**MEMORANDUM** November 15, 2019

TO: Jessica Chevalier
Secondary Literacy Director

FROM: Carla Stevens
Assistant Superintendent, Research and Accountability

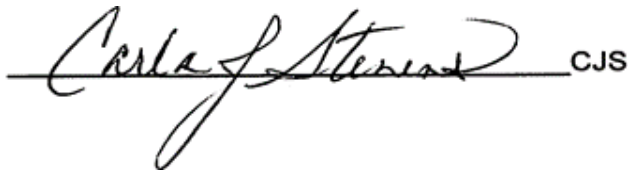
SUBJECT: **THE LITERACY EMPOWERED INITIATIVE: EFFECT ON STUDENT PERFORMANCE IN HISD CORE COURSES, 2018–2019**

Literacy Empowered (LE) was initiated during the 2017–2018 school year to provide literacy support for all Houston Independent School District (HISD) high school students through the reading of self-selected and assigned texts, the proficient use of PowerUp tools, writing, discourse, and authentic literacy practices across all foundation courses. This evaluation reported on teacher participation in the LE professional development, and the effects of the LE initiative on student performance in core high school courses using the 2019 State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC) exam results. The evaluation was guided by four questions and used descriptive statistics, treatment effects, and multiple regression analyses to report on the effects of the LE initiative.

Key findings include:

- Most teacher participants (78.7%) completed three or six PD credit hours for LE and were not subject to the research-recommended yearlong support required for effective professional development.
- A higher percentage of students in the treatment group compared to the non-treatment group were male, black or Hispanic, economically disadvantaged, at-risk for school dropout, enrolled in special education, had limited English proficiency (LEP), and came from homes where Spanish was the predominant language spoken.
- Students whose teachers did not participate in the LE Professional development outperformed students on the 2019 STAAR Algebra I, English I, English II, and U.S. History EOC tests whose teachers participated in the PD. The difference was statistically significant ($p<.05$; $p<.001$) and ranged between 41.6 and 92.5 scale score point (ssp).
- A higher percentage of students whose teachers did not participate in the LE professional development performed at the Approaches, Meets, and Masters Grade Level Student standards on the 2019 STAAR Algebra I, Biology, English I, English II, and U.S. History EOC exams compared to students whose teachers participated in the PD.
- When disaggregated by student groups in the study, generally, a higher percentage of students whose teachers did not complete the LE professional development, with some exceptions, performed at or above the Approaches Student Standard on the five STAAR EOC tests when compared to their peers whose teachers participated in the PD.

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




Attachment

cc: Grenita Lathan
Silvia Trinh
Yolanda Rodriquez
Montra Rogers

HOUSTON INDEPENDENT SCHOOL DISTRICT

# RESEARCH

Educational Program Report

## LITERACY EMPOWERED INITIATIVE: EFFECT ON STUDENT PERFORMANCE IN HISD CORE COURSES 2018-2019

HISD | Research and Accountability

ANALYZING DATA, MEASURING PERFORMANCE.

## 2019 BOARD OF EDUCATION

**Diana Dávila**
President

**Holly Maria Flynn Vilaseca**
First Vice President

**Elizabeth Santos**
Second Vice President

**Sergio Lira**
Secretary

**Susan Deigaard**
Assistant Secretary

**Wanda Adams**
**Jolanda Jones**
**Rhonda Skillern-Jones**
**Anne Sung**

**Grenita Lathan, Ph.D.**
Interim Superintendent of Schools

**Carla Stevens**
Assistant Superintendent
Department of Research and Accountability

**Venita Holmes, Dr. P.H.**
Research Manager

**Ted D. Serant, Ph.D.**
Sr. Research Specialist

**Houston Independent School District**
Hattie Mae White Educational Support Center
4400 West 18th StreetHouston, Texas 77092-8501

**www.HoustonISD.org**

# Literacy Empowered Initiative: Effect on Student Performance in HISD Core Courses, 2018–2019

## Executive Summary

Literacy Empowered (LE) is an initiative designed to improve literacy across the curriculum for high school students in the Houston Independent School District (HISD). Literacy Empowered is an extension of the Literacy by 3 and Literacy in the Middle initiatives designed to ensure that all students can read on grade level as stipulated in HISD performance goals. First implemented during the 2017–2018 school year, the initiative targets ninth through twelfth-grade students and focuses on reading, writing, discourse, and the use of PowerUp tools. It facilitates students' engagement in reading self-selected and assigned texts at students' reading levels to expand their repertoire of strategies that meet the demands of increasingly complex texts. Students also engage in authentic writing in each discipline to extend and provide evidence of their understanding. Students also engage in daily academic discourse involving grade-level personalized texts, inquiry, and authentic writing opportunities.

The purpose of this evaluation was to determine the effect of the LE initiative on the academic performance of students on the 2019 State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC) tests. Students whose teachers completed the professional development (PD) for LE constituted the treatment groups and those whose teachers did not participate in the LE professional development were the non-treatment group. Treatment effects with regression adjustment (teffects ra) was used to determine the initiatives' effects. Students' performance by treatment levels and disaggregated by EOC tests and student groups were also presented in the study. The study also analyzed teachers' participation in the Literacy Empowered PD.

### Key Findings

- Most LE teacher participants (78.7%) completed three or six credit hours of PD and were not subject to the yearlong support required for research-based effective professional development.

- A higher percentage of students in the treatment group compared to students in the non-treatment group were male, black or Hispanic, economically disadvantaged, at-risk for school dropout, were enrolled in special education, had limited English proficiency (LEP), and came from homes where Spanish was the predominant language spoken.

- Students whose teachers did not participate in the Literacy Empowered PD outperformed students on the 2019 STAAR Algebra I, English I, English II, and U.S. History EOC tests whose teachers participated in the PD. The difference was statistically significant ($p<.05$; $p<.001$) and ranged between 41.6 and 92.5 scale score points (ssp). There were no statistically significant between-group differences for the Biology EOC test.

- A higher percentage of students whose teachers did not participate in the Literacy Empowered PD, compared to students whose teachers participated in the PD, met the Approaches, Meets, and Masters Grade Level Student standards on the 2019 STAAR Algebra I, Biology, English I, English II, and U.S. History EOC exams compared to students whose teachers participated in the PD.

- When disaggregated by student groups in the study, generally, a higher percentage of students, whose teachers did not complete the LE professional development performed at or above the Approaches Grade Level Student standard on the five STAAR EOC tests when compared to their peers whose teachers participated in the PD. There were exceptions for some groups in different content areas.

## Recommendations

- Since most LE teachers in the study completed three or six credit hours of professional development, future LE professional development should be designed to reflect U.S. Department of Education Institute of Education Sciences What Works Clearinghouse research on professional development which found that at least 14 to 49 hours of initial professional development and yearlong support for teachers during program implementation had statistically significant effects on students' achievement.

- Because being identified as at-risk for school dropout was the strongest but an inverse predictor of performance on the 2019 STAAR EOC tests, it may be essential to address student issues associated with school dropout to improve the effectiveness of the LE initiative.

## Introduction

In 2016–2017, the Houston Independent School District (HISD) began the implementation of early literacy initiatives to support the district's goal "to have all students reading on or above grade level by the end of third grade" (HISD, 2018, p. VIII-54). Literacy Empowered combined with the PowerUp program is an extension of this goal into high school to "ensure that all high school students can engage in personalized learning experiences and become global graduates" (HISD, 2018, p. VII-54). Students are expected to read authentic, self-selected, and assigned texts, daily, for at least 120 minutes within their four core foundation classes.

Literacy Empowered harnesses technology-based literacy instruction to transform learning so that students can attain the knowledge and skills essential for college and their careers. Students receive "standards-based models of thinking and learning in whole-group, small-group, or conference settings based on need and have time to read, write, and discuss authentically at their own instructional levels" (HISD, 2018, p. VIII-54). Literacy Empowered targets ninth- through twelfth-grade students in reading, writing, and discourse to expand their system of strategic actions that meet the demands of increasingly complex texts. Students also engage in authentic writing tasks in each discipline to extend and provide evidence of their understanding. Finally, students engage in daily academic discourse around personalized grade-level texts, inquiry, and authentic writing opportunities.

Literacy Empowered is based on the premise that the transformation of Tier I instruction among HISD high school leaders and teachers requires the tools and pedagogies that support 21st-century students. The deployment of a 1:1 computer device and the creation of core content-areas master courses ensure that students have the tools necessary to personalize their learning paths in accordance with state standards (HISD, 2018). "Just in time" support and the use of literacy principles provide support for learners in strengthening their literacy skills and to close the literacy gaps (HISD, 2018, p. VIII-55). Further, support for students and teachers include the procurement of materials and resources that include (1) classroom libraries with a wide range of Lexile level texts, (2) digital libraries with personalized texts in all four core foundation disciplines, (3) comprehensive toolkits for large and small-group lessons, and (4) DBQ[1] kits for social studies classes to support comprehension, analyses, and writing (HISD, 2018, p. VIII-55). Schools were expected to maintain and increase their existing campus resources.

The purpose of this evaluation was to determine the effect of Literacy Empowered on the academic performance of HISD students during the 2018–2019 school year. The evaluation was guided by the following questions:

1. What was the PD participation for Literacy Empowered among teachers in the study?
2. What was the demographic and educational composition of students in the LE study sample?
3. How did students, expose to LE, perform on the 2019 State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC)?
4. To what extent did LE contribute to the 2018–2019 reading achievement of high school students in the sample?

## Literature Review

Since the 1970s, secondary schools' reading scores have remained flat due, in part, to relatively little investment in literacy (Heller & Greenleaf, 2007). The National Assessment of Education Progress (NAEP)

[1] A document-based question (**DBQ**), also known as data-based question, is an essay or series of short-answer questions that is constructed by students using one's own knowledge combined with support from several provided sources. Usually it is employed on timed history tests.

twelfth-grade results for 2015 indicated that, nationally, only 37 percent of students were reading at or above the Proficient[2] level (IES, 2015). Without effective and ongoing literacy instruction, students who are behind in reading when they enter middle grades, likely, will never catch up (IES, 2017, p. 2). Data from the 2017 National Assessment of Educational Progress (NAEP) Reading Trial Urban District Snapshot Report revealed that 18 percent of HISD eighth-grade students were reading at or above the Proficient level and 59 percent at the Basic level. Neither performances were significantly different than they were in 2002 (17% and 59%, respectively), although the cohorts were different (IES, 2017).

Data from the 2018 HISD STAAR EOC spring report showed that from 2015 through to 2018 between 57 and 64 percent of first-time testers met the Approaches Student Standard on the English I EOC assessments, 40 and 48 percent met Meets Student Standard, and between 8 and 9 percent met Masters Student Standard (HISD Research & Accountability, 2018a), respectively. When disaggregated, the reading performance for Black, Hispanic, or economically disadvantaged student groups revealed greater disparities when compared to their Asian, White, or non-economically disadvantaged peers.

Research identified several effective strategies for high school literacy instruction (Heller & Greenleaf, 2007). These included assessment of students' reading on high school entry to identify reading needs and to intervene, (2) supporting low-level readers and helping them to make progress in reading fluency, basic comprehension, and other skills, (3) making special effort to motivate students, many of whom have been demoralized by years of reading failure, and (4) engaging student in reading and writing assignments that tap into their areas of interest (Heller & Greenleaf, 2007). The National Council of Teachers of English (2018) position statement on adolescent literacy instruction identified several strategies for teaching reading. These included modeling how students access specific content-area text and using conversations and discussions regarding texts that are authentic, student-initiated, and teacher-facilitated. It also included the use of diverse text interpretations supported by textual evidence that deepens the conversations and discussions and acknowledges and considers the cultural frameworks that influence reading and the application of metacognitive strategies (National Council of Teachers of English, 2018).

Deshler and Hock (2007) proposed a theory of adolescent reading that hinges on word recognition (decoding, accurate sight-word recognition, fluent word reading, and so on) and language comprehension (factual and conceptual knowledge, vocabulary, language and text structure, and so on). Strategies included explicit instruction and scaffolding to support struggling readers with word-level intervention and explicit instructions in language comprehension and reasoning that integrated cognitive and metacognitive strategies (Deshler & Hock, 2007).

Previous evaluation of LE in HISD found that the differences in performance between LE and non-LE students ranged from 23.0 to 133.9 scale score points (ssp) on the 2018 STAAR EOC assessments, in favor of non-LE students, that is, students whose teachers did not participate in the LE professional development (HISD Research & Accountability, 2018b). The evaluation also involved a survey of LE teachers. Teachers surveyed gave relatively high ratings for their use frequency of LE instructional strategies and practices (4.0 and above of 5.0) but gave lower ratings (2.29 to 3.14 of 5.0) for their use of the universal screener to assess students' reading performance and growth and to place them into flexible reading groups (HISD Research & Accountability, 2018b). Assessing students periodically and using the assessment results for organizing them into flexible reading groups were critical components for the implementation fidelity of LE. Being at risk for school dropout, special education, and being identified as Gifted and Talented (G/T) were among the strongest predictors of performance among students in the 2018 LE sample. G/T was a positive predictor (HISD Research & Accountability, 2018b).

Overall, the literature on adolescent literacy advocates for explicit literacy instruction on word recognition for struggling readers and similarly, explicit instruction on language comprehension using cognitive and metacognitive strategies, and sustained reading and writing, conversations, and discussion on authentic,

[2]Students performing at or above the Proficient level on NAEP assessments demonstrate solid academic performance and competency over challenging subject matter (NCES, 2012).

student self-selected texts with teachers operating as facilitators. These strategies appear to be consistent with LE instructional approaches that include authentic, self-selected texts, daily academic discourse around grade level and personalized texts, and authentic writing opportunities. Consistent with the literature (Deshler & Hock, 2007; National Council of Teachers of English, 2018), LE also advocates for the use of digital texts. It can be concluded that if implemented with fidelity, LE should result in improved performance of students whose teachers underwent professional development to deliver the initiative.

## Method

This is a quasi-experimental study designed to measure the effect of LE on the academic performance of students during the 2018–2019 school year. Students whose teachers completed the LE professional development made up the treatment group and students whose teachers did not participate in the PD formed the non-treatment group. Only first-time testers on the STAAR regular exams with a legitimate score were included in the sample. First-time testers most likely had a single year exposure to LE.

### Data collection

Teacher PD data for this evaluation were gathered from the HISD eLearning database that archives the PD of HISD teachers. High school teachers of core or foundational courses who completed the LE summer professional development were selected from the database and used in the evaluation. A total of 94 teachers in the core subject areas completed face-to-face or online course versions of LE professional development in August, September, and November 2018. Professional effectiveness research found that a minimum of 14 hours of professional development had a statistically significant effect on student achievement. Moreover, an average of 49 hours of professional development was found to increase student achievement by 21 percentile points. Initial professional development must be followed by yearlong support (Yoon, Duncan, Lee, Scarloss, & Shapley, 2009).

Teacher data were linked to student educational and demographic variables downloaded from Chancery Ad Hoc via Cognos[3] using unique identifiers. These variables included students' race and ethnicity, gender, special education status, limited English proficiency, and economic status, at-risk and gifted and talented statuses. These, in turn, were linked to students' STAAR data using these identifiers. STAAR Algebra I, English I, English II, Biology, and U.S. History EOC exam data were used as the outcome measure. The STAAR data included students' scale scores and their performance on the state standards. Overall, 53,610 students made up the study sample. Of these, 3,329 represented students whose teachers completed the PD constituted the treatment group and 50,282 constituted the non-treatment group (the group of students whose teacher did not participate in the PD).

### Data Analysis

The data was cleaned and LE and non-LE students identified and coded as treatment and non-treatment groups, respectively. The data met homoscedasticity, normality, and linearity conditions. The data were subjected to treatment effects with regression adjustment (teffects ra) to estimate the effect of LE on students' performance on the 2019 STAAR EOC tests. Teffects ra is a Stata command. Stata is a statistical analysis software. It runs separate regressions for each treatment level, selects matching treatment and non-treatment groups and run the effects in one operation. It calculates the predicted means, that is, the potential outcome means, (POM) of the exam results for each EOC by treatment level (LE and non-LE students) and uses the differences in the means as estimates of the program effects. The average treatment effect (ATE) is used in this study. It is the average performance of any student selected at random from the sample if those students were exposed to the LE initiative. Teffects were regressed using key demographic and educational variables, including gender, ethnicity, limited English proficiency (LEP), special education,

[3] Cognos is an International Business Machine (IBM) Corporation data querying software used to download data from the HISD Chancery ad hoc data warehouse.

gifted and talented, at-risk, career and technical education, and economic status. The results of the analysis are presented in tables and graphs.

The percentages of students in the sample who met the Approaches, Meet, and Masters Grade Level Student standards by EOC test were also presented. Students who met the Approaches Grade Level Student standard on each EOC assessment were further disaggregated by student demographic and educational variables. The demographic and educational composition of students in the sample was compared by LE treatment and non-LE groups. Multiple regressions were conducted to identify key demographic and educational predictors and LE on STAAR EOC performance for students in the sample. The unstandardized coefficients and standardized coefficient (Beta) were presented. Beta is used to compare the strength and direction of predictors.

### Limitations

- It is likely that teachers in this sample may have had multiple exposures to the Literacy Empowered PD. Control for multiple exposures was not considered in the analyses, but these might have impacted students' performance as they represented additional doses of PD.

- Literacy Empowered is a literacy strategy and yet the outcomes used in this evaluation constituted other academic disciplines besides reading and English Language Arts (ELA). It is likely that there may have been limited correlations between the content and strategies of Literacy Empowered and some of the content areas. It is believed, however, that literacy impacts other academic disciplines and should have positive effects on the results of non-ELA EOC assessments.

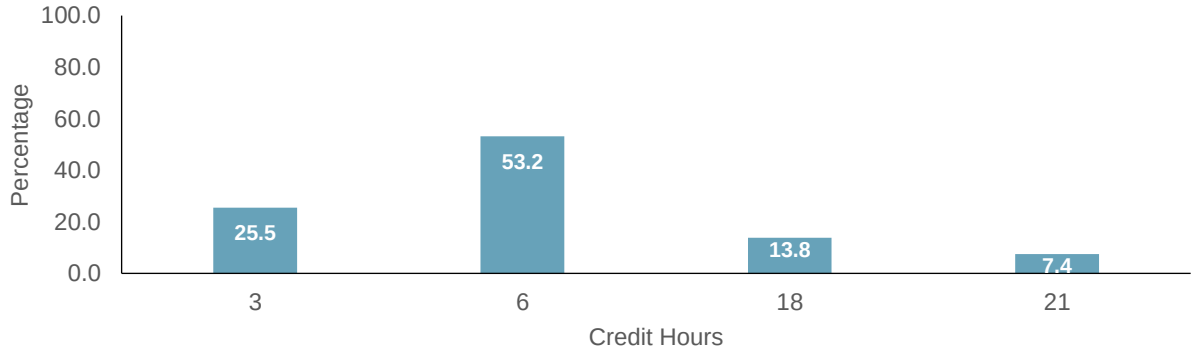
- HISD is undertaking several literacy initiatives concurrently and is implementing other programs to enhance students' performance. These programs were not controlled for in this study, which could have contaminated the study. To minimize the effects, only students whose teachers were exposed to the Literacy Empowered PD were included in the treatment group. Further, treatment effects with regression adjustment estimators were used to minimize the contamination effects.

## Results

### What was the PD participation for Literacy Empowered among teachers in the study?

**Figure 1** shows the distribution of teachers who participated in the LE professional development by credit hours completed prior to its implementation in the classroom during the 2018–2019 school year. Details are in **Table A1** (**Appendix A**, p. 14).

**Figure 1. Percentage Distribution of Teachers Participation in LE Professional Development, 2018–2019**

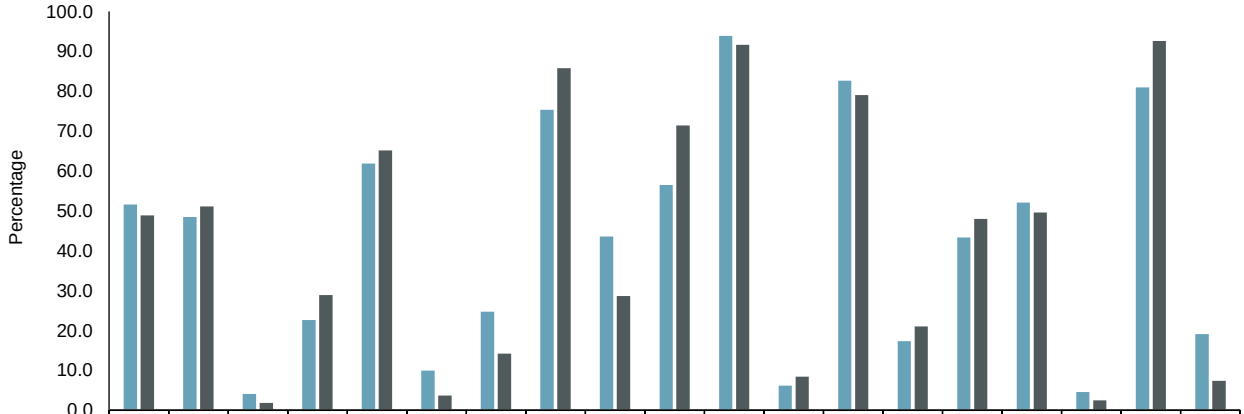


- Literacy Empowered PD participants completed between three and twenty-one credit hours.
- Most teachers (53.2%) in the study completed six credit hours and 78.7 percent completed either three or six credits.
- About 13.8 percent of teachers in the study completed 18 credit hours and 7.4 percent had the largest number of credits (21 hours).

### What was the demographic and educational composition of students in the 2018–2019 LE study sample?

**Figure 2** shows the percentage distribution of students who made up the study sample. It displays the demographic and educational composition of students whose teachers completed professional development (PD) prior to the delivery of LE and students whose teachers did not participate in the PD. Details are provided in **Table A2** (Appendix A, p. 14).

**Figure 2. Demographic and Educational Composition of the Literacy Empowered Study Sample, 2018–2019**




| | Fem. | Male | Asian | Black | Hisp. | White | No | Yes | No | Yes | No | Yes | No | Yes | Span. | Eng. | Other | No | Yes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gender | | Ethnicity | | | | Econ. Disadv. | | At Risk | | Special Ed | | LEP | | Home Lang. | | | G/T | |
| Non-LE | 51.5 | 48.5 | 4.1 | 22.6 | 61.9 | 10.0 | 24.7 | 75.3 | 43.5 | 56.5 | 93.9 | 6.1 | 82.7 | 17.3 | 43.3 | 52.1 | 4.6 | 80.9 | 19.1 |
| LE | 48.9 | 51.1 | 1.8 | 28.9 | 65.1 | 3.7 | 14.2 | 85.8 | 28.6 | 71.4 | 91.6 | 8.4 | 79.0 | 21.0 | 47.9 | 49.6 | 2.5 | 92.6 | 7.4 |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
Note: Fem.= female; Hisp. = Hispanic, Econ. Disadv. = economically disadvantaged; Special Ed = special education; LEP = limited English proficiency; Home Lang = home language; G/T= gifted and talented.

- A higher percentage of male (51.1 vs. 48.5%) students, Black (28.9 vs. 22.6%) and Hispanic (65.1 vs. 61.9%) students make up the LE treatment group compared to the non-treatment group. There were fewer Asian (1.8 vs. 4.1%) and White (3.7 vs. 10.0%) students in the treatment group than in the non-treatment group.
- There were higher proportions of economically-disadvantaged (85.8 vs. 75.3%), more at risk (71.4 vs. 56.5%), and more special education (8.4 vs. 6.1%) students in the treatment group compared to similar groups of students in the non-treatment group.
- Based on home languages, the highest proportion of students from the LE treatment group came from homes where English (49.6%) was the predominant language spoken. However, there was a higher

proportion of students from predominantly Spanish-speaking homes (47.9%) in the treatment group compared to students from similar homes (43.3%) in the non-treatment group.

- A substantially lower percentage of G/T students (7.4%) comprised the treatment group compared to G/T students (19.1%) in the non-treatment group.

### How did students exposed to LE perform on the 2019 State of Texas Assessments of Academic Readiness (STAAR) End-of-Course (EOC)?

**Table B1** through **Table B5** (**Appendix B**, pp.15–16) show the effects of Literacy Empowered on the students whose teachers completed the LE professional development. As mentioned, the tables show how a student selected at random from the sample would have scored (Average Treatment Effect (ATE)), that is, the difference between the potential outcome means (POM).

- A student selected at random from the sample and exposed to LE would have scored less well on the 2019 STAAR Algebra I EOC test compared to a student who was not exposed to the same LE. On average, the scale score of a student selected at random from the sample would have been statistically significant but lower (-41.6 ssp) than the Algebra I EOC POM (4000.3 ssp) for students who were not exposed to LE during the 2018–2019 school year ($p<.05$, two-tailed). Details are in Table B1 (Appendix B, p. 15).

- A student selected at random from the sample and exposed to Literacy Empowered would have scored just as well on the 2019 STAAR Biology EOC test compared to a student who was not exposed to the same LE. On average, the scale score of a student selected at random from the sample would not have been statistically different (-27.6 ssp) from the Biology EOC POM (4151.5 ssp) for students who were not exposed to LE during the 2018–2019 school year ($p>.001$, two-tailed). Details are in **Table B2** (Appendix B, p. 15).

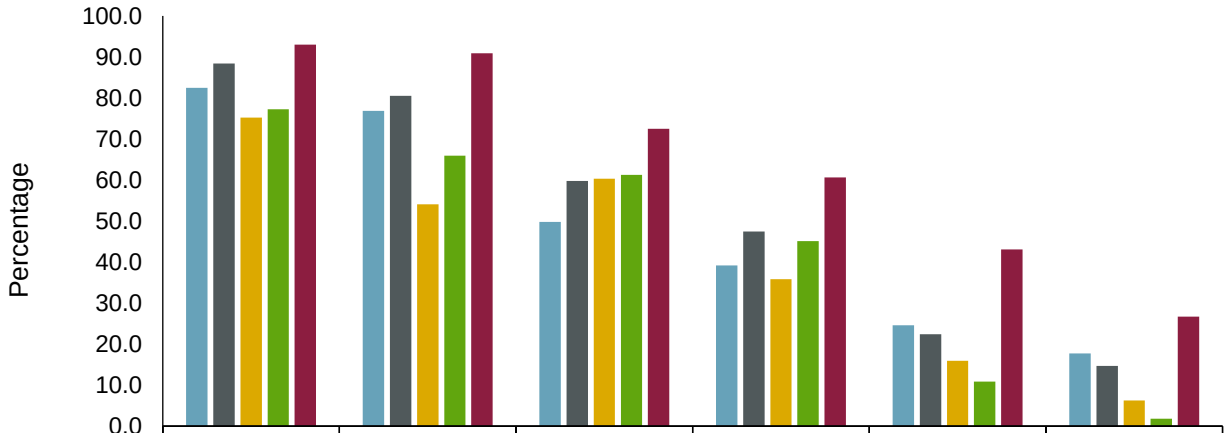
- A student selected at random from the sample and exposed to LE would have scored less well on the 2019 STAAR English I test compared to a student who was not exposed to the same LE. On average, the scale score of a student selected at random from the sample could have been statistically significant but lower (-66.0 ssp) than the English I EOC POM (4048.2 ssp) for students who were not exposed to LE during the 2018–2019 school year ($p<.05$, two-tailed). Details are in **Table B3** (Appendix B, p. 15).

- A student selected at random from the sample and exposed to LE would have scored less well on the 2019 STAAR English II test compared to a student who was not exposed to the same LE. On average, the scale score of a student selected at random from the sample would have been statistically significant but lower (-87.7ssp) than the English II EOC POM (4104.3 ssp) of students who were not exposed to LE during the 2018–2019 school year ($p<.001$, two-tailed). Details are in **Table B4** (Appendix B, p. 16).

- A student selected at random from the sample and exposed to LE would have scored less well on the 2019 STAAR U.S. History EOC test. On average, the scale score of a student selected at random from the sample would have been statistically significant but lower (-92.5 ssp) than the U.S. History POM (4307.8 ssp) for students who were not exposed to LE during the 2018–2019 school year. Details are in Table B5 (Appendix B, p. 16).

**Figure 3** shows the comparative percentage of students who met the Approaches, Meets, and Masters Grade Level Student standards on the 2019 STAAR EOC tests. Students in the treatment and non-treatment groups were compared. Details are in **Table B6** (Appendix B, p.16).

**Figure 3. Percentage of LE and Non-LE Students who Met Grade Level Student Standards on the 2019 STAAR EOC Tests**




| | Approaches | | Meets | | Masters | |
|---|---|---|---|---|---|---|
| | Non-LE | LE | Non-LE | LE | Non-LE | LE |
| Algebra I | 82.5 | 76.8 | 49.8 | 39.2 | 24.6 | 17.7 |
| Biology | 88.4 | 80.6 | 59.8 | 47.4 | 22.4 | 14.7 |
| English I | 75.2 | 54.1 | 60.3 | 35.9 | 15.9 | 6.3 |
| English II | 77.2 | 65.9 | 61.3 | 45.1 | 10.9 | 1.8 |
| U. S. History | 93.0 | 90.9 | 72.5 | 60.7 | 43.1 | 26.7 |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).

- A higher percentage of students in the non-treatment (non-LE) group compared to students in the treatment (LE) group met the Approaches, Meets, and Masters Grade Level Student standard on the five 2019 STAAR EOC tests.

- English I and English II EOC tests had the largest performance gaps (21.1 and 11.3 percentage points, respectively) between the treatment and non-treatment groups of students who performed at or above the Approaches Grade Level Student standard, in favor of the non-treatment or non-LE group. U.S History had the smallest performance gap of 2.1 percentage points.

**Table B7** (Appendix B, p.17) shows the percentage of students in the study disaggregated by key demographic and educational variables who performed at or above the Approaches Grade Level Student standard on the 2019 STAAR EOC tests.

- Generally, a higher percentage of students in the non-treatment subgroups, with some exceptions, performed at or above the Approaches Grade Level Student standard on the 2019 STAAR EOC tests.

- A higher percentage of special education students in the treatment (LE) group compared to similar students in the non-treatment group performed at or above the Approaches Grade Level Student standard on four of the five 2019 STAAR EOC tests.

- A higher percentage of Asians in the treatment group compared to their peers in the non-treatment group performed at or above the Approaches Grade Level Student standard in Algebra I and Biology.

- Slightly higher proportions of non-economically disadvantaged (Algebra I), Black (U.S. History), non-at-risk (Biology), at-risk (U.S. History), G/T (U.S. History) students, and White and students with predominant home languages other than Spanish and English (English II) in the treatment group performed at or above the Approaches Grade Level Student standard compared to their peers in the non-treatment group.

### To what extent did LE contribute to the 2018–2019 reading achievement of high school students in the sample?

**Table C1** to **Table C5** (**Appendix C**, pp. 18–20) provides details on the selected predictors of performance on the 2019 STAAR Algebra I, Biology, English I, English II, and U.S. History EOC exams for students in the study sample. As mentioned earlier, twelve key demographic and educational factors including LE participation were included in the model. A single model was used.

#### Algebra I

- Overall, the model accounted for 21.4 percent of the variance in the Algebra I EOC exam performance of students in the sample. The constant or mean of 4234.5 ssp was statistically significant (p<.001).

- Eight of the twelve variables in the model were statistically significant (p<.001; p.<.05) predictors of the 2019 Algebra I EOC exam performance of students in the sample. Being identified as being at risk for school dropout (at-risk) (30%); special education (19%), and Gifted and Talented (17%) were the strongest predictors. At-risk and special education were adverse predictors.

- Literacy Empowered predicted 2.0 percent of the variance of the Algebra I EOC exam performance of students in the study sample. The variance was statistically significant but inverse (p<.05). Details are in Table C1 (Appendix C, p. 18).

#### Biology

- Overall, the Biology EOC exam regression model accounted for 45.8 percent of the variance in the performance of students in the sample with a constant or mean of 4451.3 ssp.

- Ten of the twelve variables in the model were statistically significant (p<.001; p<.05) predictors of the 2019 STAAR Biology EOC exam performance of students in the study sample. Being at risk (36%), G/T (30%), and being Hispanic (14%) were the strongest predictors of performance for Biology. G/T was a positive predictor of performance. Details are in **Table C2** (Appendix C, p. 18)

- Literacy Empowered accounted for just one percent of the variance in the Biology EOC Exam performance of students in the study sample. The variance was not statistically significant (p>.001).

#### English I

- The regression model explained 48.2% of the variance in performance on the 2019 STAAR English I EOC test. The statistically significant (p<.001) constant or mean was 4423.6 ssp.

- Nine of the twelve variables in the model were statistically significant (p<.001; p<.05) predictors of the 2019 English I EOC exam performance of students in the study sample. At-risk (38%), G/T (27%), and special education (17%) were the strongest predictors. G/T was a statistically significant (p<.001) positive predictor. Details are in **Table C3** (Appendix C, p. 19)

- Literacy Empowered (3.0%) was a statistically significant but an inverse predictor of the English I EOC exam performance of students in the sample (p<.001).

### English II

- The regression model accounted for 48.0 percent of the variance in the 2019 STAAR English II EOC exam performance of students in the sample. The constant or mean of 4417.4 ssp was statistically significant (p<.001).

- Nine of the twelve variables in the model were statistically significant predictors of the 2019 English II EOC exam performance of students in the sample. At risk, (40%), G/T (29%), and special education (16%) were the strongest predictors. G/T was a statistically significant (p<.001) positive predictor. Details are in **Table C4** (Appendix C, p. 19).

- LE (3.0%) was a statistically significant but inverse predictor of the English II EOC exam performance of students in the study sample (p<.001).

### U.S. History

- The regression model accounted for 36.2 percent of the variance in the 2019 U.S. History EOC exam performance of students in the sample. The constant or mean of 4557.4 was statistically significant (p<.001).

- Ten of the twelve variables in the model were statistically significant predictors of the 2019 STAAR U.S. History EOC exam performance of students in the study sample. At-risk (30%), G/T (28%), and special education (13%) were the strongest predictors. G/T was a statistically significant (p<.001) positive predictor. Details are in Table C5 (Appendix C, p. 20).

- Literacy Empowered (2.0%) was a statistically significant (p<.001) inverse predictor of the 2019 STAAR U.S. History EOC exam performance for students in the sample.

## Discussion

The purpose of this evaluation was to measure the effect of Literacy Empowered on the academic performance of students whose teachers completed the PD in preparation for delivering the initiative during the 2018–2019 school year. The study used treatment effects with regression adjustment (teffects ra) on a sample of students whose teachers completed the PD and those whose teachers did not complete the PD. Teffects ra estimated the effects of the initiative on the 2019 STAAR Algebra I, Biology, English I, English II, and U.S. History EOC test performance of students by calculating the potential outcome means (POM) for each group and used the differences between these two means as the effects.

Findings indicated that students whose teachers did not participate in the LE professional development outperformed students on the 2019 STAAR Algebra I, English I, English II, and U.S. History EOC exams whose teachers completed the LE professional development. The difference for Biology was not statistically significant. A higher percentage of students whose teachers did not participate in the professional development compared to the students whose teachers did participate in the professional development performed at or above the Approaches Student Standard on the five STAAR EOC exams in the study. When disaggregated by key demographic and educational student groups, the trend was similar in that a higher percentage of student groups whose teachers did not participate in the professional development met the Approaches Student Standard except for special education students and several other student groups in the various content areas.

Compared to their peers whose teachers did not participate in the LE professional development, a higher percentage of special education students whose teachers completed the PD met the Approaches Grade Level Student standard on four of the five STAAR EOC exams in this study. Asian students in the treatment group outperformed their peers in the non-treatment group in two STAAR EOC subjects. Other subgroups (Black, non-economically disadvantaged, non-at risk, at-risk, G/T students, and students with predominant home languages other than Spanish or English) outperformed their peers in the non-treatment group on one EOC exam. The limited number of professional development hours, the extent to which the LE initiative was delivered with fidelity, and the possible effect of non-program variables, like students' at-risk statuses, may point to the differences in student performance. However, the slightly higher performance of students in selected treatment subgroups does indicate that the program has the potential to be effective if implemented with fidelity including yearlong teacher support.

The study showed that most teachers (78.7%) in the study did not complete the number of professional development hours identified in the literature as essential to substantially improve student achievement. Teachers were not exposed to yearlong support as suggested in the literature on effective professional development. Professional development effectiveness research suggests that students increase their achievement by 21 percentile points when their teachers were exposed to substantial professional development hours (49 hours).

Being identified as at-risk in the sample was the strongest but an inverse predictor of performance on the STAAR EOC tests. Addressing issues related to at-risk students may be essential to improve the performance of LE students, overall. In addition, implementing professional development with fidelity and ensuing that yearlong support is available to both monitor implementation and respond to related questions, queries, and issues are essential for the effectiveness of LE. G/T, which can be considered a proxy for previous performance, was a positive predictor of performance on the STAAR EOC tests. A further indication that students benefited more from their previous knowledge and abilities than exposure to LE. LE explained small but inverse variation in students' scores on the STAAR EOC tests. LE contained most, if not all, of the key strategies the research identified as being effective in high school literacy instruction. Consistency in delivering these strategies is essential for program fidelity and to improve student performance. Greater attention needs to be paid to those areas that are inverse predictors of student performance on the STAAR EOC tests.

## References

Deshler, D. D., & Hock, M. F. (2007). *A theory of adolescent reading: A simple view of a complex process.* Adlit.org.

Heller, R., & Greenleaf, C. L. (2007). *Literacy instruction in the content areas: Getting to the core middle and high school improvement.* Washington, DC: Alliance for Excellent Education.

HISD Research and Accountability. (2018a). *STAAR End-of-Course.* Houston, TX: Hoston Independent School District Retrieved from https://www.houstonisd.org/site/handlers/filedownload.ashx?moduleinstanceid=83875&dataid=223686&FileName=Spring%202018%20STAAR%20EOC%20Report.pdf.

HISD Research and Accountability. (2018b). *The Literacy Empowered initiative: Impacts on HISD high school student performance in the core courses, 2017–2018.* Houston, TX: Houston Independent School District.

Houston ISD. (2018). *School guidelines 2018–2019.* Houston, TX: Author.

IES. (2015). *The Nation's Report Card: 2015 results, mathematics and reading, Grade 12.* Washington, DC: U.S. Department of Education, Retrieved from https://www.nationsreportcard.gov/reading_math_g12_2015/files/infographic_2015_g12_math_reading.pdf.

IES. (2017). *National Assessment of Educational Progress (NAEP) various years, 2002–2017.* Washington, DC: U.S Department of Education, Retrieved from https://nces.ed.gov/nationsreportcard/subject/publications/dst2017/pdf/2018041XH8.pdf.

National Council of Teachers of English. (2018). *A call to action: What we know about adolescent literacy instruction.* Urbana, IL: Author, Retrieved from http://www2.ncte.org/statement/adolescentliteracy/print/.

NCES. (2012). *Scale scores and achievement levels.* Washington DC. Retrieved from https://nces.ed.gov/nationsreportcard/guides/scores_achv.aspx: National Center for Education Statistics.

Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Shapley, K. L. (2009). *Reviewing the evidence on how teacher professional development affects student achievement (Issues & Answers, REl 2007-No.033).* Washington DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Education Laboaratory Southwest.

# Appendix A

**Table A1. Distribution of Teachers by Credit Hours Who Completed the Literacy Empowered PD, 2018–2019**

| Credit Hour | N | % | Total Credit Hours |
|---|---|---|---|
| 3 | 24 | **25.5** | 72 |
| 6 | 50 | **53.2** | 300 |
| 18 | 13 | **13.8** | 234 |
| 21 | 7 | **7.4** | 147 |
| **Total** | **94** | | **753** |

Source: 2018–2019 e-TRAIN: Employee Training, HISD Research and Accountability Archival Database

**Table A2. Demographic and Educational Composition of Students in the Study Sample, 2018–2019**

| Variables | | Study Sample | | | |
|---|---|---|---|---|---|
| | | Non-Literacy Empowered | | Literacy Empowered | |
| | | n | % | n | % |
| Gender | Female | 25,917 | **51.5** | 1,627 | **48.9** |
| | Male | 24,364 | **48.5** | 1,702 | **51.1** |
| Ethnicity | Asian | 2,053 | **4.1** | 60 | **1.8** |
| | Black | 11,361 | **22.6** | 961 | **28.9** |
| | Hispanic | 31,112 | **61.9** | 2,168 | **65.1** |
| | White | 5,007 | **10.0** | 123 | **3.7** |
| Econ. Disadv. | No | 12,404 | **24.7** | 473 | **14.2** |
| | Yes | 37,877 | **75.3** | 2,856 | **85.8** |
| At Risk | No | 21,897 | **43.5** | 952 | **28.6** |
| | Yes | 28,384 | **56.5** | 2,377 | **71.4** |
| Special Ed. | No | 47,193 | **93.9** | 3,050 | **91.6** |
| | Yes | 3,088 | **6.1** | 279 | **8.4** |
| LEP | No | 41,560 | **82.7** | 2,630 | **79.0** |
| | Yes | 8,721 | **17.3** | 699 | **21.0** |
| Home Language | Spanish | 21,794 | **43.3** | 1,596 | **47.9** |
| | English | 26,183 | **52.1** | 1,651 | **49.6** |
| | Other | 2,304 | **4.6** | 82 | **2.5** |
| Gifted and Talented | No | 40,683 | **80.9** | 3,083 | **92.6** |
| | Yes | 9,598 | **19.1** | 246 | **7.4** |
| Career& Technical Education (CTE) | Non CTE | 11,483 | **22.8** | 587 | **17.6** |
| | Non-Coherent | 12,406 | **24.7** | 612 | **18.4** |
| | Coherent | 26,392 | **52.5** | 2,130 | **64.0** |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
Note: Econ. Disadv. = economically disadvantaged; Special Ed = special education; LEP -= limited English proficiency.

# Appendix B

| Table B1. Treatment Effects of LE on the 2019 STAAR Algebra I End-of-Course Student Performance | | | | | |
|---|---|---|---|---|---|
| **Scale Score**<br>**n = 8,466** | **Coefficient** | **Robust Standard Error** | **z** | **P>z** | **[95% Conf. Interval}** |
| Average Treatment Effect | | | | | |
| LE | | | | | |
| (1 vs 0) | -41.6 | 20.9 | -1.99 | 0.046 | [-82.49, -0.68] |
| Potential Outcome Mean | | | | | |
| Non-LE | | | | | |
| 0 | 4000.3 | 5.7 | 700.94 | 0.000 | [3989.08, 4011.45] |

| Table B2. Treatment Effects of LE on the 2019 STAAR Biology End-of-Course Student Performance | | | | | |
|---|---|---|---|---|---|
| **Scale Score**<br>**n = 11,965** | **Coefficient** | **Robust Standard Error** | **z** | **P>z** | **[95% Conf. Interval}** |
| Average Treatment Effect | | | | | |
| LE | | | | | |
| (1 vs 0) | -27.6 | 20.2 | -1.36 | 0.173 | [-67.29, 12.07] |
| Potential Outcome Mean | | | | | |
| Non-LE | | | | | |
| 0 | 4151.5 | 5.2 | 804.9 | 0.000 | [4141.44, 4161.66] |

| Table B3. Treatment Effects of LE on the 2019 STAAR English I End-of-Course Student Performance | | | | | |
|---|---|---|---|---|---|
| **Scale Score**<br>**n = 10,836** | **Coefficient** | **Robust Standard Error** | **z** | **P>z** | **[95% Conf. Interval}** |
| Average Treatment Effect | | | | | |
| LE | | | | | |
| (1 vs 0) | -66.0 | 23.3 | -2.83 | 0.005 | [-111.65, -20.36] |
| Potential Outcome Mean | | | | | |
| Non-LE | | | | | |
| 0 | 4084.2 | 5.7 | 714.07 | 0.000 | [4073.02, 4095.44] |

| Table B4. Treatment Effects of LE on the 2019 STAAR English II End-of-Course Student Performance | | | | | |
|---|---|---|---|---|---|
| **Scale Score**<br>**n = 11,208** | **Coefficient** | **Robust Standard Error** | **z** | **P>z** | **[95% Conf. Interval}** |
| Average Treatment Effect | | | | | |
| LE | | | | | |
| (1 vs 0) | -87.7 | 15.4 | -5.69 | 0.000 | [-117.94, -57.50] |
| Potential Outcome Mean | | | | | |
| Non-LE | | | | | |
| 0 | 4104.3 | 5.5 | 748 | 0.000 | [4093.56, 4115.07] |

| Table B5. Treatment Effects of LE on the 2019 STAAR U.S. History End-of-Course Student Performance | | | | | |
|---|---|---|---|---|---|
| **Scale Score**<br>**n = 11,135** | **Coefficient** | **Robust Standard Error** | **z** | **P>z** | **[95% Conf. Interval}** |
| Average Treatment Effect | | | | | |
| LE | | | | | |
| (1 vs 0) | -92.5 | 19.6 | -4.72 | 0.000 | [-130.87, -54.05] |
| Potential Outcome Mean | | | | | |
| Non-LE | | | | | |
| 0 | 4307.8 | 5.3 | 805.74 | 0.000 | [4297.37, 4318.33] |

**Table B6. Comparative Percentage of LE and Non-LE Students who Met Grade Level Student Standards on the 2019 STAAR EOC Tests**

| STAAR EOC | Approaches | | | | Meets | | | | Masters | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Non-LE | | LE | | Non-LE | | LE | | Non-LE | | LE | |
| | n | % | n | % | n | % | n | % | n | % | n | % |
| Algebra I | 6,543 | **82.5** | 408 | **76.8** | 3,951 | **49.8** | 208 | **39.2** | 1,949 | **24.6** | 94 | **17.7** |
| Biology | 9,981 | **88.4** | 547 | **80.6** | 6,745 | **59.8** | 322 | **47.4** | 2,530 | **22.4** | 100 | **14.7** |
| English I | 7,757 | **75.2** | 285 | **54.1** | 6,215 | **60.3** | 189 | **35.9** | 1,644 | **15.9** | 33 | **6.3** |
| English II | 8,006 | **77.2** | 555 | **65.9** | 6,352 | **61.3** | 380 | **45.1** | 1,126 | **10.9** | 15 | **1.8** |
| U. S. History | 9,658 | **93.0** | 682 | **90.9** | 7,531 | **72.5** | 455 | **60.7** | 4,476 | **43.1** | 200 | **26.7** |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only). STAAR Regular, first-time testers, paper and online administration mode.
Note: *p<.005; **p.001

Approaches (scale scores): Algebra 1 = 3500–3961; Biology = 3500–3966; English I = 3750–3965; English II = 3750–3966; U.S. History = 3500–3980.

Meets (scale scores): Algebra I = 4000–4288; Biology = 400–4495; English I: 4000–4603; English II = 4000–4730; U.S. History = 4000–4375

Masters (Scale scores): Algebra I4333–6181; Biology = 4576–6229; English I = 4691-6367; English II = 4831–6416; U.S. History = 4440–6609

## Table B7. Disaggregated Comparative Percentage of Students in the Study Sample who Performed At or Above the Approaches Grade Level Student Standard on the 2019 STAAR EOC Tests

| Variable | | Non-LE Students | | | | | | | | | | LE Students | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Algebra I | | Biology | | English I | | English II | | U.S. History | | Algebra I | | Biology | | English I | | English II | | U.S. History | |
| | | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Gender | Female | 3,513 | **86.4** | 5,219 | **90.7** | 4,307 | **80.7** | 4,441 | **82.1** | 5,026 | **94.0** | 206 | **78.9** | 285 | **84.6** | 154 | **60.9** | 295 | **72.8** | 338 | **91.1** |
| | Male | 3,030 | **78.3** | 4,762 | **86.0** | 3,450 | **69.4** | 3,565 | **72.0** | 4,632 | **92.0** | 202 | **74.8** | 262 | **76.6** | 131 | **47.8** | 260 | **59.5** | 344 | **90.8** |
| Ethnicity | Asian | 139 | **93.3** | 447 | **97.4** | 446 | **90.8** | 437 | **92.2** | 456 | **95.0** | 10 | **100.0** | 14 | **100.0** | 13 | **86.7** | 10 | **90.9** | 9 | **90.0** |
| | Blacks | 1,720 | **82.5** | 2,199 | **87.4** | 1,607 | **71.5** | 1,682 | **74.6** | 2,088 | **92.6** | 132 | **82.0** | 173 | **83.6** | 92 | **54.4** | 139 | **62.3** | 188 | **93.5** |
| | Hisp. | 4,102 | **81.9** | 6,106 | **86.8** | 4,539 | **72.2** | 4,744 | **74.3** | 5,891 | **92.1** | 250 | **73.3** | 331 | **78.4** | 161 | **50.8** | 379 | **65.5** | 458 | **90.0** |
| | White | 493 | **84.7** | 1,050 | **96.1** | 1,013 | **91.7** | 1,009 | **91.1** | 1,090 | **97.4** | 14 | **82.4** | 26 | **81.3** | 16 | **69.6** | 25 | **96.2** | 22 | **88.0** |
| Econ. Disadv. | No | 1,300 | **87.2** | 2,615 | **95.4** | 2,412 | **89.9** | 2,467 | **90.6** | 2,663 | **96.3** | 64 | **87.7** | 89 | **87.3** | 58 | **73.4** | 76 | **78.4** | 112 | **91.8** |
| | Yes | 5,243 | **81.4** | 7,366 | **86.2** | 5,345 | **70.1** | 5,539 | **72.5** | 6,995 | **91.8** | 344 | **75.1** | 458 | **79.4** | 227 | **50.7** | 479 | **64.3** | 570 | **90.8** |
| At-Risk | No | 2,359 | **95.2** | 4,784 | **98.5** | 4,549 | **96.5** | 4,798 | **97.6** | 4,916 | **99.6** | 109 | **92.4** | 194 | **99.0** | 121 | **89.6** | 261 | **95.3** | 227 | **99.1** |
| | Yes | 4,184 | **76.7** | 5,197 | **80.8** | 3,208 | **57.4** | 3,208 | **58.8** | 4,742 | **87.0** | 299 | **72.4** | 353 | **73.1** | 164 | **41.8** | 294 | **51.8** | 455 | **87.3** |
| LEP | No | 5,199 | **85.8** | 8,519 | **93.2** | 7,215 | **84.8** | 7,586 | **85.3** | 8,609 | **96.1** | 326 | **82.1** | 459 | **87.6** | 267 | **66.3** | 532 | **75.8** | 575 | **95.2** |
| | Yes | 1,344 | **71.6** | 1,462 | **68.0** | 542 | **30.2** | 420 | **28.5** | 1,049 | **73.7** | 82 | **61.2** | 88 | **56.8** | 18 | **14.5** | 23 | **16.4** | 107 | **73.3** |
| Special Education | No | 6,244 | **85.3** | 9,574 | **90.4** | 7,633 | **78.5** | 7,838 | **80.3** | 9,280 | **94.7** | 378 | **78.9** | 511 | **82.6** | 274 | **57.4** | 541 | **69.4** | 643 | **92.4** |
| | Yes | 299 | **48.5** | 407 | **58.7** | 124 | **21.3** | 168 | **27.5** | 378 | **64.6** | 30 | **57.7** | 36 | **60.0** | 11 | **22.0** | 14 | **22.2** | 39 | **72.2** |
| G/T | No | 5,885 | **81.0** | 7,727 | **85.7** | 5,464 | **68.6** | 5,788 | **71.3** | 7,589 | **91.3** | 394 | **76.5** | 492 | **79.1** | 258 | **51.7** | 469 | **62.6** | 630 | **90.3** |
| | Yes | 658 | **98.7** | 2,254 | **99.3** | 2,293 | **97.9** | 2,218 | **98.7** | 2,069 | **99.9** | 14 | **87.5** | 55 | **96.5** | 27 | **96.4** | 86 | **92.5** | 52 | **100.0** |
| Home Language | Spanish | 2,924 | **81.5** | 4,142 | **84.2** | 2,942 | **67.1** | 3,101 | **70.0** | 4,067 | **91.0** | 181 | **71.5** | 233 | **75.2** | 104 | **44.4** | 254 | **62.1** | 351 | **90.0** |
| | English | 3,360 | **83.3** | 5,391 | **91.9** | 4,431 | **81.9** | 4,553 | **83.2** | 5,136 | **95.0** | 218 | **82.0** | 302 | **85.6** | 173 | **62.7** | 285 | **68.7** | 318 | **93.3** |
| | Other | 259 | **83.0** | 448 | **89.6** | 384 | **74.4** | 352 | **75.5** | 455 | **89.2** | 9 | **75.0** | 12 | **75.0** | 8 | **47.1** | 16 | **88.9** | 13 | **68.4** |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only). STAAR Regular, First-time testers, paper and online administration modes.

Note: Hisp. = Hispanic; Approaches Student Standard (scale scores): Algebra 1 = 3500–3961; Biology = 3500–3966; English I = 3750–3965; English II = 3750–3966; U.S. History = 3500–3980

Shaded blue = Students in the LE treatment group who outperformed their peers in the non-treatment group

# Appendix C

## Table C1. Selected Predictors of the 2019 STAAR Algebra I EOC Performance for Students in the LE Sample

| Algebra I Scale Score | Unstandardized Coefficient | Standardized Beta | [95% Confidence Interval] |
|---|---|---|---|
| Econ. Disadv. | 13.8 | 0.01 | [-13.4, 41.1] |
| At-Risk | -330.1** | -0.30 | [-352.6, -307.6] |
| Special Education | -354.5** | -0.19 | [-390.8, -318.1] |
| CTE | 36.6** | 0.06 | [24.4, 48.8] |
| G/T | 320.8** | 0.17 | [283.8, 357.8] |
| American Indian/Alaskan Native | -37.1 | -0.03 | [-93.3, 19.1] |
| Asian | 295.0** | 0.08 | [210.0, 379.9] |
| African American | -79.1* | -0.07 | [-142.4, -15.8] |
| White | -58.3* | -0.06 | [-114.1, -2.6] |
| Hawaiian Native/Pacific Islanders | -134.6 | -0.02 | [-271.5, 2.3] |
| Hispanic | -14.1 | -0.01 | [-51.1, 22.8] |
| Literacy Empowered | -51.6* | -0.02 | [-91.6, -11.6] |
| Constant | 4234.5** | | [4167.7, 4301.4] |
| F | 192.7** | | |
| $R^2$ | 21.4 | | |
| N | 8,466 | | |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
*p<.005; **p.001

## Table C2. Selected Predictors of the 2019 STAAR Biology EOC Performance for Students in the LE Sample

| Biology Scale score | Unstandardized Coefficient | Standardized Beta | [95% Confidence Interval] |
|---|---|---|---|
| Econ. Disadv. | -98.2** | -0.07 | [-118.0, -78.3] |
| At-Risk | -411.5** | -0.36 | [-428.3, -394.7] |
| Special Education | -303.6** | -0.13 | [-334.5, -272.7] |
| CTE | 22.0** | 0.03 | [12.7, 31.2] |
| G/T | 416.5** | 0.30 | [395.7, 437.2] |
| American Indian/Alaskan Native | 53.9* | 0.04 | [12.6, 95.1] |
| Asian | 238.6** | 0.09 | [185.5, 291.7] |
| African American | -106.0** | -0.08 | [-151.8, -60.3] |
| White | 48.6* | 0.04 | [8.0, 89.2] |
| Hawaiian Native/Pacific Islanders | 28.6 | 0.00 | [-78.5, 135.6] |
| Hispanic | -159.6** | -0.14 | [-185.8, -133.3] |
| Literacy Empowered | -26.6 | -0.01 | [-58.6, 5.4] |
| Constant | 4451.3** | | [4403.2, 4499.4] |
| F | 843.19** | | |
| $R^2$ | 45.8 | | |
| N | 11,965 | | |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
*p<.005; **p.001

**Table C3. Selected Predictors of the 2019 STAAR English I EOC Performance for Students in the LE Sample**

| English I Scale Score | Unstandardized Coefficient | Standardized Beta | [95% Confidence Interval] |
|---|---|---|---|
| Econ. Disadv. | -128.6** | -0.10 | [-149.9, -107.4] |
| At-Risk | -448.9** | -0.38 | [-467.1, -430.7] |
| Special Education | -435.2** | -0.17 | [-469.9, -400.5] |
| CTE | -16.0* | -0.02 | [-25.9, -6.1] |
| G/T | 386.7 | 0.27 | [364.9, 408.4] |
| American Indian/Alaskan Native | 96.9** | 0.06 | [51.0, 142.9] |
| Asian | 174.6** | 0.07 | [118.5, 230.7] |
| African American | -40.6 | -0.03 | [-90.6, 9.4] |
| White | 70.0* | 0.06 | [25.1, 115.0] |
| Hawaiian Native/Pacific Islanders | 11.0 | 0.00 | [-104.4, 126.3] |
| Hispanic | -148.4** | -0.12 | [-176.1, -120.7] |
| Literacy Empowered | -90.5** | -0.03 | [-127.9, -53.2] |
| Constant | 4423.6** | | [4371.2, 4476.0] |
| F | 842.7** | | |
| $R^2$ | 48.2 | | |
| N | 10,836 | | |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
*p<.005; **p.001

**Table C4. Selected Predictors of the 2019 STAAR English II EOC Performance for Students in the LE Sample**

| English II Scale Score | Standardized Coefficient | Standardized Beta | [95% Confidence Interval] |
|---|---|---|---|
| Econ. Disadv. | -112.1** | -0.09 | [-132.0, -92.1] |
| At-Risk | -449.8** | -0.40 | [-466.6, -433.1] |
| Special Education | -393.2** | -.0.16 | [-425.7, -360.6] |
| CTE | -7.6 | -0.01 | [-17.3, 2.2] |
| G/T | 403.5** | 0.29 | [383.0, 424.1] |
| American Indian/Alaskan Native | 41.8 | 0.03 | [-1.1, 84.7] |
| Asian | 161.8** | 0.06 | [109.6, 214.0] |
| African American | -39.1 | -0.03 | [-86.3, 8.0] |
| White | 49.8* | 0.04 | [7.6, 92.0] |
| Hawaiian Native/Pacific Islanders | -156.6* | -0.02 | [-275.5, -37.7] |
| Hispanic | -115.7** | -0.10 | [-141.9, -89.5] |
| Literacy Empowered | -61.7** | -0.03 | [-90.7, -32.7] |
| Constant | 4417.4** | | [4368.4, 4466.4] |
| F | 863.0 | | |
| $R^2$ | 48.0 | | |
| N | 11,208 | | |

Source: Chancery Ad Hoc using Cognos, downloaded, 08/19/19 (data only).
*p<.005; **p.001

**Table C5. Selected Predictors of the 2019 STAAR U.S. History EOC Performance for Students in the LE Sample**

| U.S. History Scale Score | Unstandardized Coefficient | Standardized Beta | [95% Confidence Interval] |
|---|---|---|---|
| Econ. Disadv. | -110.0** | -0.09 | [-130.8, -89.1] |
| At-Risk | -334.0** | -.030 | [-352.1, -315.9] |
| Special Education | -302.1** | -0.13 | [-337.9, -266.2] |
| CTE | -8.2 | -0.01 | [-18.6, 2.2] |
| G/T | 389.3** | 0.28 | [366.4, 412.1] |
| American Indian/Alaskan Native | 73.5* | 0.06 | [24.0, 123.1] |
| Asian | 140.4** | 0.06 | [80.6, 200.1] |
| African American | -83.7* | -0.06 | [-137.9, -29.4] |
| White | 90.5** | 0.08 | [41.7, 139.4] |
| Hawaiian Native/Pacific Islanders | 61.6 | 0.01 | [-80.2, 203.4] |
| Hispanic | -137.5** | -0.12 | [-165.6, -109.4] |
| Literacy Empowered | -53.2** | -0.02 | -86.0, -20.4 |
| Constant | 4557.4** | | 4501.1, 4613.8 |
| F | 528.3 | | |
| $R^2$ | 36.2 | | |
| N | 11,135 | | |