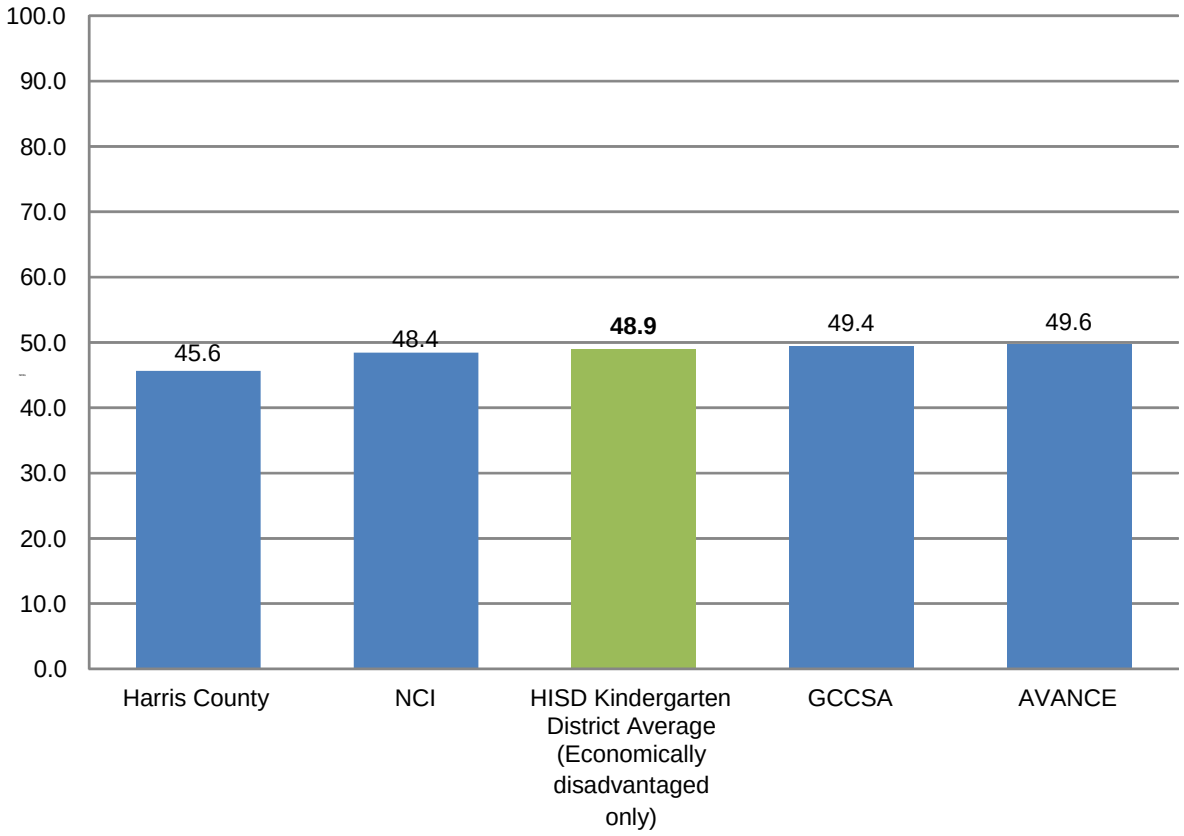


- Stanford mean NCE reading scores for students who attended Head Start in 2011–2012 are displayed in **Figure 1**. **Table 2** (p. 27) presents the number of students who took the Stanford reading subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies.
- The 2012–2013 Stanford reading scores in kindergarten varied only slightly by the Head Start agency students attended, with the largest difference between Harris County and AVANCE (2.2 NCEs).
- Because the majority of Head Start students were identified as economically disadvantaged (approximately 95 percent or greater) in kindergarten, the district average, which represents the average score of all 2012–2013 kindergarten students, only included economically disadvantaged students.
- The average 2012–2013 Stanford reading performance of students who attended three of the four Head Starts was slightly higher (less than one point) than the average score of all 2012–2013 economically disadvantaged kindergarten students.

Stanford Math

- Stanford mean NCE math scores for students who attended Head Start in 2011–2012 are displayed in **Figure 2**. Table 2 (p. 27) 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 Head Start agencies.
- The 2012–2013 Stanford math scores in kindergarten varied by the Head Start agency students attended, with the largest difference between AVANCE and Harris County (4 NCEs).
- The average 2012–2013 Stanford math performance among students who attended AVANCE and GCCSA was barely higher (less than one point) than the average 2012–2013 Stanford math performance of all 2012–2013 economically disadvantaged kindergarten students.

Figure 2. 2012–2013 mean Stanford math scores for HISD kindergarten students enrolled in Head Start the previous year.

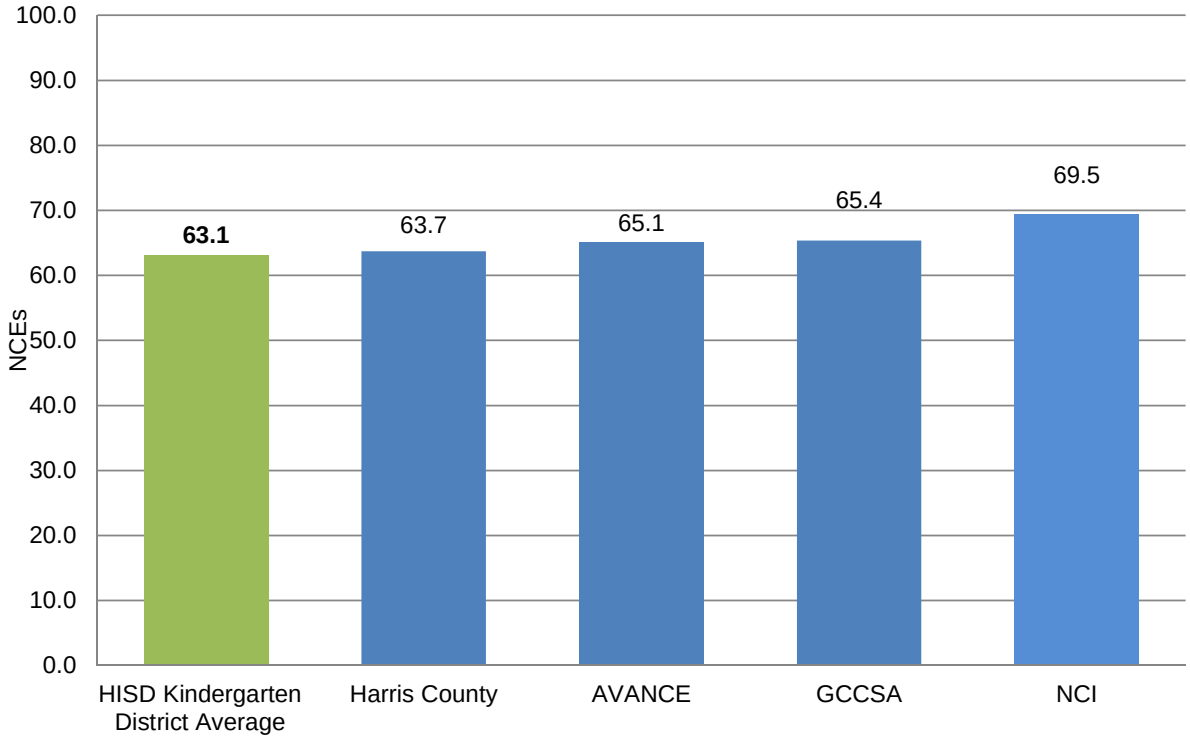


Aprenda Reading

- Aprenda mean NCE reading scores for students who attended Head Start in 2011–2012 are displayed in **Figure 3**, p. 8. **Table 3** (p. 27) presents the number of students who took the Aprenda reading subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies.

- The 2012–2013 Aprenda reading scores in kindergarten varied by the Head Start agency students attended, with the largest difference between NCI and Harris County (5.8 NCEs).
- The average 2012–2013 Aprenda reading performance of students who attended any of the four Head Start agencies was higher (up to six points) than the average score of 2012–2013 kindergarten students (district average).

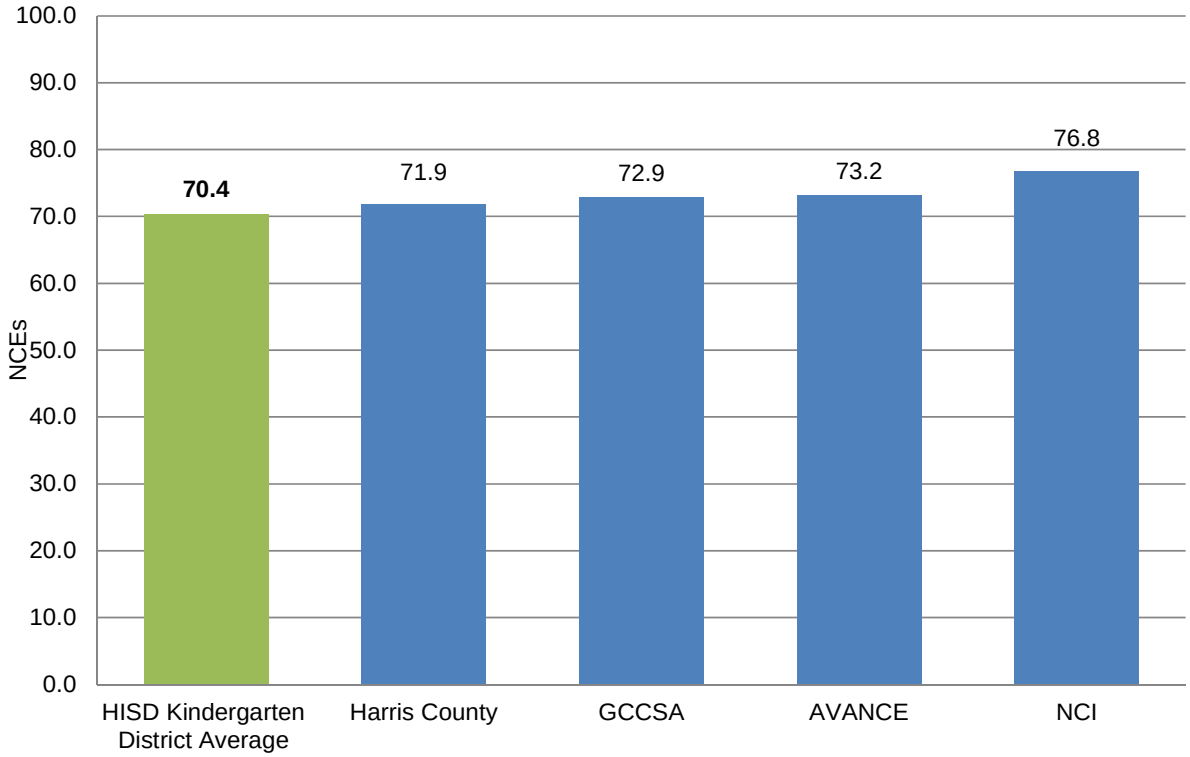
Figure 3. 2012–2013 mean Aprenda reading scores for HISD kindergarten students enrolled in Head Start the previous year.



Aprenda Math

- Aprenda mean NCE math scores for students who attended Head Start in 2011–2012 are displayed in **Figure 4**, p. 9. Table 3 (p. 27) presents the number of students who took the Aprenda math subtest in 2012 and the means and standard deviations of the NCE scores by the four Head Start agencies.
- The 2012–2013 Aprenda math scores in kindergarten varied by the Head Start agency students attended, with the largest difference between NCI and Harris County (4.9 NCEs).
- The average 2012–2013 Aprenda math performance of students who attended any of the four Head Start agencies was higher (up to six points) than the average score of 2012–2013 kindergarten students (district average).

Figure 4. 2012–2013 mean Aprenda math scores for HISD kindergarten students enrolled in Head Start the previous year.



TPRI Screening

- The percentage of students scoring at the "developed" level on the 2012–2013 Beginning-of-Year TPRI screening assessment by Head Start agencies are displayed in **Figure 5**, p. 10. Table 4 (p. 27) presents the number of students who took 2012–2013 Beginning-of-Year TPRI screening assessment in each of the Head Start programs, and the percent scoring at the "developed" level.
- All of the Head Start agencies had at least 40% of their students score at the "developed" level on the TPRI screening assessment.
- NCI had the greatest percent (62.2) of students scoring at the "developed" level.
- The percent "developed" out of all economically disadvantaged kindergarten students enrolled in HISD was 52.6 percent

TPRI Inventory 1: Rhyming & TPRI Inventory 6: Letter Name Identification

- The percentage of students by Head Start agencies scoring at the "developed" level on the 2012–2013 Beginning-of-Year TPRI inventories are displayed in **Figure 6**, p. 10. **Table 4** (p. 27) presents the number of students who took the 2012–2013 Beginning-of-Year TPRI Rhyming and Letter Name Identification inventories in each of the Head Start programs, and the percent scoring at the "developed" level.
- It is optional for students who are classified as "developed" on the screening section to take Inventories 1 and 6, thus a smaller number of students within each Head Start took the TPRI Inventory 1–Rhyming and Inventory 6–Letter Name Identification.

Figure 5. Percent of kindergarten students identified as "Developed" on the 2012–2013 Beginning-of-Year TPRI screening assessment by Head Start programs.

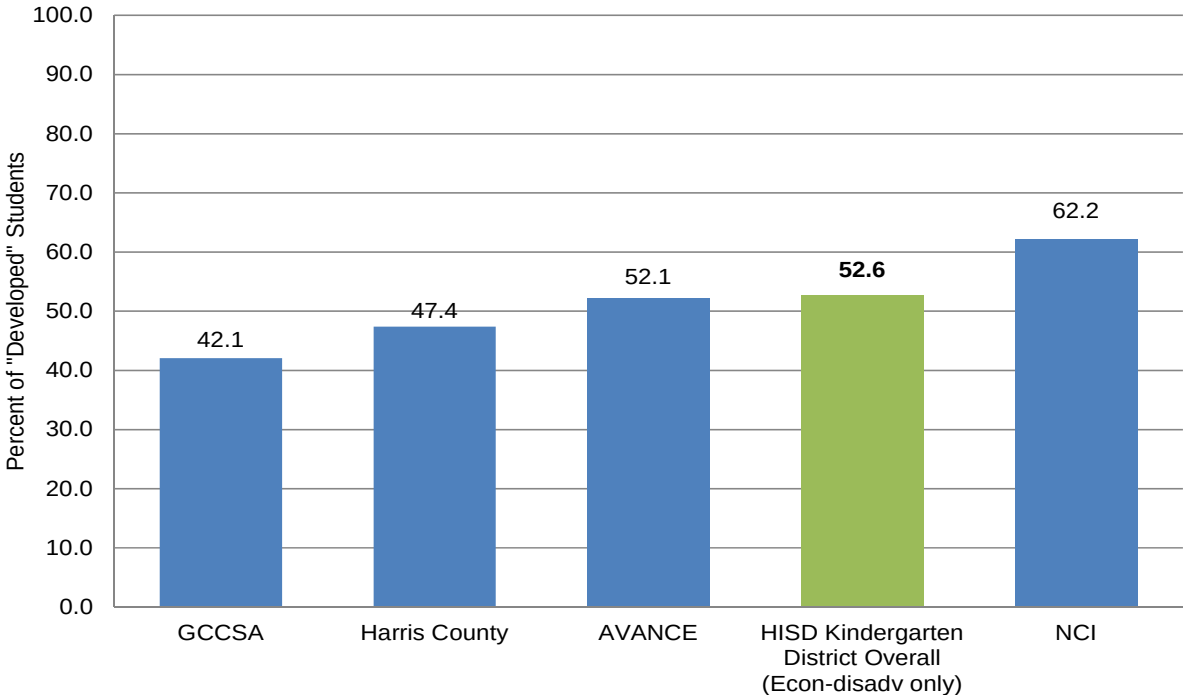
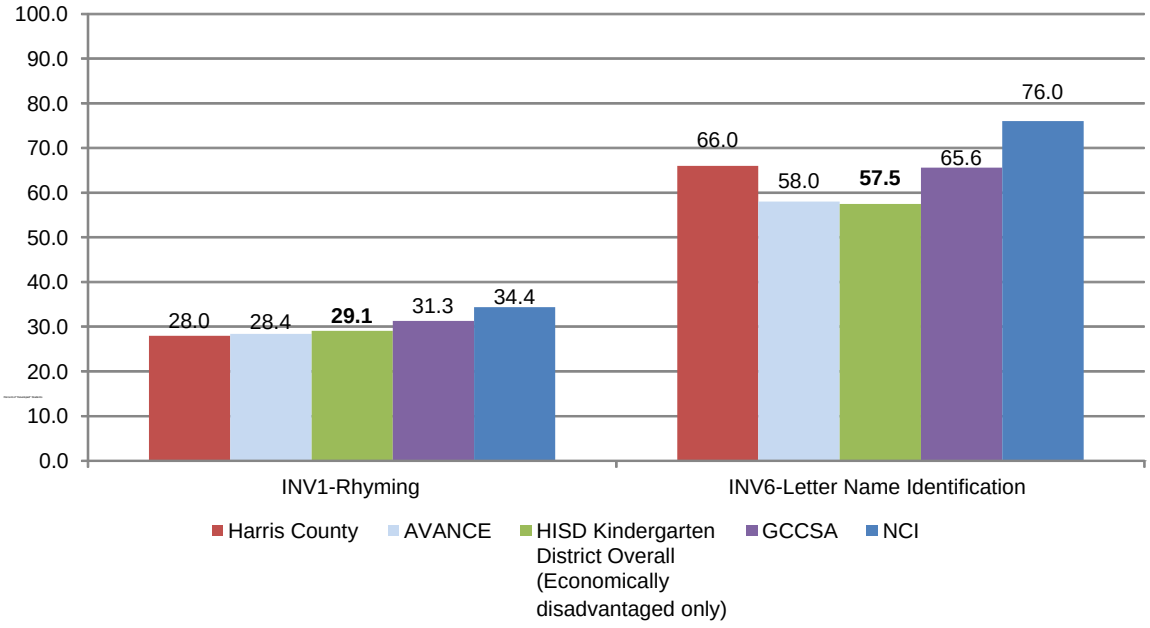


Figure 6. Percent of kindergarten students identified as "Developed" on the 2012–2013 Beginning-of-Year TPRI Rhyming and Letter Naming Inventories by Head Start programs.



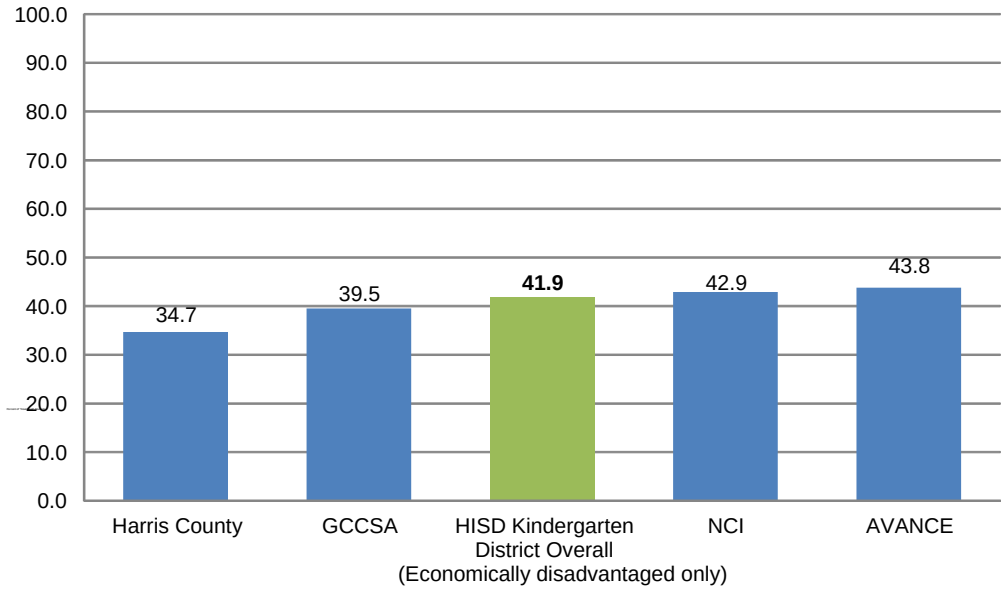
- On Inventory 1, the percent of Head Start students scoring at the "developed" level ranged from 28 to 34.4 across the four Head Start agencies.

- On Inventory 1, 29.1 percent of economically disadvantaged kindergarteners enrolled in HISD in 2011–2012 scored at the "developed" level, which was similar to the percent scoring "developed" within each of the Head Start agencies.
- On Inventory 6, the percentage of students scoring at the "developed" level within each of the four Head Start agencies ranged from 58 to 76.
- On Inventory 6, each one of the four Head Start agencies had a higher percent of students scoring at the "developed" level compared to the percent of students (57.5) scoring "developed" among all economically disadvantaged kindergarten students enrolled in HISD.

TPRI Listening Comprehension

- The percentage of students, disaggregated by Head Start agency, scoring at the "developed" level on the 2012–2013 Beginning-of-Year TPRI listening comprehension inventory is displayed in **Figure 7**. Table 4 (p. 27) presents the number of students who took the 2012–2013 Beginning-of-Year TPRI listening comprehension inventory in each of the Head Start programs, and the percent scoring at the "developed" level.
- The percentage of students within each Head Start scoring at the "developed" level on the 2012–2013 Beginning-of-Year TPRI listening comprehension inventory ranged from 34.7 to 43.8.
- NCI and AVANCE had a slightly higher percentage of students scoring "developed" compared to the percent "developed" (41.9) out of all economically disadvantaged kindergarten students enrolled in HISD.

Figure 7. Percent of kindergarten students identified as "Developed" on the 2012–2013 Beginning-of-Year Listening Comprehension Inventory by Head Start programs.



Tejas LEE Inventory 1: Letter Naming, Inventory 3: Rhyming, & Listening Comprehension

- The percentage of kindergarten students scoring at the "developed" level on the 2012–2013 Beginning-of-year Tejas LEE inventories by Head Start agencies are displayed in **Figure 8** and **Figure 9**, p. 13. **Table 5** (p. 28) presents the number of students who took 2012–2013 Beginning-of-year Tejas LEE inventories in each of the Head Starts, and the percent scoring at the "developed" level.
- The levels of performance on the Beginning-of-Year Tejas LEE inventories include *Desarrollado*/Developed, *Nivel Esperado*/Expected performance, and *Nivel de Intervención*/Needs Intervention. Both the "developed" and "expected" levels are deemed as adequate levels of performance. However, to maintain consistency in reporting across both English and Spanish language assessments, the tables and graphs only contain the percent "developed" on the Tejas LEE assessments.
- On Inventory 1, the percentage of Head Start students scoring at the "developed" level ranged from 50 to 71.7 across the four Head Start agencies.
- NCI and Harris County had a higher percentage of students scoring at the "developed" level compared to the percent of students scoring "developed" (55.4) among all kindergarten students enrolled in HISD in 2012–2013.
- On Inventory 3, the percent of Head Start students scoring at the "developed" level ranged from 20.2 to 34.1 across the four Head Start agencies.
- NCI and Harris County had a higher percentage of students scoring at the "developed" level compared to the percent of students scoring "developed" (22.9) among all kindergarten students enrolled in HISD in 2012–2013.
- On Listening Comprehension, a higher percentage of students scored at the "developed" level within each of the Head Starts compared to the percent scoring "developed" (26.3) out of all economically disadvantaged kindergarten students enrolled in HISD in 2012–2013.

Figure 8. Percent of kindergarten students identified as "Developed" on the 2012–2013 Beginning-of-Year Tejas LEE Rhyming and Letter Naming Inventories by Head Start programs.

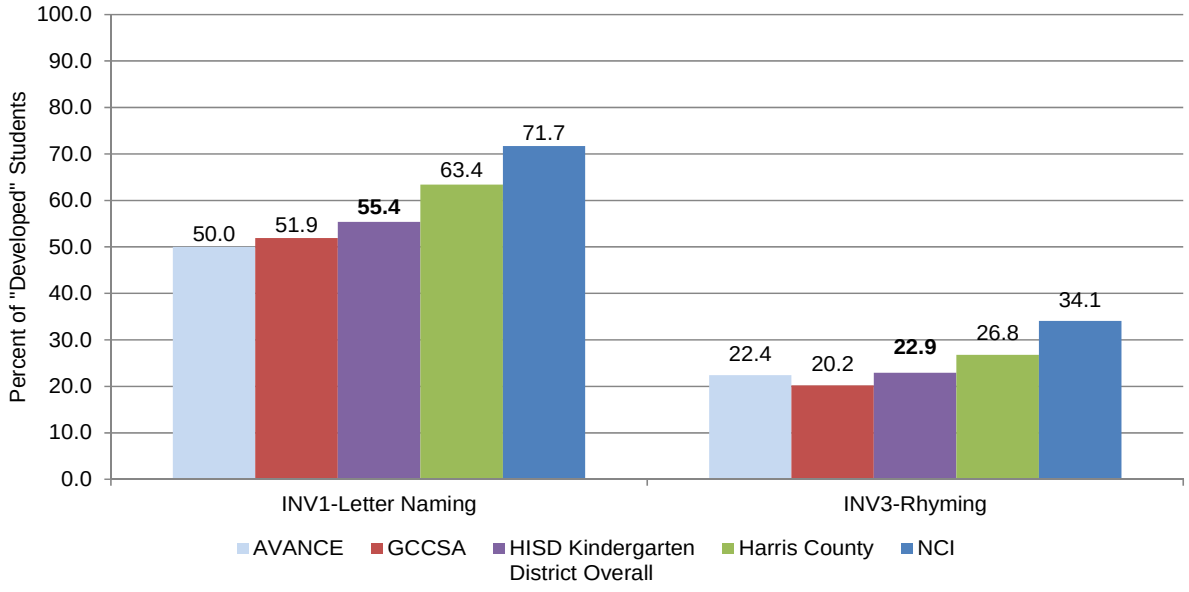
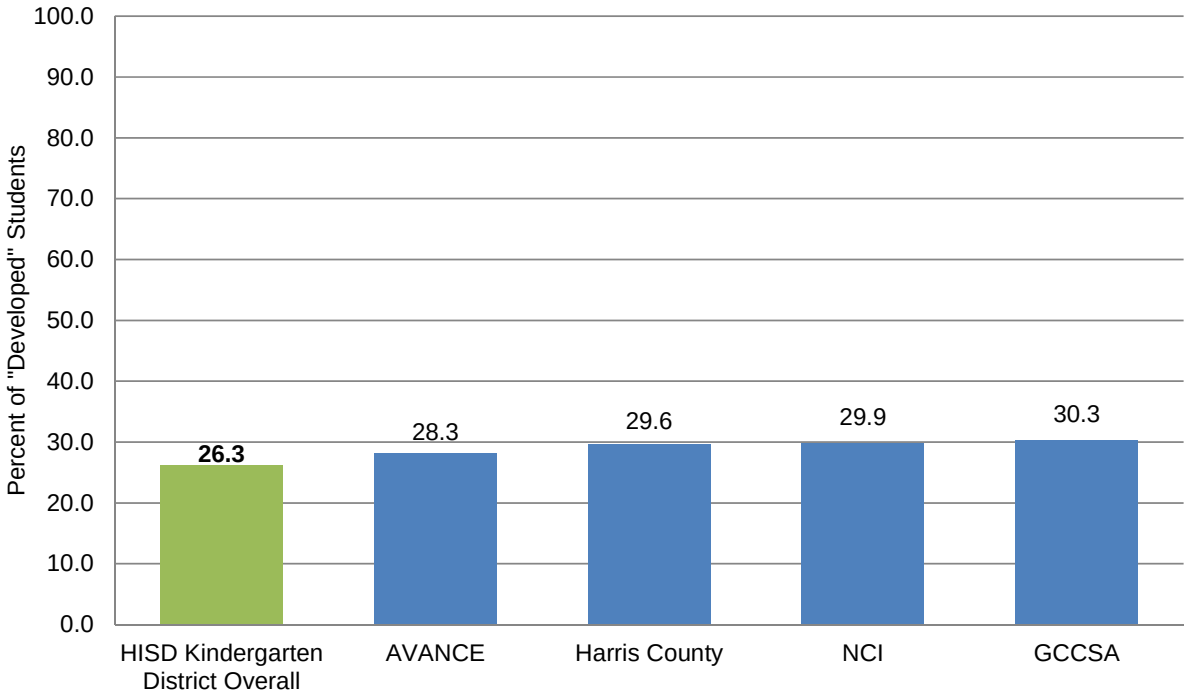


Figure 9. Percent of kindergarten students identified as "Developed" on the 2012–2013 Beginning-of-Year Listening Comprehension Inventory by Head Start programs.

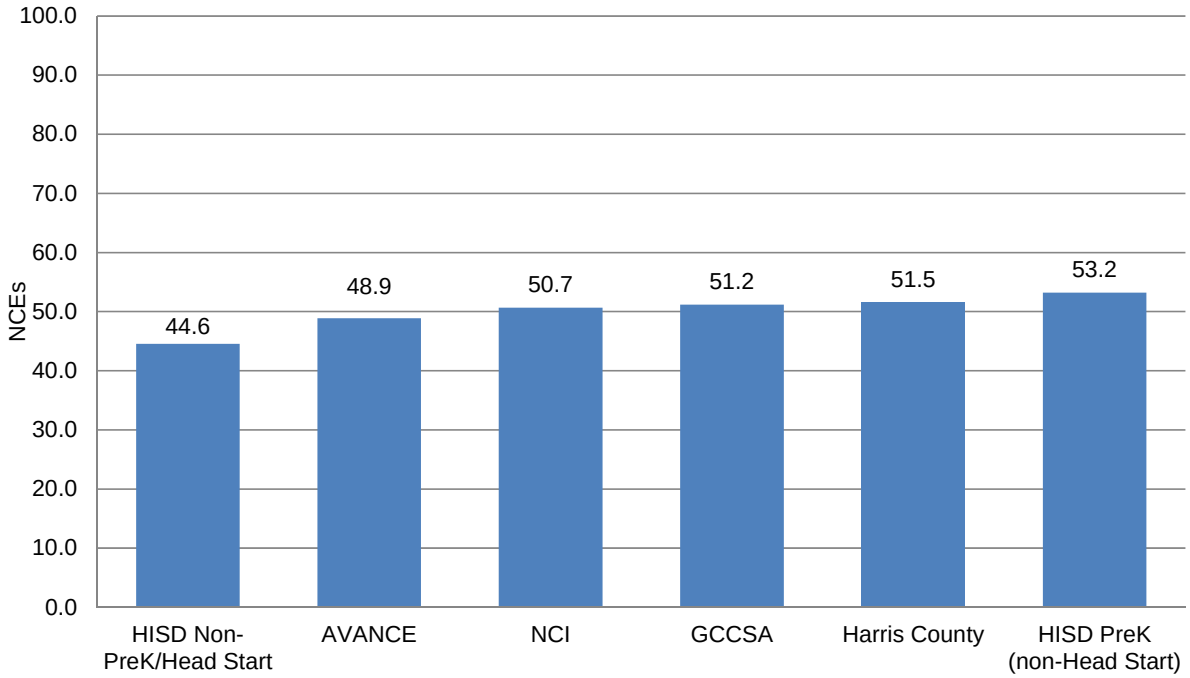


Did Stanford performance differences exist between economically disadvantaged kindergarten students who were enrolled in Head Start compared to their economically disadvantaged peers who attended HISD prekindergarten or who did not attend HISD prekindergarten or Head Start?

Stanford Reading

- Stanford mean NCE reading scores for economically disadvantaged kindergarten students were disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten. The mean reading scores are displayed in **Figure 10**, p. 14. **Table 6** (p. 28) presents the number of students who took the Stanford reading subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Stanford reading performance of economically disadvantaged students who attended a Head Start program was higher than economically disadvantaged students who did not attend HISD prekindergarten/Head Start and the differences in scores ranged from 4 NCEs (AVANCE) to 7 NCEs (Harris County).
- The average 2012–2013 Stanford reading performance of economically disadvantaged students who attended HISD prekindergarten (non-Head Start) was slightly higher than economically disadvantaged students who attended a Head Start program and the differences in scores ranged from 2 NCEs (Harris County) to 4 NCEs (AVANCE).

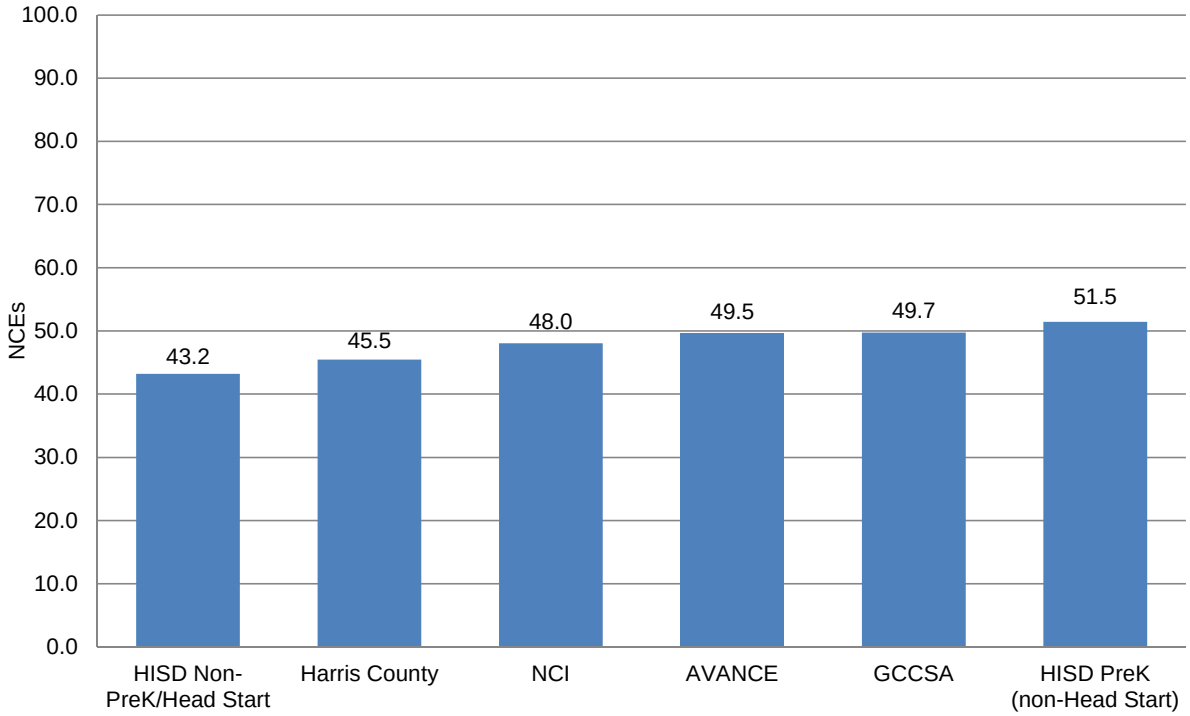
Figure 10. 2012–2013 mean Stanford reading scores for economically disadvantaged HISD kindergarten students enrolled in Head Start the previous year versus economically disadvantaged comparison groups.



Stanford Math

- Stanford mean NCE math scores for economically disadvantaged kindergarten students were disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten in 2011–2012. The mean math scores are displayed in **Figure 11**, p. 15. Table 6 (p. 28) presents the number of students who took the Stanford math subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Stanford math performance of economically disadvantaged students who attended a Head Start program was higher than economically disadvantaged students who did not attend HISD prekindergarten or Head Start and the differences in scores ranged from 2 to 7 NCEs.
- The average 2012–2013 Stanford math performance of economically disadvantaged students who attended HISD prekindergarten (non-Head Start) was higher than economically disadvantaged students who attended a Head Start program and the differences in scores ranged from 2 to 6 NCEs.

Figure 11. 2012–2013 mean Stanford math scores for economically disadvantaged HISD kindergarten students enrolled in Head Start the previous year versus economically disadvantaged comparison groups.

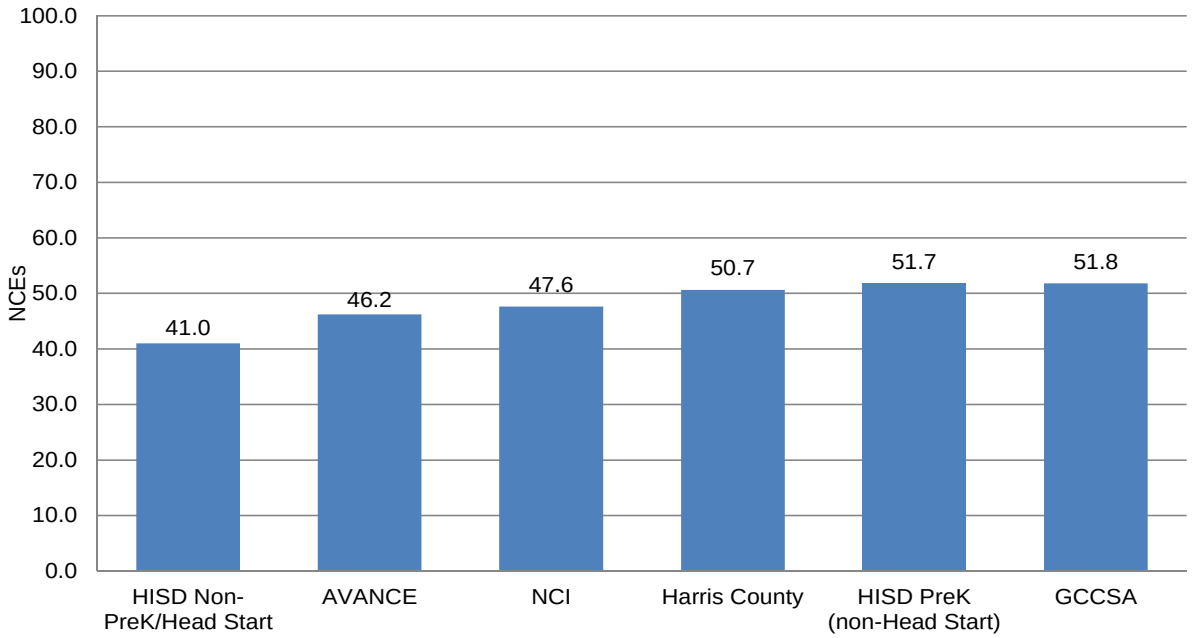


Did Stanford performance differences exist between economically disadvantaged kindergarten students classified as LEP who were enrolled in Head Start compared to their economically disadvantaged peers classified as LEP who attended HISD prekindergarten or who did not attend HISD prekindergarten or Head Start?

Stanford Reading

- Stanford mean NCE reading scores for economically disadvantaged kindergarten students classified as LEP were again disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten. The mean reading scores are displayed in **Figure 12**, p. 16. **Table 7** (p. 29) presents the number of economically disadvantaged students classified as LEP who took the Stanford reading subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Stanford reading performance of economically disadvantaged students classified as LEP who attended a Head Start program was higher than economically disadvantaged students classified as LEP who did not attend HISD prekindergarten/Head Start and the differences in scores ranged from 5 NCEs (AVANCE) to 11 NCEs (Harris County).
- The average 2012–2013 Stanford reading performance of economically disadvantaged students classified as LEP who attended HISD prekindergarten (non-Head Start) was higher than economically disadvantaged students who attended AVANCE, NCI, and Harris County by 6 NCEs, 4 NCEs, and 1 NCE, respectively.

Figure 12. 2012–2013 mean Stanford reading scores for economically disadvantaged HISD kindergarten students classified as LEP enrolled in Head Start the previous year versus economically disadvantaged comparison groups.



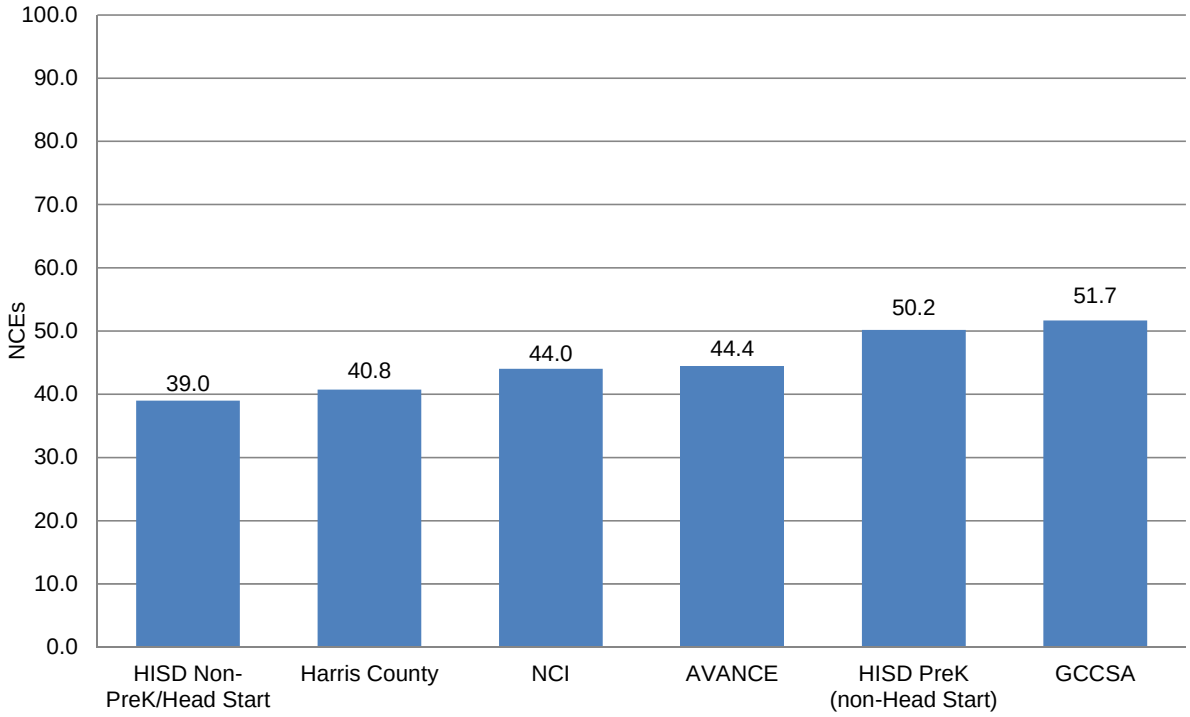
- The average 2012–2013 Stanford reading performance of economically disadvantaged students classified as LEP who attended GCCSA was approximately the same as economically disadvantaged students classified as LEP who attended HISD prekindergarten (non-Head Start).

Stanford Math

- Stanford mean NCE math scores for economically disadvantaged kindergarten students classified as LEP were disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten in 2011–2012. The mean math scores are displayed in **Figure 13**, p.17. Table 7 (p. 29) presents the number of students who took the Stanford math subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Stanford math performance of economically disadvantaged students classified as LEP who attended a Head Start program was higher than economically disadvantaged students classified as LEP who did not attend HISD prekindergarten or Head Start and the differences in scores ranged from 2 NCEs (Harris County) to 13 NCEs (GCCSA).
- The average 2012–2013 Stanford math performance of economically disadvantaged students classified as LEP who attended HISD prekindergarten (non-Head Start) was higher than economically disadvantaged students classified as LEP who attended Harris County, NCI, and AVANCE by 9 NCEs, 6 NCEs, and 6 NCEs, respectively.
- The average 2012–2013 Stanford math performance of economically disadvantaged students classified as LEP who attended GCCSA was slightly higher than economically disadvantaged

students classified as LEP who attended HISD prekindergarten (non-Head Start) by nearly 2 NCEs.

Figure 13. 2012–2013 mean Stanford math scores for economically disadvantaged HISD kindergarten students classified as LEP enrolled in Head Start the previous year versus economically disadvantaged comparison groups.



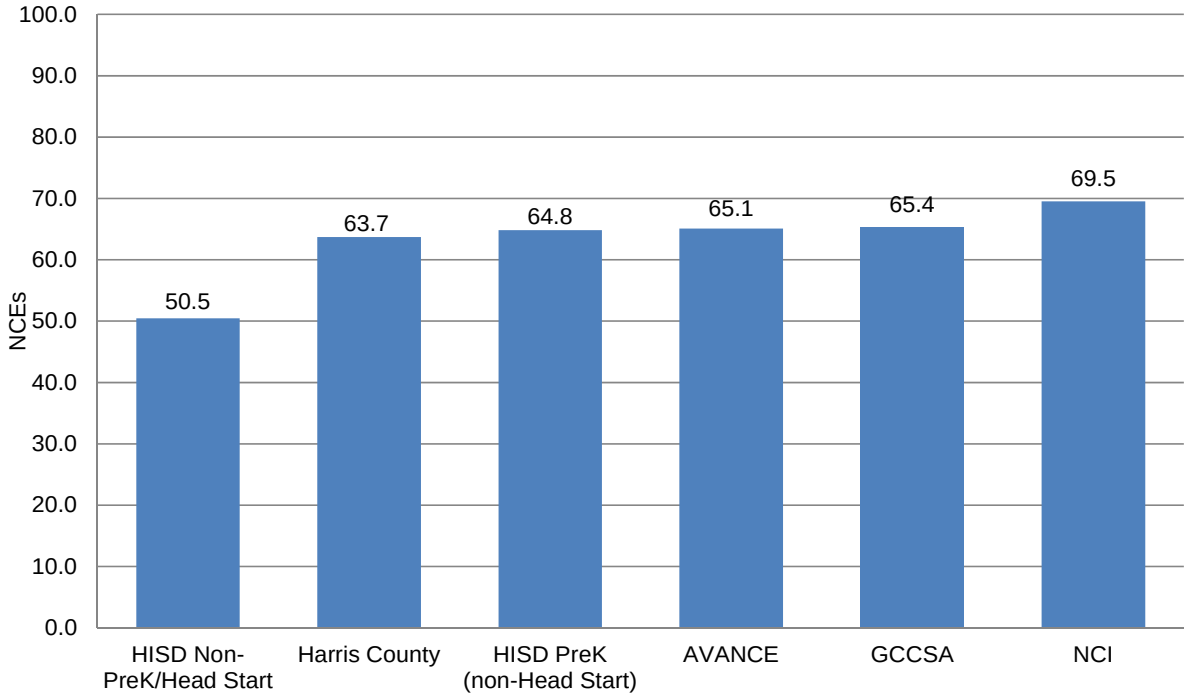
Did Aprenda performance differences exist between kindergarten students who were enrolled in Head Start compared to their peers who attended HISD prekindergarten or who did not attend HISD prekindergarten or Head Start?

Aprenda Reading

- Aprenda mean NCE reading scores for kindergarten students were disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten. The mean reading scores are displayed in **Figure 14**, p. 18. **Table 8** (p. 29) presents the number of students who took the Aprenda reading subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Aprenda reading performance of students who attended a Head Start program was higher than students who did not attend HISD prekindergarten or Head Start and the differences in scores ranged from 13 to 19 NCEs.
- The average 2012–2013 Aprenda reading performance of students who attended NCI was higher than students who attended HISD prekindergarten (non-Head Start) by five NCEs.
- The average 2012–2013 Aprenda reading performance of students who attended GCCSA and

AVANCE was marginally higher (less than one NCE) than students who attended HISD prekindergarten (non-Head Start).

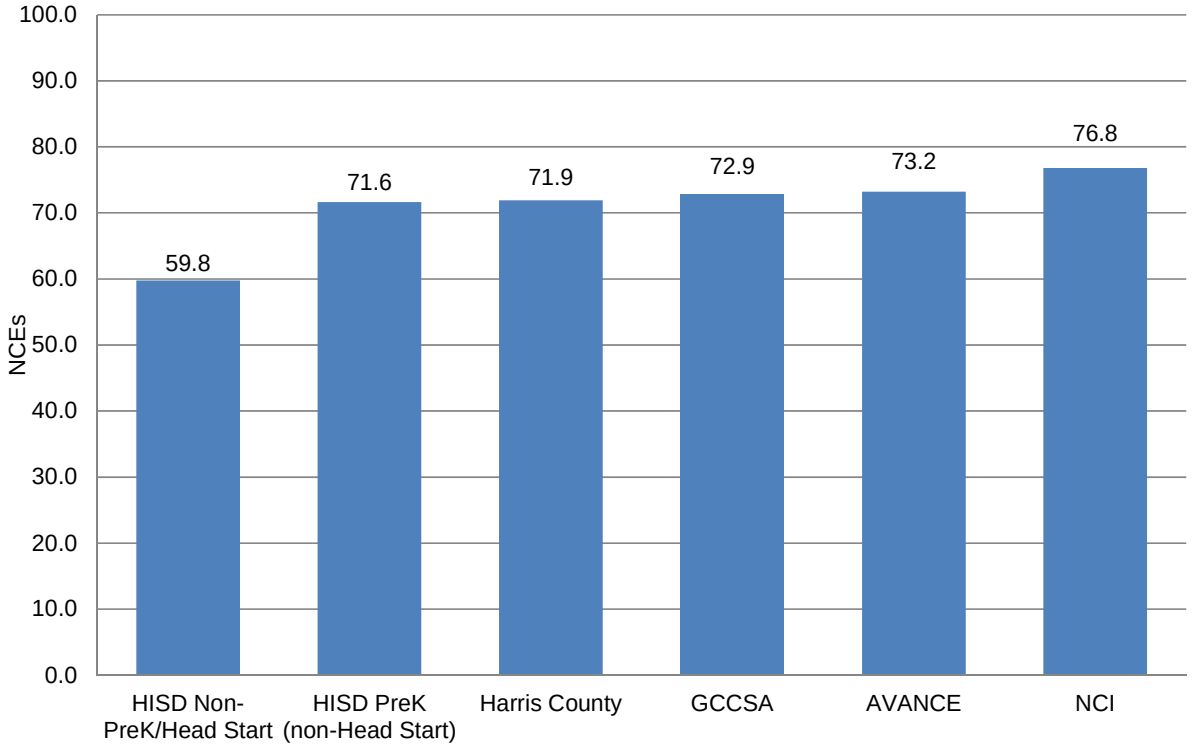
Figure 14. 2012–2013 mean Aprenda reading scores for HISD kindergarten students enrolled in Head Start the previous year versus comparison groups.



Aprenda Math

- Aprenda mean NCE math scores for kindergarten students were disaggregated by whether students attended Head Start, an HISD prekindergarten program other than Head Start, or did not attend Head Start or HISD prekindergarten. The mean math scores are displayed in **Figure 15**, p. 19. Table 8 (p. 29) presents the number of students who took the Aprenda math subtest in 2012–2013, and the means and standard deviations of the NCE scores by the four Head Start agencies, HISD prekindergarten, and the HISD non-prekindergarten/Head Start group.
- The average 2012–2013 Aprenda math performance of students who attended a Head Start program was higher than students who did not attend HISD prekindergarten or Head Start and the differences in scores ranged from 12 to 17 NCEs.
- The average 2012–2013 Aprenda math performance of students who attended NCI was higher than students who attended HISD prekindergarten (non-Head Start) by five NCEs.
- The average 2012–2013 Aprenda math performance of students who attended AVANCE, GCCSA, and Harris County was marginally higher (less than two NCEs) than students who attended HISD prekindergarten (non-Head Start).

Figure 15. 2012–2013 mean Aprenda math scores for HISD kindergarten students enrolled in Head Start the previous year versus comparison groups.

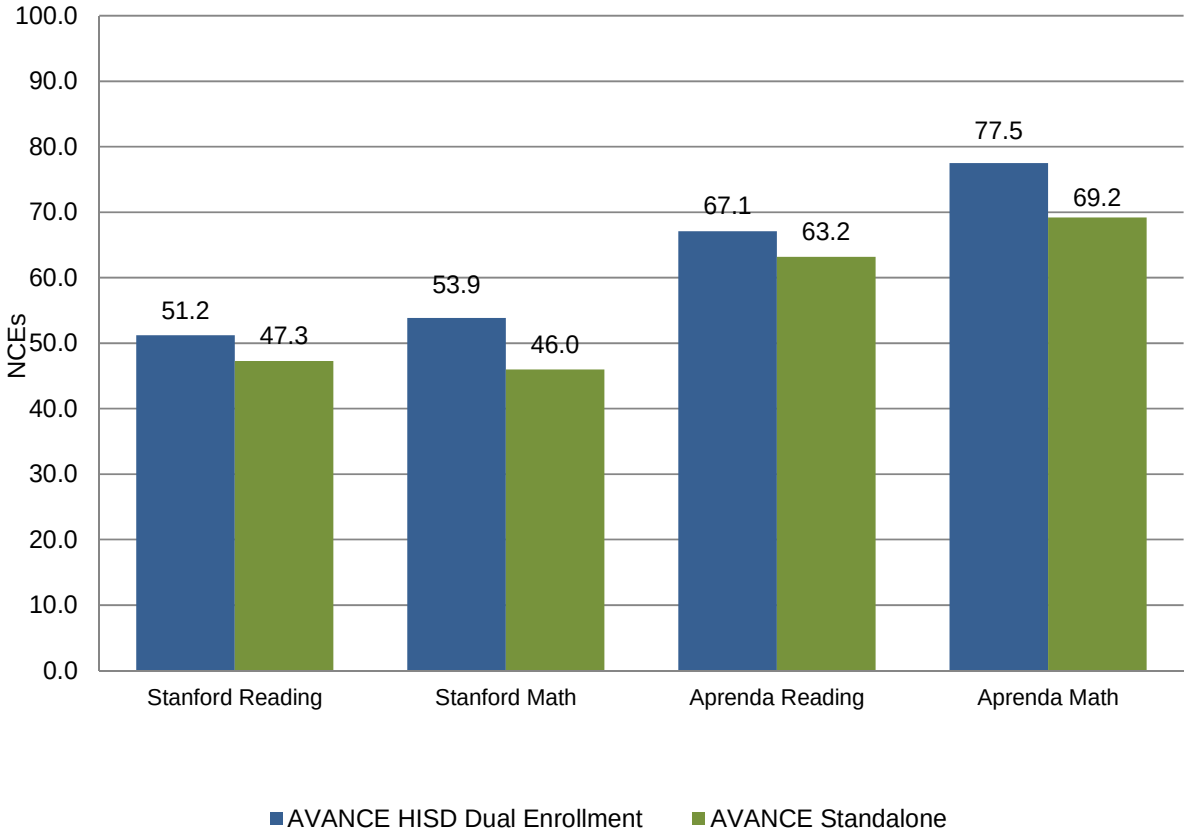


Did performance differences on the Stanford and the Aprenda exist among Head Start students who were dually enrolled in HISD versus students enrolled in one of the four Head Start Agencies' stand-alone programs?

AVANCE

- Stanford and Aprenda mean NCE reading and math scores for kindergarten students who attended AVANCE's dual or standalone program in 2011–2012 are displayed in **Figure 16**, p. 20. Table 9 (p. 30) presents the number of AVANCE students who took the Stanford and Aprenda mean reading and math subtests in 2012–2013, and the means and standard deviations of the NCE scores by the AVANCE programs.
- AVANCE students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Stanford reading and math subtests compared to students enrolled in AVANCE's standalone program by 4 NCEs and 8 NCEs, respectively.
- AVANCE students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Aprenda reading and math subtests compared to students enrolled in AVANCE's standalone program by 4 NCEs and 8 NCEs, respectively.

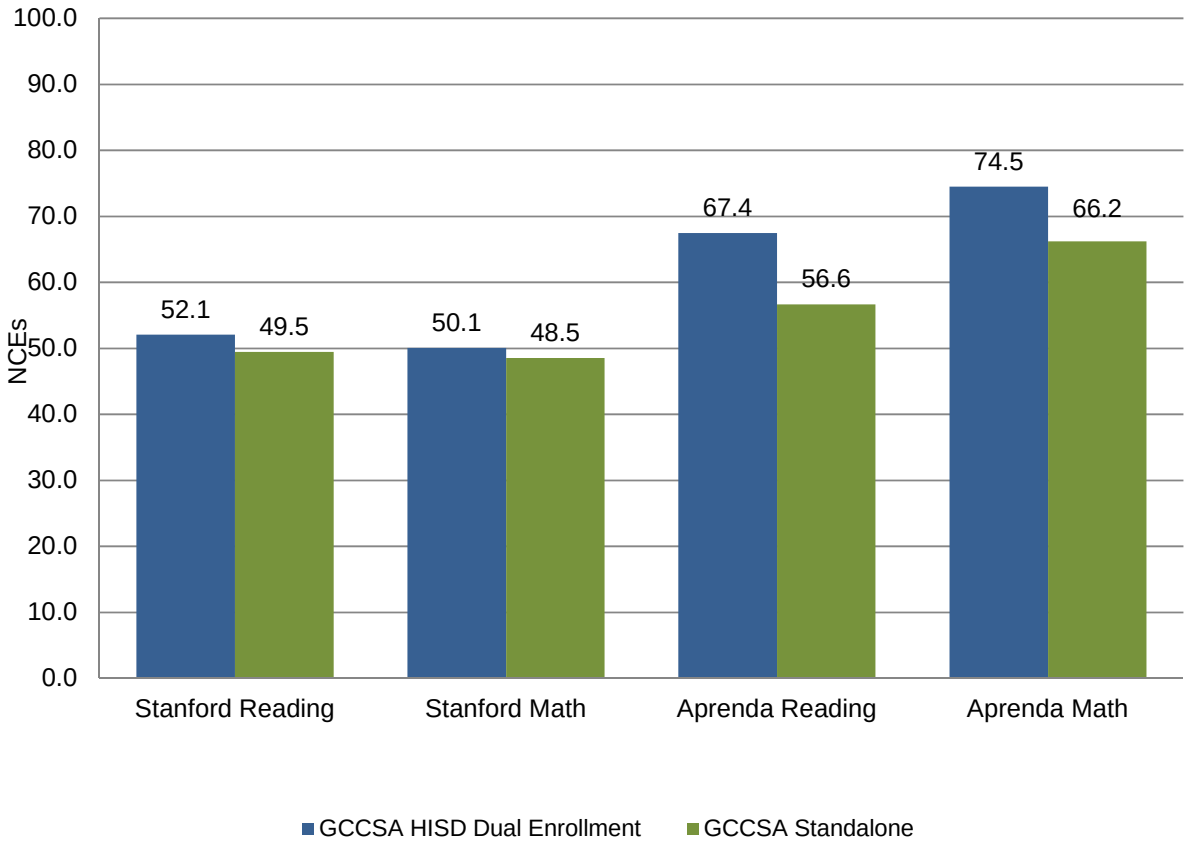
Figure 16. 2012–2013 mean Stanford and Aprenda scores for HISD kindergarten students by AVANCE programs.



GCCSA

- Stanford and Aprenda mean NCE reading and math scores for kindergarten students who attended GCCSA's dual or standalone program in 2011–2012 are displayed in **Figure 17**, p. 21. Table 10 (p. 30) presents the number of GCCSA students who took the Stanford and Aprenda mean reading and math subtests in 2012–2013, and the means and standard deviations of the NCE scores by the GCCSA programs.
- GCCSA students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Stanford reading and math subtests compared to students enrolled in GCCSA's standalone program by 3 NCEs and 2 NCEs, respectively.
- GCCSA students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Aprenda reading and math subtests compared to students enrolled in GCCSA's standalone program by 11 NCEs and 8 NCEs, respectively.

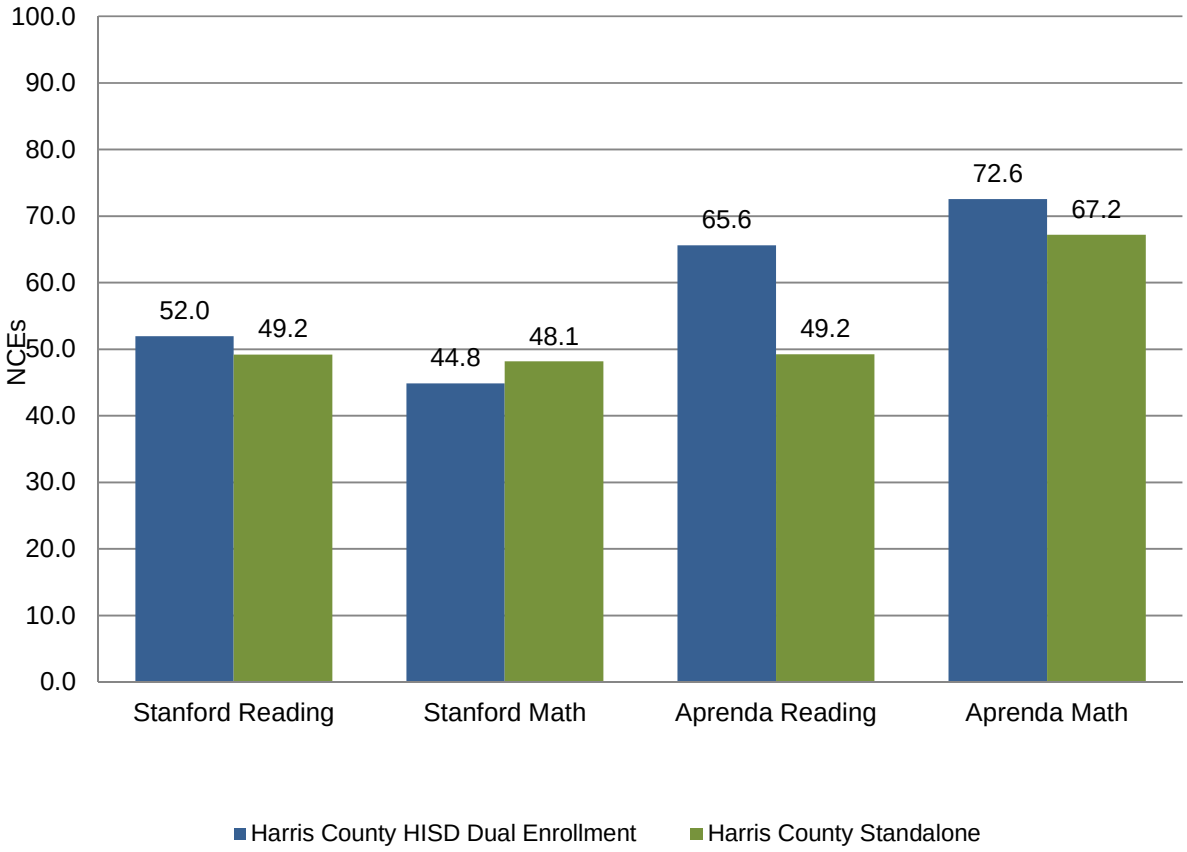
Figure 17. 2012–2013 mean Stanford and Aprenda scores for HISD kindergarten students by GCCSA programs.



Harris County

- Stanford and Aprenda mean NCE reading and math scores for kindergarten students who attended Harris County's dual or standalone program in 2011–2012 are displayed in **Figure 18**, p. 22. Table 11 (p. 31) presents the number of Harris County students who took the Stanford and Aprenda mean reading and math subtests in 2012–2013, and the means and standard deviations of the NCE scores by the Harris County programs.
- Harris County students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on the Stanford reading subtest compared to students enrolled in Harris County's standalone program by 3 NCEs.
- Harris County students who were dually enrolled in HISD prekindergarten in 2011–2012 scored lower on the Stanford math subtest compared to students enrolled in Harris County's standalone program by 3 NCEs.
- Harris County students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Aprenda reading and math subtests compared to students enrolled in Harris County's standalone program by 16 NCEs and 5 NCEs, respectively.

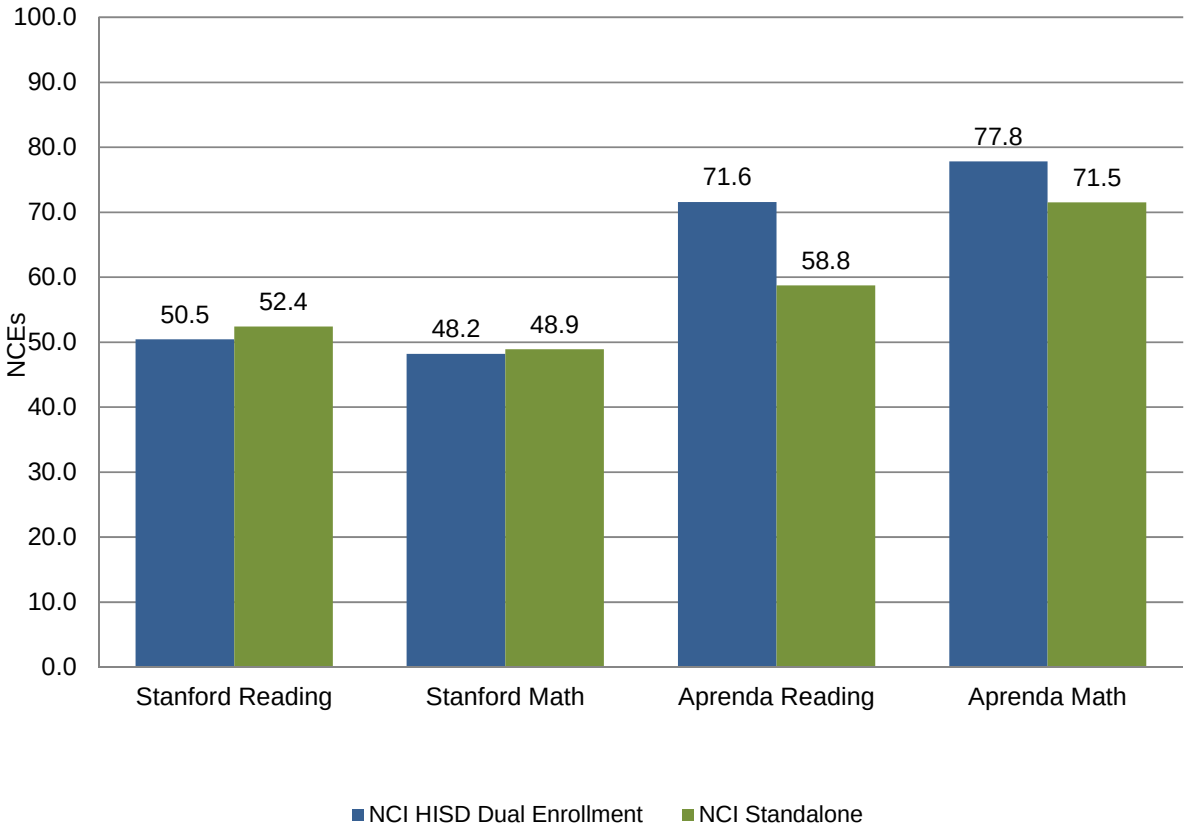
Figure 18. 2012–2013 mean Stanford and Aprenda scores for HISD kindergarten students by Harris County programs.



NCI

- Stanford and Aprenda mean NCE reading and math scores for kindergarten students who attended NCI's dual or standalone program in 2011–2012 are displayed in **Figure 19**, p. 23. Table 12 (p. 31) presents the number of NCI students who took the Stanford and Aprenda mean reading and math subtests in 2012–2013, and the means and standard deviations of the NCE scores by the NCI programs.
- NCI students who were dually enrolled in HISD prekindergarten in 2011–2012 scored slightly lower on both the Stanford reading and math subtests compared to students enrolled in NCI's standalone program by 2 NCEs and 1 NCE, respectively.
- NCI students who were dually enrolled in HISD prekindergarten in 2011–2012 scored higher on both the Aprenda reading and math subtests compared to students enrolled in NCI's standalone program by 13 NCEs and 6 NCEs, respectively.

Figure 19. 2012–2013 mean Stanford and Aprenda scores for HISD kindergarten students by NCI programs.



Discussion

The purpose of Head Start is to reduce the likely gap in academic performance between economically disadvantaged students and their more affluent peers upon entering kindergarten. The current evaluation compared the performance of students who attended Head Start prior to entering kindergarten to their peers of similar economic-status who did not attend HISD prekindergarten or Head Start. Overall, findings from this year's evaluation are consistent with performance findings from previous years that suggest that students who attended one of the local Head Start agencies performed better on the Stanford reading and math subtests compared to their economically disadvantaged peers who did not attend HISD prekindergarten or Head Start (Corkin, 2011; 2012). This finding is also consistent with results from a recent meta-analytic study indicating that Head Start has a positive effect on students' short-term academic performance (Shager et al., 2013). Students who attended one of the local Head Start agencies also performed better on the Aprenda reading and math subtests compared to their peers who did not attend HISD prekindergarten or Head Start. Students' economic status was not taken into account when comparing Aprenda scores for two reasons. First, the number of non-economically disadvantaged students who took the Aprenda was too small across groups for comparison, and prior evaluations have found that economic status does not play a significant role on HISD students' performance on Spanish language exams (Corkin, 2012).

Findings from the current analysis also suggest that on the Stanford reading and math subtests, the performance across the four Head Start programs did not vary greatly, which seems to suggest that all four Head Start agencies are all about equally preparing students to be kindergarten ready. However, on the Aprenda subtests, there are greater variations in performance across the four Head Start programs. Students who attended NCI tended to perform a somewhat better on Spanish language exams than the students who attended the other three Head Start programs. Students who attended GCCSA, AVANCE, and Harris County performed at about the same levels on the Aprenda subtests. Some of the variations in scores that existed across the four Head Start programs may be explained by the HISD schools that collaborate with each Head Start agency. For example, approximately 11% of the students enrolled in NCI Head Start attended MLK Early Childhood Center (ECC), which tends to be the Early Childhood Center with the highest performing group of kindergarten students over the past few years (Corkin, 2011; 2012).

Even after accounting for economic status, students who attended HISD prekindergarten had a slightly higher average performance on Stanford reading and math subtests compared to the performance of students who attended a Head Start. However, on the Aprenda subtests, students who attended Head Start on average performed at the same level or better than students who attended HISD prekindergarten and who were not affiliated with a Head Start. Further exploration is necessary to understand why students who attended a Head Start outperform students who attended HISD prekindergarten on the Spanish language exams but perform slightly lower on English language exams. Nevertheless, it is important to keep in mind that these groups are not mutually exclusive given that approximately 70% of students who were enrolled in Head Start were also dually enrolled in HISD.

Because HISD kindergarten students may have been dually enrolled in both Head Start and HISD prekindergarten or attended a Head Start standalone program, performance comparisons were also distinguished by these programs within each of the Head Start agencies. Stanford and Aprenda kindergarten performance results, for the most part, indicated that students who were dually enrolled in Head Start and HISD prekindergarten scored higher than their peers who were enrolled in a standalone program. This finding is likely given the fact that students dually enrolled in HISD receive

instruction and support from two instructors rather than one. In addition, all HISD teachers are certified and have a four-year degree. In the case of NCI and Harris County students on the Stanford assessments where this trend did not hold, more investigation is warranted.

Again, these findings should be interpreted with caution given that it is possible that the comparison group of students identified as not attending Head Start or HISD prekindergarten received some other form of early childhood educational intervention. Furthermore, the groups examined in this study were not randomly assigned, which may bias the results of the effect of Head Start on kindergarten performance. However, certain variables were controlled for such as economic status and LEP status in an attempt to reduce bias in treatment effects from non-experimental data.

In conclusion, it appears that HISD students from economically disadvantaged backgrounds are benefitting academically in kindergarten by attending one of the four local Head Start programs. HISD prekindergarten and Head Start agencies should continue to collaborate to enhance the academic benefits that students receive in prekindergarten. Future evaluations will be able to utilize the newly implemented Frog Street assessments to examine the effect of the Frog Street curriculum on the performance of students' who attended Head Start.

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Table 1: 2012–2013 Demographic Characteristics of HISD Kindergarteners by Head Start Program

	AVANCE (N = 329)		GCCSA (N = 721)		Harris County (N = 212)		NCI (N = 689)	
	N	%	N	%	N	%	N	%
Age								
Five	110	33.4	272	37.7	84	39.6	243	35.3
Six	219	66.6	449	62.3	128	60.4	445	64.6
Gender								
Female	166	50.5	400	55.5	107	50.5	346	50.2
Male	163	49.5	321	44.5	105	49.5	343	49.8
Race/Ethnicity								
African American	37	11.2	195	27.0	37	17.5	147	21.3
Hispanic	290	88.1	521	72.3	175	82.5	505	73.3
White	--	--	--	--	--	--	14	2.0
Asian	--	--	--	--	--	--	19	2.8
American Indian	--	--	--	--	--	--	--	--
Pacific Islander	--	--	--	--	--	--	--	--
More than 2 Races	--	--	--	--	--	--	--	--
Limited English Proficient (LEP)	188	57.1	380	52.7	97	45.8	456	66.2
Economically disadvantaged	315	95.7	698	96.8	206	97.2	654	94.9
Special Education	22	6.7	39	5.4	12	5.7	35	5.4

Note. All data retrieved from PEIMS 2012–2013. "--"denotes less than 5 students fell under this category.

Table 2: Means and Standard Deviations of 2012–2013 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Head Start Program

	AVANCE		GCCSA		Harris County		NCI	
Stanford	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**
Reading	172	49.12 (18.6)	359	51.00 (19.32)	127	51.28 (23.13)	277	51.07 (19.42)
Math	172	49.64 (20.16)	363	49.38 (21.87)	127	45.64 (20.57)	275	48.42 (20.02)

Note. Standard deviations appear in parentheses below means.

Table 3: Means and Standard Deviations of 2012–2013 Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by Head Start Program

	AVANCE		GCCSA		Harris County		NCI	
Aprenda	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**
Reading	148	65.08 (22.24)	334	65.38 (22.04)	77	63.69 (20.62)	389	69.52 (21.27)
Math	148	73.21 (21.67)	332	72.90 (22.24)	77	71.92 (21.48)	390	76.79 (20.1)

Note. Standard deviations appear in parentheses below means.

Table 4: Percent of Students Identified as Developed on the 2012–2013 Beginning-of-Year TPRI Screening Assessment and Inventories by Head Start Programs

	AVANCE		GCCSA		Harris County		NCI	
TPRI	**n**	**%D**	**n**	**%D**	**n**	**%D**	**n**	**%D**
Screening	169	52.1	304	42.1	95	47.4	254	62.2
INV1-Rhyming	81	28.4	128	31.3	50	28.0	96	34.4
INV6-Letter Name Identification	81	58.0	128	65.6	50	66.0	96	76.0
Listening Comprehension	169	43.8	304	39.5	95	34.7	254	42.9

Note. D = “Developed.”

Table 5: Percent of Students Identified as Developed on the 2012–2013 Beginning-of-Year Tejas LEE Inventories by Head Start Programs

	AVANCE		GCCSA		Harris County		NCI	
Tejas LEE	**n**	**%D**	**n**	**%D**	**n**	**%D**	**n**	**%D**
INV-1 Letter Naming	152	50.0	337	51.9	71	63.4	381	71.7
INV-3 Rhyming	152	22.4	337	20.2	71	26.8	381	34.1
Listening Comprehension	152	28.3	337	30.3	71	29.6	381	29.9

Note. D = "Developed."

Table 6: Means and Standard Deviations of 2012–2013 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Head Start Centers and Comparison Groups (for Economically Disadvantaged Students ONLY)

	AVANCE		GCCSA		Harris County		NCI		HISD PreK (non-Head Start)		HISD Non-PreK/Head Start	
Stanford	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**
Reading	163	48.88 (18.74)	346	51.17 (19.32)	122	51.54 (23.07)	251	50.65 (19.04)	4,619	53.21 (19.11)	1,937	44.58 (18.95)
Math	163	49.52 (20.41)	350	49.74 (21.74)	123	45.48 (20.56)	249	48.02 (19.67)	4,638	51.47 (20.42)	1,950	43.21 (21.37)

Note. Standard deviations appear in parentheses below means.

Table 7: Means and Standard Deviations of 2012–2013 Stanford 10 Reading and Math Normal Curve Equivalent (NCE) Scores by Head Start Centers and Comparison Groups (for Economically Disadvantaged Students Classified as Limited English Proficient ONLY)

	AVANCE		GCCSA		Harris County		NCI		HISD PreK (non-Head Start)		HISD Non-PreK/Head Start	
Stanford	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**
Reading	37	46.23 (21.62)	41	51.78 (18.36)	21	50.65 (26.75)	61	47.62 (20.06)	829	51.74 (18.76)	171	40.99 (16.95)
Math	37	44.44 (22.31)	42	51.68 (20.21)	22	40.75 (22.26)	61	44.01 (22.13)	833	50.16 (20.58)	173	38.98 (20.77)

Note. Standard deviations appear in parentheses below means.

Table 8: Means and Standard Deviations of 2012–2013 Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by Head Start Centers and Comparison Groups

	AVANCE		GCCSA		Harris County		NCI		HISD PreK (non-Head Start)		HISD Non-PreK/Head Start	
Aprenda	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**	**n**	**M**
Reading	148	65.08 (22.24)	334	65.38 (22.04)	77	63.69 (20.62)	389	69.52 (21.27)	4,434	64.83 (22.63)	870	50.48 (21.97)
Math	148	73.21 (21.67)	332	72.90 (22.24)	77	71.92 (21.48)	390	76.79 (20.1)	4,434	71.62 (21.39)	872	59.78 (24.18)

Note. Standard deviations appear in parentheses below means.

Table 9: Means and Standard Deviations of 2012–2013 Stanford 10 and Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by AVANCE Head Start Program

	AVANCE HISD Dual		AVANCE Standalone	
Stanford	**n**	**M**	**n**	**M**
Reading	80	51.20 (16.60)	92	47.30 (20.10)
Math	80	53.85 (18.51)	92	45.98 (20.91)
Aprenda				
Reading	72	67.09 (19.18)	76	63.18 (24.78)
Math	72	77.47 (17.93)	76	69.17 (24.12)

Notes. Standard deviations appear in parentheses below means.

Table 10: Means and Standard Deviations of 2012–2013 Stanford 10 and Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by GCCSA Head Start Program

	GCCSA HISD Dual		GCCSA Standalone*	
Stanford	**n**	**M**	**n**	**M**
Reading	220	52.07 (18.59)	137	49.47 (20.41)
Math	223	50.06 (21.40)	138	48.53 (22.69)
Aprenda				
Reading	265	67.44 (21.75)	67	56.64 (21.14)
Math	263	74.50 (20.83)	67	66.21 (26.34)

Notes. Standard deviations appear in parentheses below means.
*Some of the standalone sites include charter schools. Students who were dually enrolled with other districts were omitted from this analysis.

Table 11: Means and Standard Deviations of 2012–2013 Stanford 10 and Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by Harris County Head Start Program

	Harris County HISD Dual		Harris County Standalone	
Stanford	**n**	**M**	**n**	**M**
Reading	96	51.96 (24.15)	31	49.19 (19.84)
Math	96	44.83 (20.66)	31	48.14 (20.43)
Aprenda				
Reading	68	65.60 (19.75)	9	49.23 (22.51)
Math	68	72.55 (21.34)	9	67.18 (23.19)

Note. Standard deviations appear in parentheses below means.

Table 12: Means and Standard Deviations of 2012–2013 Stanford 10 and Aprenda 3 Reading and Math Normal Curve Equivalent (NCE) Scores by NCI Head Start Program

	NCI HISD Dual		NCI Standalone	
Stanford	**n**	**M**	**n**	**M**
Reading	190	50.47 (18.90)	87	52.40 (20.56)
Math	188	48.20 (19.74)	87	48.89 (20.73)
Aprenda				
Reading	327	71.57 (20.95)	62	58.75 (19.77)
Math	327	77.80 (19.83)	63	71.53 (20.84)

Note. Standard deviations appear in parentheses below means.

APPENDIX A

SCHOOLS ATTENDED BY 2012–2013 KINDERGARTEN STUDENTS IN 2011–2012 HEAD START

Number	School Name	Head Start
109	BERRY	AVANCE
120	BROWNING	AVANCE
182	JEFFERSON	AVANCE
389	KETELSEN	AVANCE
108	BASTIAN	GCCSA
154	FOSTER	GCCSA
155	FRANKLIN	GCCSA
162	GREGG	GCCSA
166	HARRIS, J R	GCCSA
216	PATTERSON	GCCSA
243	THOMPSON	GCCSA
244	SOUTHMAYD	GCCSA
279	TIJERINA	GCCSA
328	TSU-CHARTER LAB SCHOOL	GCCSA
357	LAURENZO EARLY CHILDHOOD CTR	GCCSA
360	BELLFORT EARLY CHILDHOOD CENTER	GCCSA
140	DOGAN	Harris County
167	HARRIS, R P	Harris County
223	PUGH	Harris County
111	BONHAM	NCI
114	BRAEBURN	NCI
131	HALPIN EARLY CHILDHOOD CTR	NCI
151	BELL	NCI
153	FONDREN	NCI
215	PARKER	NCI
227	MCNAMARA	NCI
239	SHEARN	NCI
271	FOERSTER	NCI
295	BENAVIDEZ	NCI
355	KING EARLY CHILDHOOD CTR	NCI
372	RODRIGUEZ	NCI
392	YOUNG LEARNERS	MULTI-CENTER