MEMORANDUM September 13, 2018

TO: Mechiel Rozas
Secondary Literacy Director

FROM: Carla Stevens
Assistant Superintendent, Research and Accountability

SUBJECT: **LITERACY IN THE MIDDLE (LIM): IMPLEMENTATION AND EFFECTS ON MIDDLE SCHOOL LITERACY PERFORMANCE AND GROWTH, 2017–2018**

This report highlights the implementation of Literacy in the Middle (LIM) and its effect on reading and math performance and growth of middle school students. LIM is a districtwide initiative that uses read aloud, small group instruction, independent reading, and writing instruction to teach literacy skills across the curriculum. The implementation involved summer and year-long professional development for teachers. A teacher survey, repeated-measures design, regression, and descriptive analyses were used to evaluate the implementation and effects of LIM.

Key findings include:

- Teacher survey respondents appeared to agree that the LIM professional development and curriculum framework and support were beneficial for implementing LIM in their classrooms and that they were able to use key strategies (read aloud, small group instruction) and resources in the process.
- Teacher respondents appeared to show less consensus in their agreements that their students could independently select and read “Just Right” books during daily independent reading in their classrooms.
- Teacher respondents tended to somewhat agree or disagree that they used the Renaissance 360 universal screener to assess and monitor student reading performance and growth or to place students in flexible instructional groups.
- A key concern for survey respondents was how to effectively incorporate LIM into core course content areas like science and math.
- LIM had small to large effects on the mean STAAR 3–8 reading and math performance of sixth, seventh, and eighth-grade students, respectively. The differences in the pre (2017) and post (2018) LIM performance were statistically significant.
- Being identified as at-risk for school dropout was the strongest predictor of STAAR 3–8 reading at the sixth, seventh, and eighth grades for LIM students. The prediction was inverse, lowering the average reading performance on the STAAR 3–8 tests.
- Being identified as gifted and talented (G/T) was the strongest predictor of math performance at the sixth, seventh, and eighth grades. The prediction was positive, increasing the average math performance on the STAAR 3–8 tests.

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

Attachment

cc: Noelia Longoria
Annie Wolfe

HOUSTON INDEPENDENT SCHOOL DISTRICT

RESEARCH

Educational Program Report

LITERACY IN THE MIDDLE (LIM): IMPLEMENTATION AND EFFECT ON MIDDLE SCHOOL LITERACY PERFORMANCE AND GROWTH, 2017–2018

HISD | Research and Accountability

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LITERACY IN THE MIDDLE (LIM): IMPLEMENTATION AND EFFECTS ON MIDDLE SCHOOL LITERACY PERFORMANCE AND GROWTH, 2017–2018

Executive Summary

Literacy in the Middle (LIM) is a sixth- through eighth-grade literacy initiative being implemented in the Houston Independent School District (HISD). The initiative is an extension of the Literacy by 3 initiative being implemented at the elementary school level, district-wide. LIM, however, focuses on literacy across the curriculum, including the core content areas of science, math, and social studies using reading, writing, speaking/listening, and thinking domains. LIM uses read aloud, small group instruction, independent reading, and writing instruction as key strategies in its implementation. Summer and year-long professional development were held to prepare teachers for and to facilitate the implementation of LIM. In addition, teachers had access to classroom, book club, and read aloud libraries, comprehension toolkits, paper and electronic magazines among other resources in support of LIM implementation.

Repeated-measures designs, a web-based teacher survey, and descriptive data analyses were used to evaluate the effect of LIM on sixth- through eighth-grade students' reading and math performance on the Renaissance 360 universal screener and the State of Texas Assessments of Academic Readiness (STAAR) grades 3–8 tests. Multiple regression analyses were also used to predict LIM students reading and math performance based on key demographic and educational factors.

Key findings

- Teacher survey respondents appeared to agree that the LIM professional development and curriculum framework and support were beneficial for implementing LIM in their classrooms and that they were able to use key strategies (read aloud, small group instruction) and resources in the process.

- Teacher respondents appeared to show less consensus in their agreements that their students could independently select and read "Just Right" books during daily independent reading in their classrooms.

- Teacher respondents tended to somewhat agree or disagree that they used the Renaissance 360 universal screener to assess and monitor student reading performance and growth or to place students in flexible instructional groups.

- A key concern for survey respondents was how to effectively incorporate LIM into core course content areas like science and math.

- LIM had small to large effects on the mean STAAR 3–8 reading (0.21, 0.64, 0.31) and math (0.15, 0.36, 0.92) performance of sixth, seventh, and eighth-grade students, respectively. The differences in the pre (2017) and post (2018) LIM performance was statistically significant ($p<.0001$).

- Being identified as at-risk for school dropout was the strongest predictor of STAAR 3-8 reading at the sixth (0.39), seventh (0.33), and eighth (0.35) grades for LIM students. The prediction was inverse, lowering the average reading performance on the STAAR 3–8 tests.

- Being identified as gifted and talented (G/T) was the strongest predictor of math performance at the sixth (0.38), seventh (0.35), and eighth (0.32) grades. The prediction was positive, increasing the average math performance on the STAAR 3–8 tests.

Recommendations

- Based on teacher survey responses, every effort needs to be made to ensure that LIM teachers use the Renaissance 360 universal screener as a tool for assessing and monitoring students' reading levels and reading growth and use the results to form flexible instruction groups.

- Because teacher survey respondents expressed some level of uncertainty regarding students' selection and use of "Just Right" books for independent reading, students and teachers may need additional training on book selection and in establishing more opportunities for independent reading and documenting reading.

- To ensure reading and math gains are maintained, it is important to reinforce the key elements and practices of the initiative through continued professional development, walkthroughs, and other support services throughout the summer and the 2018–2019 school year.

- Consider focusing professional development on incorporating literacy into core content areas, particularly science and math, like word problems, in response to these and other related concerns raised by respondents. This may require needs assessments of LIM teachers to better target professional development and improve its effectiveness in the delivery of LIM.

- In response to requests for more resources, where possible, additional resources should be made available, following an audit of resource needs, to LIM teachers to improve the implementation of LIM.

- Careful attention needs to be paid to at-risk students at all middle grades to improve the impact of the LIM initiative on students' literacy and math performance. Sustained interventions could include a needs assessment involving focus groups to determine the academic needs of at-risk students.

Introduction

Literacy and literacy performance and achievement in the Houston Independent School District (HISD) continue to be complex issues. The high percentage of economically-disadvantaged and English language learners enrolled in diverse classrooms with diverse literacy needs challenge performance expectations and targets. Notwithstanding, the overarching goal of HISD is for all students to read at or above grade level by the third-grade (HISD, 2017). In response, HISD has implemented several initiatives and programs at all levels of the school system to address the diverse literacy needs of learners. One such initiative is Literacy in the Middle (LIM). LIM is a middle school initiative and an extension of the Literacy By 3 initiative that is being implemented at the elementary school level commencing in the 2013–2014 school year. LIM aims to have all students in middle school (6th–8th grade) reading on grade level by 2020 (HISD, 2017).

LIM focuses on four key components of literacy: reading, writing, speaking/listening, and thinking. Students are instructed and given choice books, provided time to work with text, and receive individual support in small group settings, according to the Curriculum and Development Department webpage on the HISD website (HISD, 2017). Literacy in the Middle is buttressed on five key approaches to literacy instruction and development – read aloud, modeled thinking, small group instruction, independent reading, and writing instruction. Classrooms are configured to reflect these approaches and to facilitate seamless inclusion of the daily literacy strategies instruction in core content classes. Teachers, literacy leaders, and principals underwent professional development during the summer of 2017 in preparation for the implementation of LIM. There were also monthly follow-up professional development sessions throughout the 2017–2018 school year. Ongoing walkthroughs have been used to monitor its implementation. One of the unique features of LIM is its focus on reading and literacy across the curriculum to include the core content areas of science, social studies, mathematics, and language arts. LIM provided resource materials for its program delivery. These included (1) classroom libraries in the four core foundation classes, (2) book club libraries in English language arts (ELA), (3) read aloud libraries, (4) comprehension toolkits for large- and small-group lesson support, (5) paper and electronic magazines for all four core classes, and (6) document-based questions (DBQ) kits for all social studies classes to support comprehension, analysis, and writing (HISD, 2017). LIM is in its second year of full implementation. This evaluation is designed to provide information that would inform the implementation process using teacher surveys and analyses of student outcomes using both formative and summative reading and literacy assessment data. The evaluation was guided by the following questions:

1. What were the perceptions and experiences of teachers who participated in the LIM professional development training?

2. How did sixth through eighth-grade HISD students perform on Renaissance 360 universal screener at the BOY and EOY?

3. What were the effects of LIM on the literacy levels of HISD sixth- through eighth-grade students?

4. What educational and demographic factors best explained the variance in the literacy and math performance of HISD LIM students?

Literature Review

Reading and literacy has focused on the early primary grades as determinants of later and proficient reading, but this is never automatic (International Reading Association, 2006). Research shows that some middle school students continue to struggle with reading and literacy, which may stem, in part, from teachers' perceptions of those struggling readers, teachers' own professional capacity to address the struggles, and teachers' identities, roles, and responsibilities (Moreau, 2014; Ness, 2009). Further, research confirms that students have difficulty making the transition to more complex textbooks in middle and high schools, and that more that about 75 percent of students who exit third grade as struggling readers continue to be poor readers in high school (International Reading Association, 2006). Instruction in reading and literacy requires a shift from remediation to development in which literacy is taught as part of core content areas, including language arts.

Generally, research on literacy has focused on instructional strategies like read-aloud (Marchessault & Larwin, 2014), multicomponent reading comprehension (Fogarty, et al., 2014), differentiation (Little, McCoach & Reis, 2014), oral repeated reading (Sukhram & Monda-Amaya, 2017), rather than the creation of classroom environments that facilitate reading. Other studies looked at students' reading motivation (Troyer, 2017), reading engagement (Protacio, 2017), reading perspectives (Ramsay & Sperling, 2015), reading modality and passage genre (Dickens & Meisinger, 2017), and coaching (International Reading Association, 2006). Studies also examined below-average readers (Swanson, et al., 2017), struggling readers (Moreau, 2014), and teacher perceptions of poor readers (Moreau, 2014). The research which follows focuses on the kind of environment and actions required to facilitate reading in middle school or among young adolescents.

A qualitative study surveyed 1,765 students in reading and language arts classes in 23 diverse schools in the mid-Atlantic and northeastern United States focusing on what makes children want to read in middle school classrooms (Ivey & Broaddus, 2001). The study also involved follow-up interviews with 31 students in three classrooms who were highly engaged in reading. Students valued independent reading and teacher read-alouds during instructional time. Students preferred actual reading or personal reasoning for reading rather than reading-related activities, and they were motivated to read based on the quality and diversity of reading materials (Ivey & Broaddus, 2001). Access to reading materials and the presence of diverse reading materials appeared to have been key factors in middle school reading (Ivey & Broaddus, 2001).

Sanacore and Palumbo (2010) supported the premise for exposing students to appropriate and quality reading materials and to provide adequate time at school for reading engagement. Accordingly, "time spent reading books is the best predictor of measures of reading achievement, reading comprehension, vocabulary, and reading speed" (Anderson, Field & Wilson cited in Sanacore & Palumbo, 2010, p. 189). Sanacore and Palumbo (2010) recommended independent reading and providing adequate time to read, balancing independent reading with a variety of textual experiences, extension of in-school reading to at-home reading via balanced classroom libraries, promoting active reading and writing with drama-based activities, and guiding learners in activities that build and activate their vocabulary.

Ivey and Broaddus (2001, p. 86) contended that "students in middle schools still need good reading instruction but many teachers may be unprepared or unable to provide it." They proposed the need to move away from whole class instructions predicated on teacher-controlled reading materials, to providing students access to varied materials students like, giving students ownership of what they read, and making independent reading a priority. They proposed the following: (1) aligning instruction to readers rather than reading, (2) linking reading to writing, (3) reading aloud to students, (4) allowing students to read aloud, and (5) approaching reading instruction as a developmental process.

Developmentally, children do not begin to read at the same age. The reading process ranges from prekindergarten (preK) to third grade and occurs in five stages: (1) Awareness and Exploration of Reading Stage (typically preK), (2) Emergent Reading Stage (typically preK to early kindergarten), (3) Early Reading Stage (typically kindergarten to early first grade), (4) Transitional Reading Stage (typically late first to second grade), and (5) Fluent Reading Stage (typically third grade and higher) (National Institute of Professional Practice, 2018). Developmental growth, however, is uneven and is influenced by children's environment and experiences. Consequently, their intellectual ability should not be associated with their developmental stages (National Institute of Professional Practice, 2018).

Literacy in the middle appears to possess some of the recommended approaches to middle school reading and literacy, particularly, small group or differentiated instruction, speaking and listening or read-aloud, access to 'choice' books and time to read, and writing. It is expected that that approach should result in reading improvement where LIM is implemented with fidelity and where students are given adequate time to read. The amount of instructional time students needed to show improvement was uncertain.

Method

Evaluation Design

This evaluation is mixed method study consisting of a repeated-measures design involving sixth- through eighth-grade students. Students at all three grade levels were eligible to participate in the program. However, teachers were expected to complete a professional development (PD) in preparation for implementation. Teachers self-selected into the PD programs, which made it difficult to identify a cadre of teachers who did not participate but with equal propensity for participation. Only students whose teachers completed the PD were included in the analysis of program effects as these would have had the knowledge and skills to implement the program with fidelity. A list of teachers who completed the PD was retrieved from the HISD OneSource employee training database. OneSource is an online Human Resource Management portal that includes managing professional development activities in HISD. Lists of participants were exported to a Microsoft Excel spreadsheet at the end of each year and submitted to HISD Research and Accountability Department and stored in the Microsoft Access database as part of its archival data.

Repeated-measures design or paired samples are robust research designs involving a single group outcome, measured on the same dimensions but at different times that is, time 1 and time 2. Using the same group controls for all the extraneous variables makes it possible to make unbiased inferential and conclusive statements about the sample based on the outcome measure (Pallant, 2013). Students' 2017 and 2018 State of Texas Assessments of Academic Readiness (STAAR) grades 3–8 reading and math subtest scores or results were used as the outcome measures as well as Beginning-of-Year (BOY) and End-of-Year (EOY) reading and math assessment results from Renaissance Star 360 Universal Screener for sixth- through eighth-grade students. Renaissance Star 360 is a computer adaptive (CAT) comprehensive K-12 interim and formative assessment suite that provides data for screening and monitoring students' progress and growth for making informed learning and instructional decisions.

Data Collection

Teachers who completed the LIM PD were matched to their students by Application Developers using unique identifiers (employee and student IDs) in the HISD Texas Student Data System Public Education Information Management System (TSDS PEIMS). A review of research on teacher professional development (PD) found that more than 14 hours of PD showed positive and significant effects on student achievement (Yoon, Duncan, Lee, Scarloss, & Shapley, 2009). Teachers who received substantial PD, an average of 49 hours over nine studies, can boost student achievement by about 21 percentile points (Yoon, Duncan, Lee, Scarloss, & Shapley, 2009). Students were linked to their STAAR scores by Application

Developers using the Texas Education Agency (TEA) STAAR 3–8 database using students' local IDs. STAAR first test administration data were used in the analyses. Students required legitimate before or pre (2017) and after or post (2018) scores in reading and math to be included in the analyses. STAAR 3–8 social studies, science and writing are administered only once in middle school (seventh or eighth grade) and could not be included in the study since pre-scores for the sample groups were unavailable. Students' BOY and EOY scores on the universal screener were analyzed to determine reading and math gains. These were unmatched and provided a measure of middle school performance in literacy and math since LIM is a districtwide program.

An online survey to capture teacher perceptions of their experiences with LIM was administered. Teachers who completed the LIM professional development in the core curriculum areas were the targets of this survey. Targeted teachers completed between 3 and 24 credit hours of PD related to LIM. Two Teacher Development Specialists (TDS) who worked closely with the implementation of LIM assisted with the evaluation planning. They were actively involved in developing and piloting the survey instruments. Their involvement was critical to ensure that salient aspects of LIM were included in the evaluation to determine the extent to which the program objectives were met. The survey was emailed to 347 respondents using SurveyMonkey™, a web-based survey platform with data analysis capability. A reminder was sent out 15 days later to all participants. A total of 71 teachers, or approximately 20.5 percent responded to the survey. The University of Texas at Austin Center for Teaching and Learning's analysis of survey response rates found an average response rate of 30% for online surveys (Saldivar, 2012). Other researchers found similar average response rates (Hamilton as cited in Saldivar, 2012). An online survey designed to measure teacher perceptions and experiences with HISD Literacy By 3 resulted in a response rate of 21.8% (HISD, 2015).

Data Analysis

Paired samples t-tests were used to determine differences in students' performance in literacy/reading and math after a year's exposure to LIM and the impact of LIM on these differences using effect sizes. Regression analyses were also used to determine the extent to which key factors explained the variance in students' average performance. Renaissance 360 BOY and EOY middle school data were also analyzed to measure reading gains. Analyses of survey data were conducted in SurveyMonkey™ and were summarized as percentages and as weighted averages where Likert-type questions were used. Data were presented in tables and charts.

Limitations

- Since all students were expected to participate in LIM as a districtwide initiative, getting a control group for more robust analysis and to determine program effects was not feasible. Therefore, a repeated-measures design was used to overcome the limitation using students' 2017 test scores as pre-scores and 2018 test scores as post scores on the STAAR 3–8 tests.

- There were school, teacher, and non-school factors that may have impacted students' performance. This study did not consider these factors where students' background characteristics were used to control for students' effects.

- Principals and teachers did not respond to repeated requests to conduct site visits, walkthroughs, or student focus-group discussions to gather additional data on the implementation of LIM and the experiences and perceptions of students. However, there were consultations with LIM staff.

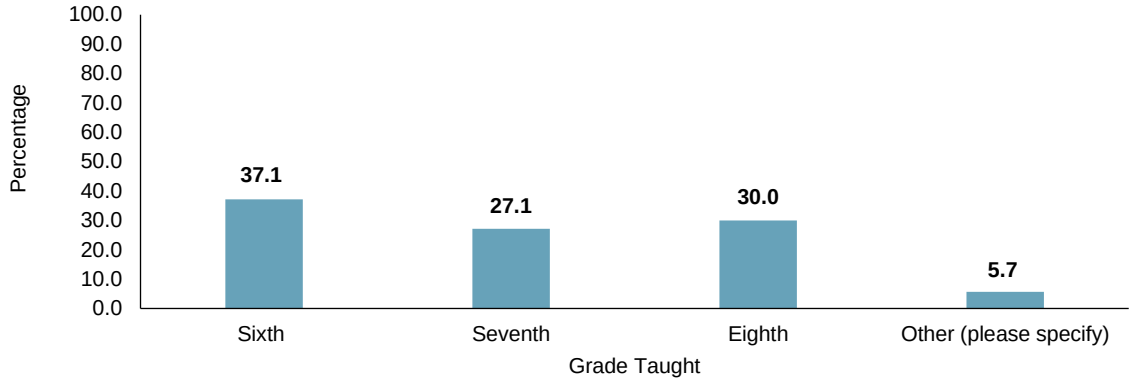
- The analysis did not consider other middle school programs that could have been implemented concurrently and that may have impacted students' reading. Nonetheless, most of these programs tended to have the same objectives as they were designed to improve students' reading performance.

Results

What were the perceptions and experiences of teachers who participated in the LIM professional development training?

Results of the survey on teachers' perceptions and experiences with LIM are displayed in **Figure 1** – **Figure 8.** Figure 1 shows the composition of the teacher respondents in the survey. Details are on **Table 1**, **Appendix A**, p. 28.

Figure 1. Percentage of LIM Teachers by Grades Taught During 2017–2018 School Year

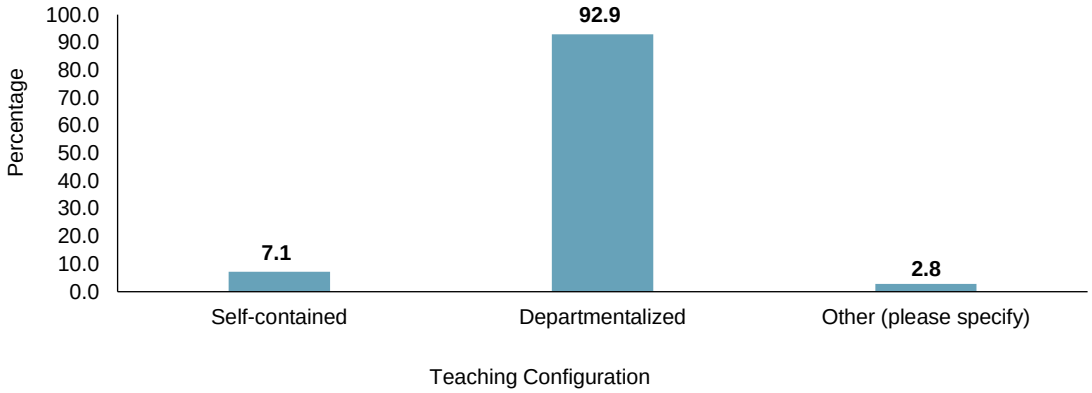


- Most respondents (37.1%) were sixth-grade teachers, followed by eighth (30%), and seventh-grade teachers (27.1%).

- About 5.7 percent of teacher respondents taught a combination of sixth through eighth grades.

Figure 2 shows survey respondents' class configurations for the delivery of LIM. Details are on **Table 2**, Appendix A, p. 28.

Figure 2. Teaching Configuration of HISD LIM Classrooms, 2017–2018

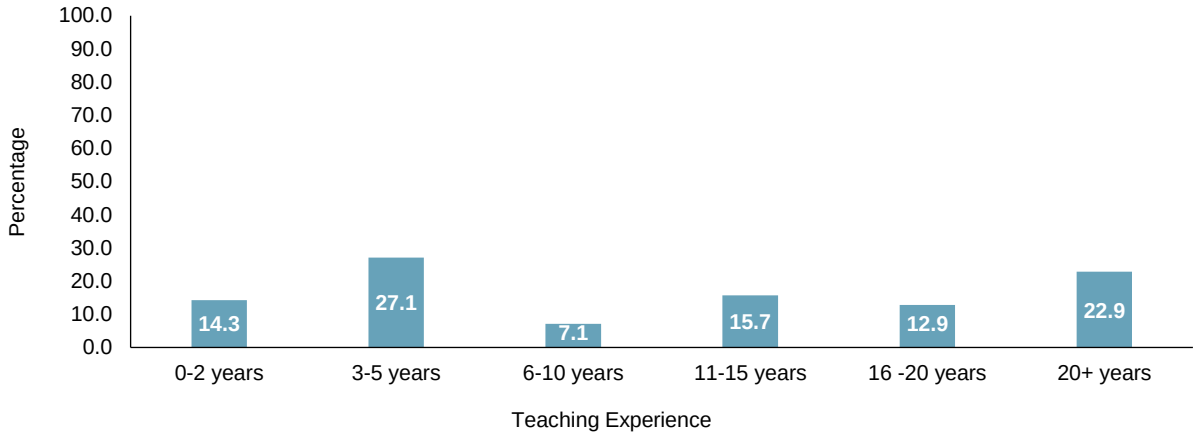


Note: Some respondents had more than one configurations in which they taught

- Most (92.9%) of respondents' classrooms were departmentalized and 7.1 percent were self-contained.

Figure 3 depicts the distribution of respondents by their years of teaching experience. Details are on **Table 3**, Appendix A, p. 28.

Figure 3. The Distribution of LIM Teacher Respondents by Years of Teaching Experience, 2017–2018



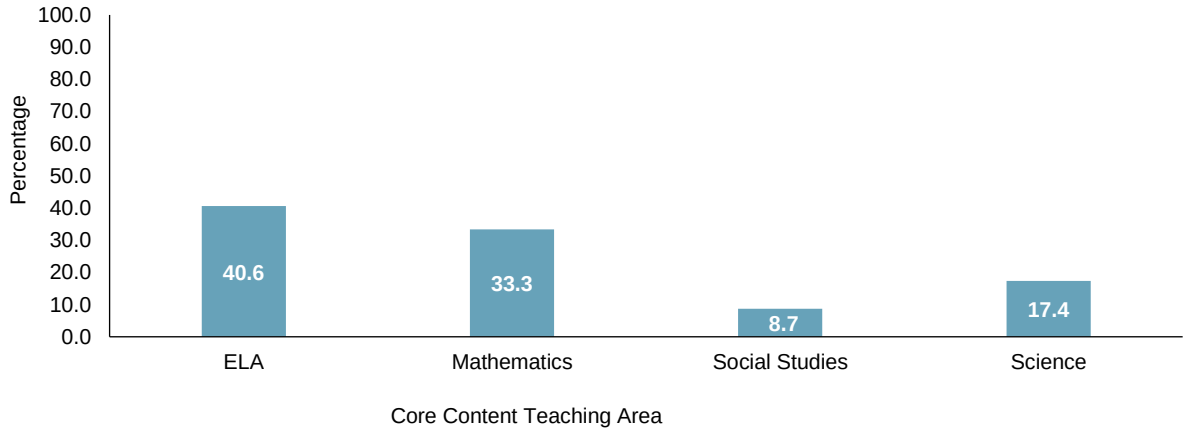
- Of the 70 LIM respondents, more than one in four (27.1%) and one in five (22.9%) had between 3–5 and 20+ years, respectfully, of teaching experience.

- According to Figure 3, about 14.3 percent of respondents had 0–2 years of teaching experience, while 15.7 percent had 11–15 years of teaching experience.

- Overall, most teacher respondents (58.6%) had more than five years of teaching experience, while 85.7 percent had three or more years of teaching experience.

Figure 4 displays the core content areas that LIM respondents teach. Details are on **Table 4**, Appendix A, p. 28.

Figure 4. Distribution of HISD Teacher Respondents by LIM Core Content Area, 2017–2018

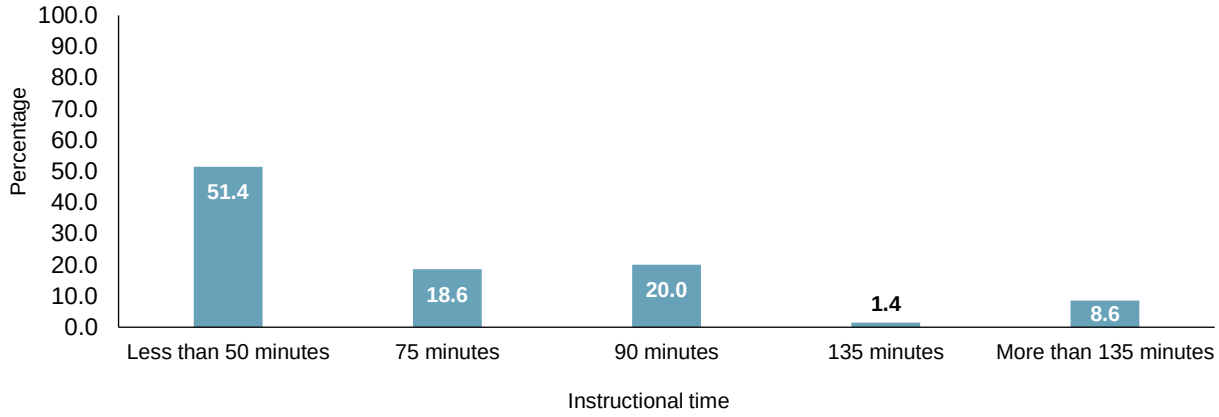


- Most respondents were English language arts (ELA) (40.6%) and mathematics (33.3%) teachers.

- According to Figure 4, about 17.4 percent of LIM survey respondents were science teachers and 8.7 percent were social studies teachers.

Figure 5 shows the available instructional time by respondents within which LIM strategies were taught. Details are on **Table 5**, Appendix A, p. 29.

Figure 5. Instructional Time Allocated to Daily Literacy Instruction, HISD, 2017–2018



- More than half of LIM respondents (51.4%) had less than 50 minutes dedicated to daily literacy instruction, 18.6 percent dedicated 75 minutes, and 20.0 percent dedicated 90 minutes to instruction.

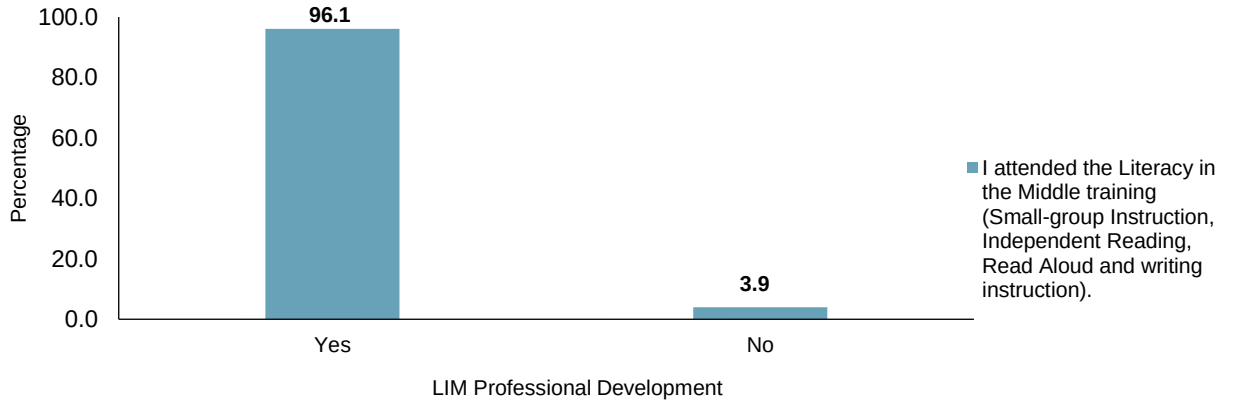
- Most of the classes (90%) taught by survey respondents dedicated 90 minutes or less to literacy instruction.

- About 8.6 percent of respondents dedicated more than 135 minutes to daily literacy instruction.

LIM Professional Development and Support

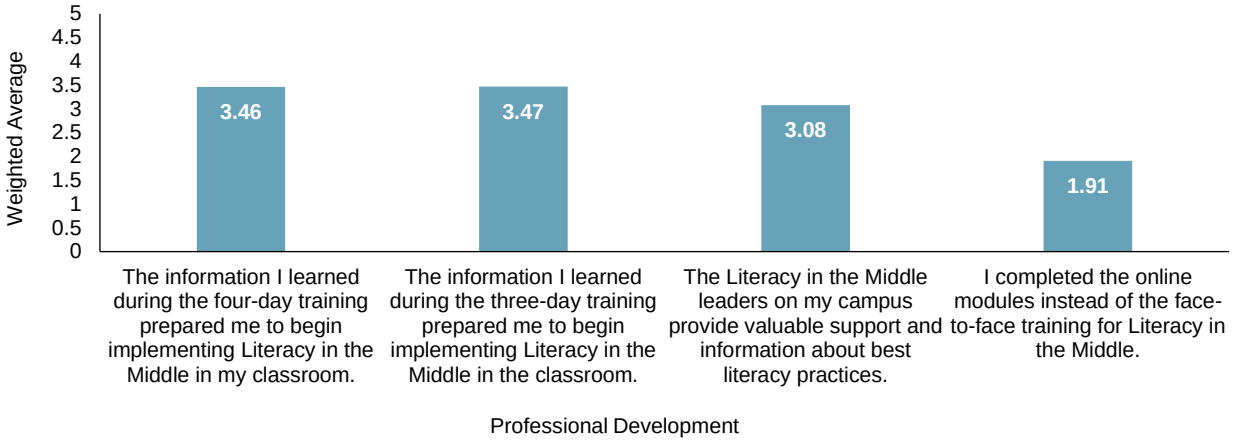
Figure 6 and **Figure 7** display respondents' degree of agreement or disagreement with their participation in LIM professional development activities. **Table 6** and **Table 7**, Appendix A, p. 29 provide details.

Figure 6. Respondents' Attendance at LIM Professional Development Activities, 2017–2018



- Of the 51 teachers who responded to the Figure 7 statement, 96.1 percent attended the LIM training involving small group instruction, independent reading, read aloud, and writing instruction.

Figure 7. Respondents' Agreement or Disagreement with Participation Statements in LIM Professional Activities, 2017–2018



- Most respondents agreed that information learned during the four-day LIM training (average rating of 3.46 out of 5.0) prepared them to deliver LIM in their classrooms.

- According to Figure 7, most respondents somewhat agreed or agreed that information learned from the three-day LIM training (average rating of 3.47 out of 5.0) prepared them to deliver LIM in their classrooms.

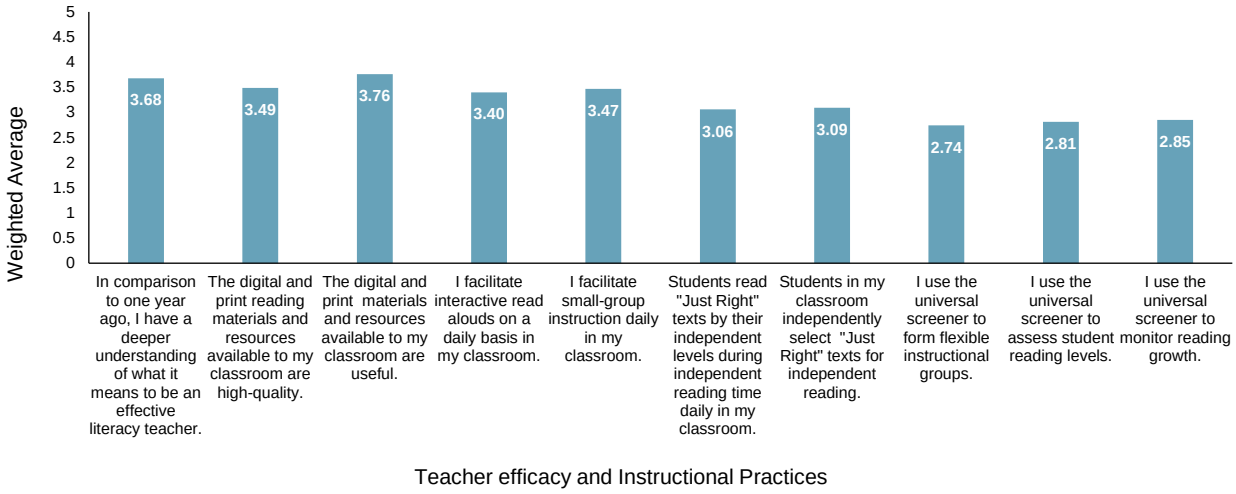
- Most respondents somewhat agreed (3.08 of 5.0 rating) that LIM leaders provided valuable support and information about best literacy practices.

- Most respondents appeared to have completed face-to-face rather than the online training modules as indicated by the average rating of 1.91 out of possible rating of 5.0, mostly disagreeing that they completed the online modules.

Teacher Efficacy and Instructional Practices

A ten-question weighted scale (1–5) was used to measure efficacy and instructional practices teachers employed during implementation of LIM. Respondents were asked to state their degree of agreement or disagreement with related statements. The results are presented in **Figure 8**. **Table 8**, Appendix A, p. 30 provides details.

Figure 8. LIM Teacher Efficacy and Instructional Practices, HISD, 2017–2018



- Most teacher respondents reported to agree or somewhat agree (weighted average of 3.68 of 5.0) that, compared to a year ago, they had a deeper understanding of what it means to be an effective literacy teacher.

- Most teacher respondents agreed or somewhat agreed that digital and print reading materials and resources available to their classrooms were useful (weighted average of 3.76 of 5.0). Slightly less agreed or somewhat agreed that the materials and resources were of a high quality (weighted average of 3.49 of 5.0).

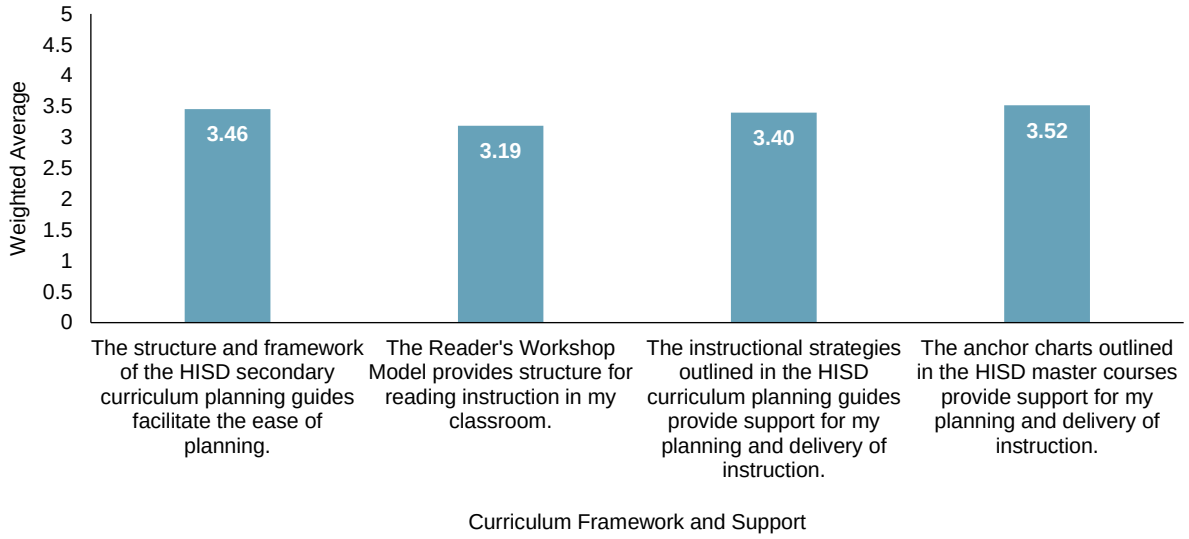
- Most LIM teacher respondents agreed or somewhat agreed that they facilitated read aloud activities in their classrooms daily (weighted average of 3.40 of 5.0). Slightly more teachers agreed, somewhat agreed, or strongly agreed that they facilitated small group instructions in their classrooms (weighted average of 3.47 of 5.0).

- Most respondents somewhat agreed or agreed that students independently selected (3.09 of 5.0 rating) “Just Right” text. Most respondents somewhat agreed or agreed that students read (3.06 of 5.0 rating) “Just Right” text during their daily independent reading in their classrooms.

- Most teacher respondents somewhat agreed or disagreed that they used the universal screener to form flexible instructional groups (2.74 of 5.0 rating); somewhat agreed, disagreed, or strongly agreed to assess students’ reading levels (2.81 of 5.0 rating); and disagreed or agreed to monitor students’ reading growth (2.85 of 5.0).

Figure 9 outlines survey respondents’ perceptions and experiences with key curriculum frameworks and structure in their implementation of LIM. **Table 9**, Appendix A, p. 30 provides details.

Figure 9. Respondents' Perceptions of HISD Curriculum Framework and Support for LIM, 2017–2018



- Most respondents somewhat agreed or agreed (weighted average 3.46 of 5.0) that the structure and framework of the HISD secondary curriculum planning guide facilitated ease of planning.

- Most respondents somewhat agreed or agreed (weighted average of 3.19 of 5.0) that the Reader's Workshop Model provided structure for reading instruction in their classrooms.

- Most respondents somewhat agreed or strongly agreed (weighted average 3.40 of 5.0) that the instructional strategies outlined in the HISD curriculum planning guides provide support for their instructional planning and delivery.

- Most respondents somewhat agreed or agreed (weighted average 3.52 of 5.0) that the anchor charts outlined in the HISD master courses provided support for my instructional planning and delivery.

Respondents were also required to provide additional comments that they may have had on the implementation of LIM and any additional details/information they would like to see in the HISD master courses to further support LIM implementation. Those who responded to the question on the master course spoke about adapting LIM more closely to core content courses. The additional details and information that were offered included:

Providing "articles that can be used in science to assist with reading."

"Possibly, how to blend active/interactive components with the math literacy."

"More writing prompts for middle school math" and "something targeted towards math."

One respondent added "Please, actually, discuss and practice reading strategies in science classroom and not just what a science teacher should already be doing like ISNs and labs. The idea of LIM should be adding to our pedagogy to be interdisciplinary and increasing literacy, not how to be a science teacher."

Another respondent noted, "Literacy in the traditional sense is hard to implement in mathematics. Hopefully, we can move to shortened, effective ways to analyze and breakdown word problems."

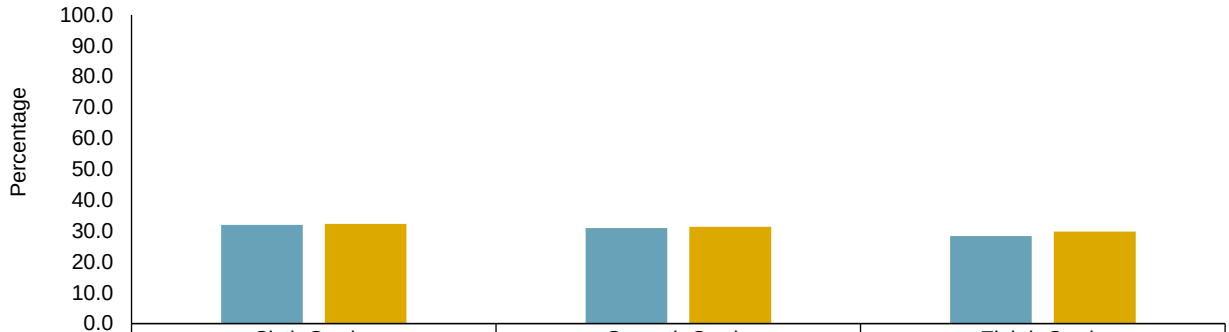
Respondents also wanted to see "more higher order level thinking questions in the master course lessons that challenge students to use critical thinking skills." Respondents also made pitches for "more resources," "informational text support," "better content materials," "technology support for resources in Title 1 schools," "more practice lessons for students," and for "units that could be easily adapted for reading different novels along with the units."

How did sixth through eighth-grade HISD students perform on Renaissance 360 universal screener at the BOY and EOY?

Renaissance 360 Universal Screener

The Beginning-of-Year (BOY) and End-of-Year (EOY) literacy and math results on the Renaissance 360 were used to determine changes in the performance of students who may have been exposed to the LIM initiative. All middle school students' BOY and EOY unmatched scores were used. **Figure 10** and **Figure 11** show the overall percentage of LIM students who met the benchmark (≥ 40th percentile) on the Renaissance 360 literacy and math assessments, respectively.

Figure 10. Percentage of HISD Students by Ethnicity Performing at/or Above the 40th Percentile on the Renaissance 360 Reading Assessment, 2017–2018



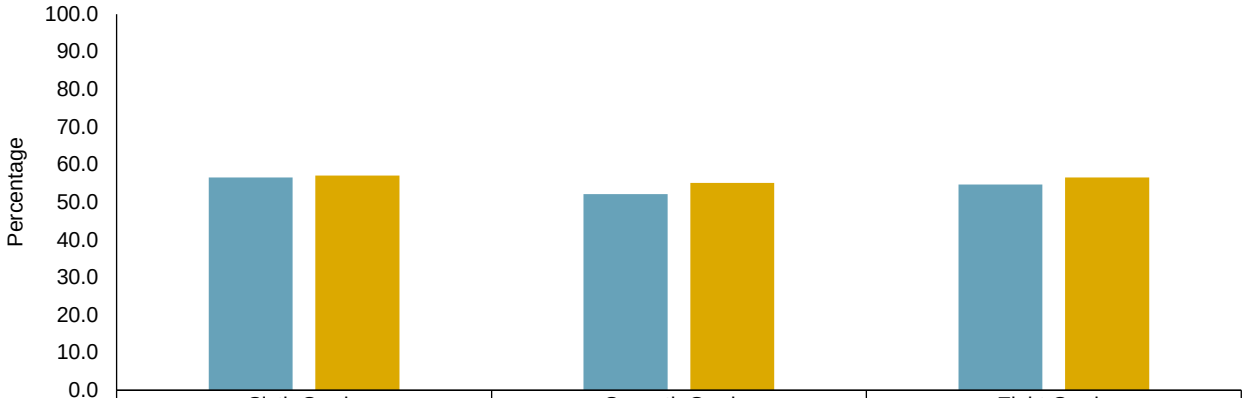
	Sixth Grade	Seventh Grade	Eighth Grade
BOY	32.0	30.9	28.4
EOY	32.3	31.4	29.8

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

- According to Figure 10, about 30 percent of LIM students in sixth through eighth grades performed at/or above the 40th percentile on the Renaissance 360 universal screener at the BOY and EOY in reading.

- There were negligible increases in the percentage of LIM sixth- through eighth-grade students who performed at/or above the 40th percentiles on the Renaissance 360 universal screener at the BOY and EOY in reading.

Figure 11. Percentage of HISD Students by Grade Performing at/or Above the 40th Percentile on the Renaissance 360 Math Assessment, 2017–2018



	Sixth Grade	Seventh Grade	Eight Grade
BOY	56.6	52.2	54.7
EOY	57.1	55.1	56.6

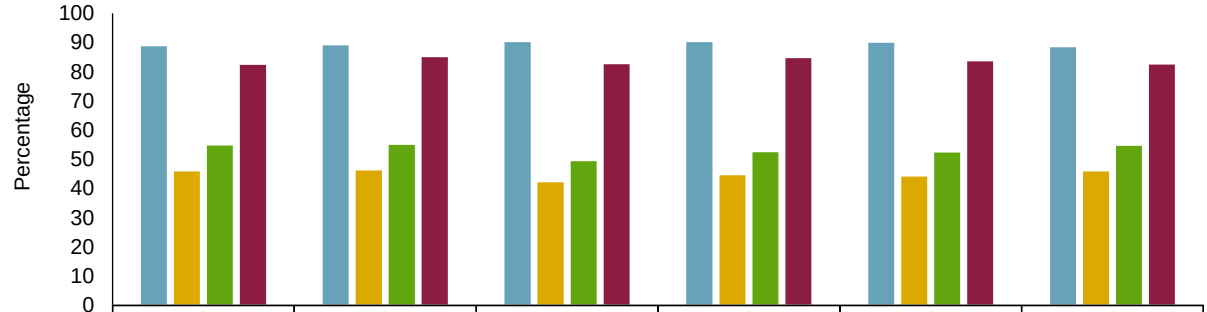
Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

- More than half of all sixth- through eighth-grade students met the math BOY and EOY benchmarks (≥ 40th percentile) on the Renaissance 360 universal screener.

- There were slight increases in the percentage of sixth- (0.5%), seventh- (2.9%), and eighth- (1.9%) grade students who met the BOY and EOY math benchmarks (≥ 40th percentile) on the Renaissance 360 universal screener.

Figure 12 and **Figure 13** show the proportion of students by race and ethnicity who performed at or above the BOY and EOY literacy and math benchmarks (≥ 40th percentile) on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

Figure 12. Percentage of HISD Students by Race/Ethnicity Performing at/or Above the 40th Percentile on the Renaissance 360 Reading Assessment, 2017–2018



	BOY	EOY	BOY	EOY	BOY	EOY
	Sixth Grade		Seventh Grade		Eighth Grade	
Asian	88.7	89.0	90.1	90.1	89.9	88.4
Black	45.9	46.2	42.1	44.6	44.1	45.9
Hispanic	54.8	55.0	49.4	52.5	52.3	54.6
White	82.3	85.0	82.6	84.7	83.5	82.5

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

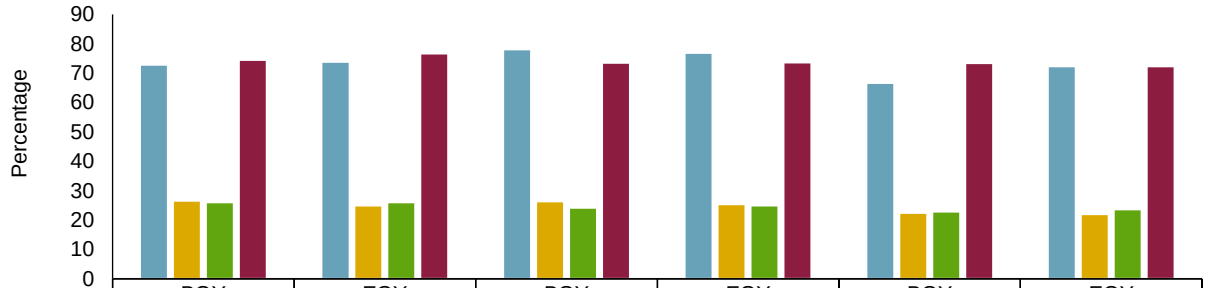
- There were increases in the percentage of students in three of the four major ethnic groups who met the reading benchmark from BOY to EOY on the Renaissance 360 universal screener at the sixth and seventh grades. The percentage of seventh-grade Asian students who met the benchmark remained unchanged.

- For eighth-grade students, increases in reading from BOY to EOY were evidenced for Black and Hispanic students.

- A majority of Asian and White students met the BOY and EOY reading benchmark on Renaissance 360 universal screener at the sixth, seventh, and eighth grades. Most Hispanic students met the BOY and EOY benchmarks at the sixth and eighth grades and the EOY at the seventh grade.

- Less than 50 percent of Black students met the BOY and EOY reading benchmark on Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

Figure 13. Percentage of HISD Students by Ethnicity Performing at/or Above the 40th Percentile on the Renaissance 360 Math Assessment, 2017–2018



	Sixth grade		Seventh Grade		Eighth Grade	
	BOY	EOY	BOY	EOY	BOY	EOY
Asian	72.5	73.5	77.8	76.6	66.3	72.0
Black	26.3	24.6	26.0	25.1	22.1	21.7
Hispanic	25.7	25.7	23.9	24.6	22.5	23.3
White	74.2	76.3	73.2	73.3	73.1	72.0

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

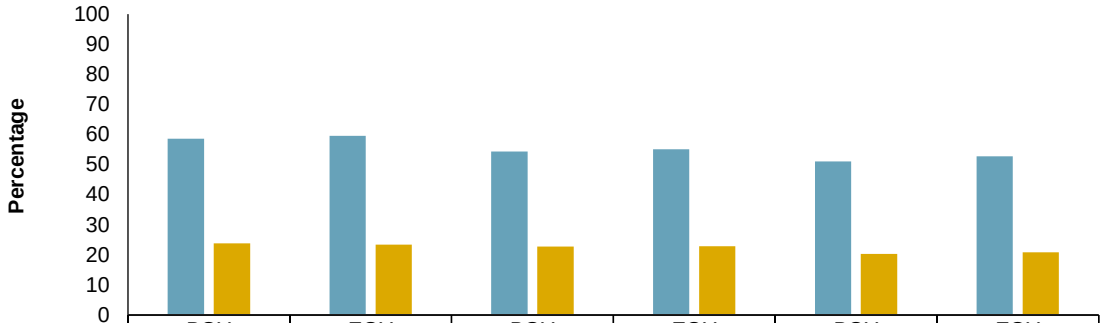
- A majority of Asian (between 66.3 and 77.8%) and White (between 72.0 and 76.3 percent) students performed at or above the BOY and EOY math benchmarks on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

- Between 22.1 and 26.3 percent of Black and between 22.5 and 25.7 percent of Hispanic students performed at or above the BOY and EOY benchmark on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

- Black students showed decreases in the proportion who met benchmark on the Renaissance 360 math assessment between the BOY and EOY at all three grade levels. There were increases for seventh- and eighth-grade Hispanic students.

Figure 14 and **Figure 15** display the percentage of students by economic status who performed at or above the reading and math benchmarks (≥ 40th percentile), respectively, on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

Figure 14. Percentage of HISD Students by Economic Status Performing at/or Above the 40th Percentile on the Renaissance 360 Reading Assessment, 2017–2018



	BOY	EOY	BOY	EOY	BOY	EOY
	Sixth		Seventh		Eighth	
Non-Econ Disadv	58.6	59.6	54.3	55.1	51.0	52.8
Econ Disadv.	23.8	23.4	22.8	22.9	20.3	20.8

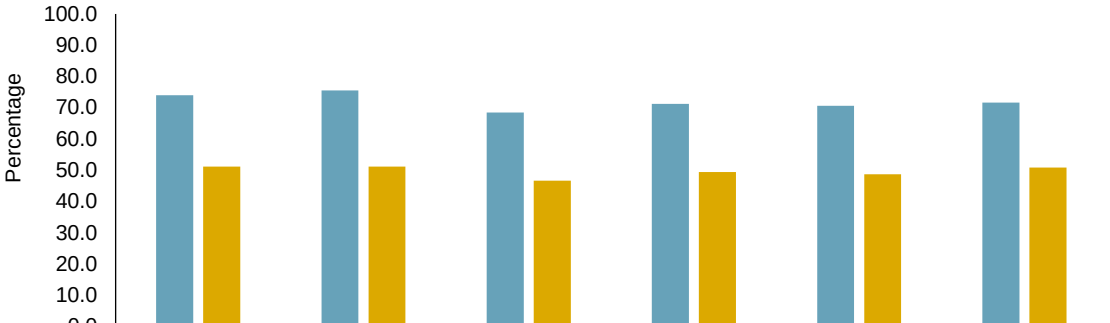
Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

- There were increases from the BOY to the EOY in the percentage of non-economically-disadvantaged students who performed at or above the 40th percentile on the Renaissance 360 universal screener in sixth-, seventh-, and eighth-grade reading.

- There were slight increases from the BOY to the EOY in the percentage of economically-disadvantaged students who performed at or above the reading benchmark at the seventh and eighth grades.

- Non-economically-disadvantaged middle-school students outperformed their economically-disadvantaged peers on the Renaissance 360 reading universal screener at all three grades.

Figure 15. Percentage of HISD Students by Economic Status Performing at/or Above the 40th Percentile on the Renaissance 360 Math Assessment, 2017–2018



	BOY	EOY	BOY	EOY	BOY	EOY
	Sixth		Seventh		Eighth	
Non-Econ. Disadv.	74.0	75.5	68.4	71.2	70.6	71.6
Econ Disadv.	51.1	51.1	46.6	49.4	48.7	50.8

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database.

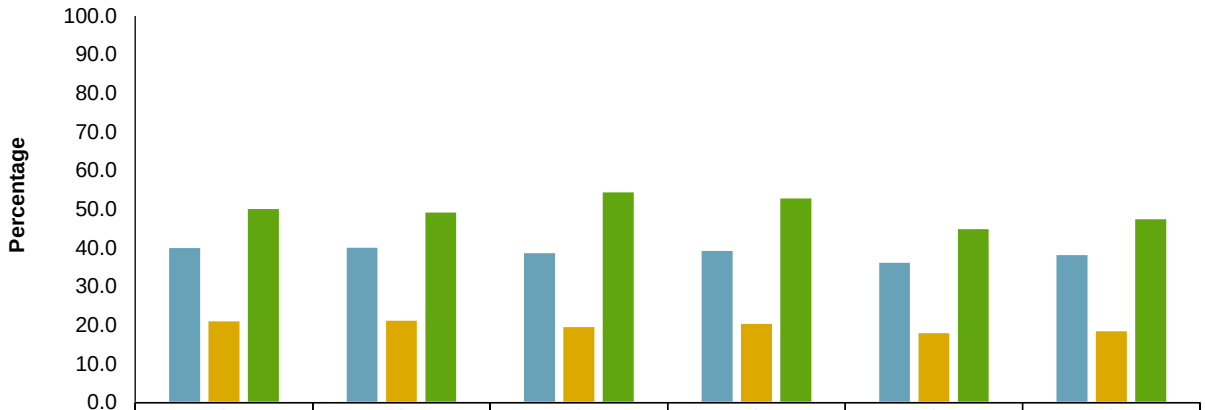
- A higher percentage of non-economically-disadvantaged students (68.4 – 75.5%) compared to economically-disadvantaged students (46.6 – 51.1%) performed at or above the BOY and EOY math benchmarks on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

- Both groups showed either increases or no changes in the year-end percentages of LIM students who met benchmark (≥ 40th percentile) on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

- Non-economically-disadvantaged middle school students outperformed their economically-disadvantaged peers on the Renaissance 360 math universal screener at all three grades at the BOY and EOY.

Figure 16 and **Figure 17** show the percentage of students by home language who performed at or above the reading and math benchmarks (≥ 40th percentile), respectively, on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

Figure 16. Percentage of HISD Students by Home Language Performing at/or Above the 40th Percentile on the Renaissance 360 Reading Assessment, 2017–2018



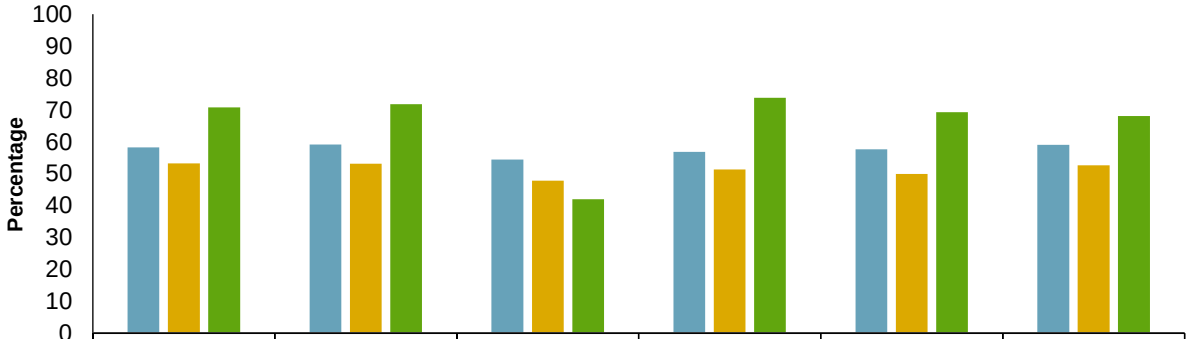
	Sixth		Seventh		Eighth	
	BOY	EOY	BOY	EOY	BOY	EOY
English	40.0	40.1	38.7	39.2	36.2	38.2
Spanish	21.0	21.2	19.5	20.4	18.0	18.5
Other	50.1	49.2	54.4	52.8	44.9	47.4

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database. (Data only).

- A higher percentage of students with "Other" home languages that were neither Spanish nor English performed at or above the BOY and EOY literacy benchmarks (≥ 40th percentile) on the Renaissance 360 universal screener in reading at the sixth, seventh, and eighth grades compared to students with English and Spanish home languages. There was a decrease, between the BOY and EOY, in the percentage of students with "Other" home languages who performed at or above benchmarks for all three middle-school grades. The number of "Other" home language students in the sample ranged from 555–518 for the three grades.

- The percentage of students with English or Spanish home languages who performed at or above the literacy benchmark (≥ 40th percentile) on the Renaissance 360 reading assessments increased from the BOY to EOY for the sixth, seventh, and eighth grades.

Figure 17. Percentage of HISD Students by Home Language Performing at/or Above the 40th Percentile on the Renaissance 360 Math Assessment, 2017–2018



	Sixth		Seventh		Eighth	
	BOY	EOY	BOY	EOY	BOY	EOY
English	58.2	59.1	54.4	56.8	57.6	59.0
Spanish	53.2	53.1	47.8	51.3	49.9	52.6
Other	70.8	71.8	42.0	73.8	69.3	68.1

Source: Renaissance 360 Universal Screener, HISD Microsoft Access database (data only)

- Except for the sixth-grade students with Spanish home language, there were increases between the BOY and EOY in the percentage of LIM students who performed at or above the math benchmarks, on the Renaissance 360 universal screener at the sixth, seventh, and eighth grades.

- Seventh-grade students with home languages that were neither English nor Spanish had the largest increase in the proportion of students (31.9%) who performed at or above the math benchmarks between the BOY and EOY on the Renaissance 360 universal screener.

- The proportion of eighth-grade students with English or Spanish home languages who met the Renaissance 360 math benchmark increased over the 2017–2018 school year.

State of Texas Assessments of Academic Readiness (STAAR)

The results which follow are based on the repeated-measures design using STAAR 3–8 exam results of students whose teachers completed LIM professional development. **Table 10**, Appendix A, p. 31 shows the composition of students who make of the sample. The district demographic composition is given for comparative purposes. Based on Table 10:

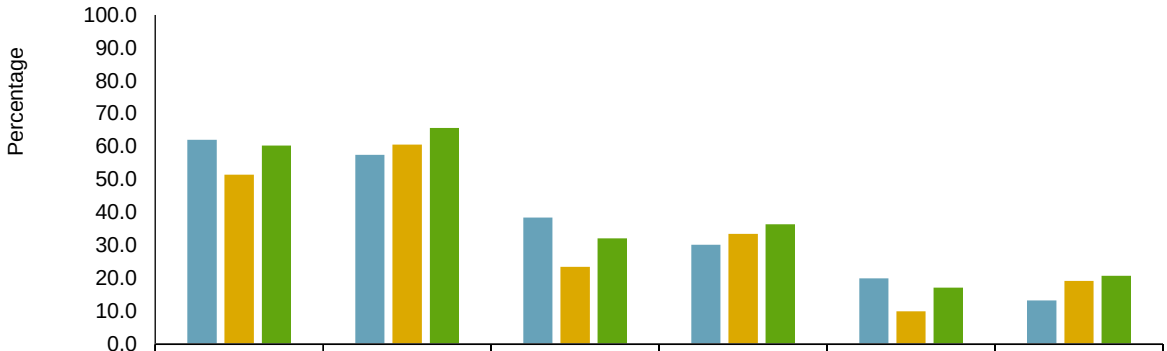
- The percentage of at-risk students had the largest sample size variation at 9.4 percentage points among the sixth- through eighth-grade samples.

- The smallest sample size variation was among Asian students at 0.8 percentage points for the sixth- through eighth-grade samples.

STAAR Reading

Figure 18 and **Figure 19** display the comparative percentage of LIM students who met Approaches, Meets, and Masters standards on the 2017 and 2018 STAAR 3–8 reading and math tests. The 2017 scores are considered pre-scores and the 2018 scores are considered post-scores.

Figure 18. Comparative Percentage of LIM Students Who Met Approaches, Meets, and Masters Standard on the 2017 and 2018 STAAR 3–8 Reading Test



	Approaches		Meets		Masters	
	Pre	Post	Pre	Post	Pre	Post
Sixth grade	62.1	57.5	38.5	30.2	20.0	13.3
Seventh Grade	51.5	60.6	23.5	33.5	10.0	19.2
Eighth Grade	60.3	65.7	32.2	36.4	17.2	20.8

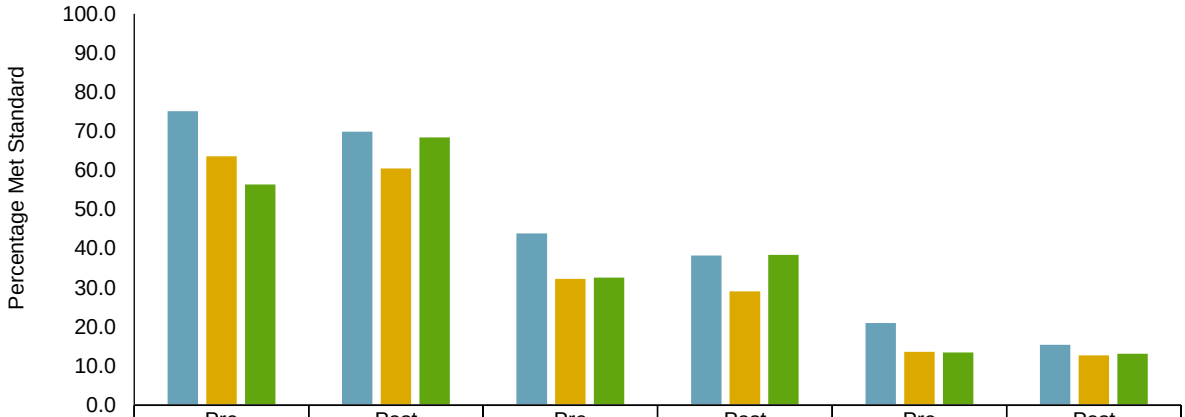
- The percentage of LIM sixth-grade students whose teachers completed the LIM professional development and who met Approaches Grade Level standard on the 2018 STAAR 3–8 reading test decreased by 4.6 percentage points. The percentage of these students who achieved Meets and Masters standards decreased by 8.3 and 6.7 percentage points, respectively.

- The percentage of seventh-grade students whose teachers completed the LIM professional development and who met Approaches Grade Level standard on the 2018 STAAR 3–8 reading test increased by 9.1 percentage points. The percentage of these students who achieved Meets and Masters standards increased 10.0 and 9.2 percentage points, respectively.

- The percentage of eighth-grade students whose teachers completed the LIM professional development and who met Approaches Grade Level standard on the 2018 STAAR 3–8 reading test increased by 5.4 percentage points. The percentage of these students who achieved Meets and Masters standards increased by 4.2 and 3.6 percentage points, respectively.

STAAR Math

Figure 19. Comparative Percentage of LIM Students Who Met Approaches, Meets, and Masters Standard on the 2017 and 2018 STAAR 3–8 Math Test



	Approaches Pre	Approaches Post	Meets Pre	Meets Post	Masters Pre	Masters Post
Sixth grade	75.1	69.9	43.9	38.2	21.0	15.4
Seventh Grade	63.6	60.5	32.3	29.1	13.6	12.7
Eighth Grade	56.4	68.4	32.6	38.4	13.5	13.1

- The percentage of LIM sixth-grade students who met Approaches Grade Level standard on the 2018 STAAR math test decreased by 5.2 percentage points. The percentage of these students who attained Meets and Masters standards decreased by 5.7 and 5.6 percentage points, respectively.

- The percentage of seventh-grade students whose teachers completed LIM professional development and met Approaches Grade Level standard on the 2018 STAAR 3–8 math test decreased by 3.1 percentage points. The percentage of these students who attained Meets and Masters standards decreased 3.2 and 0.9 percentage points, respectively.

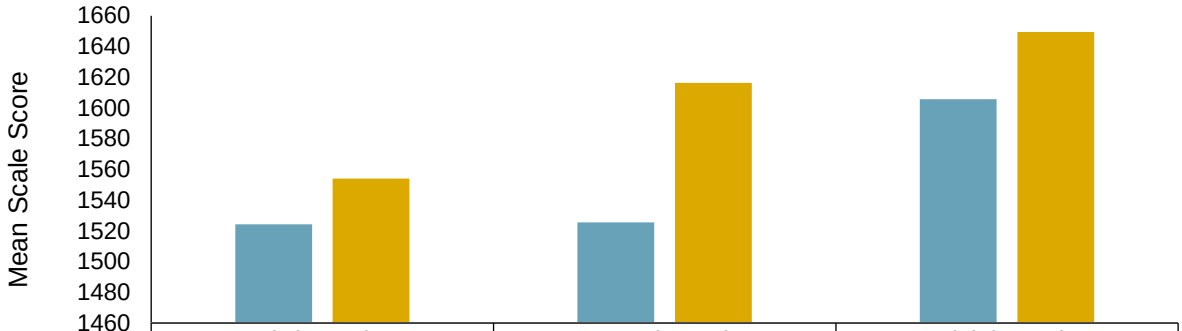
- The percentage of eighth-grade students whose teachers completed LIM professional development and met Approaches Grade Level standard on the 2018 STAR 3–8 math increased by 12.0 percentage points. The percentage of these students who attained Meets and Masters standards increased by 5.8 and decreased by 0.4 percentage points, respectively.

What were the effects of LIM on the literacy levels of HISD sixth- through eighth-grade students?

Figure 20 and **Figure 21** show the comparative STAAR mean reading scale scores by grade, using paired t-tests, for students who had 2017 (pre) and 2018 (post) test scores and whose teachers completed LIM professional development. First STAAR test administration scores were used in the analyses. **Table 11** and **Table 12**, Appendix A, p. 31 provide details. The effect sizes were calculated using Hedge's g formula and interpreted using Cohen[1] (1988) effect size designations and the U.S. Department of Education IES substantially important effect size of 0.25. Cohen's d and Hedge's g are interpreted in a similar way.

[1] Cohen (1998) designated effect sizes as small = 0.2, medium 0.5, and large as 0.8

Figure 20. Comparative (Paired T-Test) STAAR 3–8 Mean Reading Scale Score for LIM Sixth- Through Eighth-Grade Students in the Sample, 2017 and 2018



	Sixth Grade	Seventh Grade	Eighth Grade
Pre Reading	1524.2	1525.6	1605.7
Post Reading	1554.1*	1616.4*	1649.5*

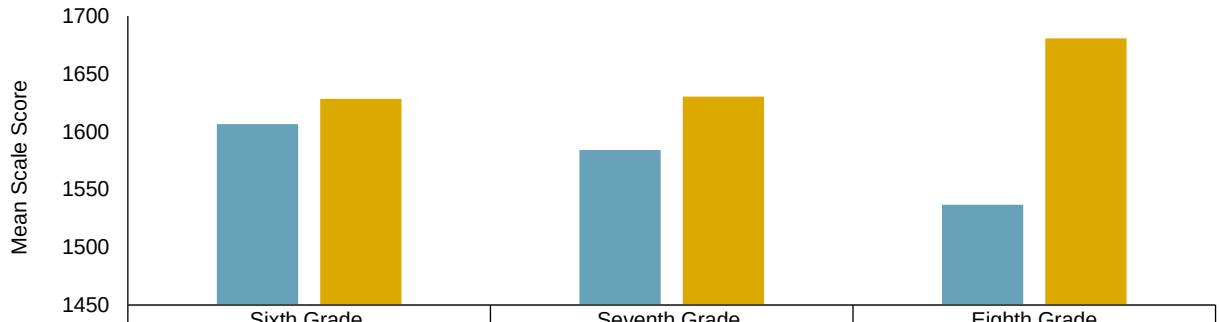
*p < .001

- Sixth-grade students in the sample had a higher mean reading scale score one year after exposure to LIM (M = 1554.1, SD = 140.5) in 2018 compared to their mean reading scale score the previous (m = 1524.2, SD = 148.6). The difference was statistically significant, t (8,229) = 28.5. p<.0001 (two-tailed). The Hedge's g statistic (0.21) indicate a small effect size (Table 11, Appendix A, p. 31).

- Seventh-grade students in the sample had a higher mean scale score one year after exposure to LIM (M = 1616.4, SD = 133.5) in 2018 compared to their mean reading scale score the previous year, 2017 (M = 1525.6, SD = 135.0). The difference was statistically significant, t (10,423) = 95.4, p<.0001. The Hedge's g statistic (0.64) indicated a medium and substantially important effect size (Table 11, Appendix A, p. 31).

- Eighth-grade students in the sample had a higher mean reading scale score one year after exposure to LIM in 2018 (M = 1649.5, SD = 140.0) compared to their mean reading scale score in 2017 (M = 1605.7, SD = 145.1). The difference was statistically significant, t (10,669) = 51.3, p<.0001. The Hedges g statistic (0.31) indicated small but substantially important effect size (Table 11, Appendix A, p. 31).

Figure 21. Comparative (Paired T-Test) STAAR 3–8 Mean Math Scale Score for LIM Sixth- to Eight-Grade Students in the Sample, 2017 and 2018



	Sixth Grade	Seventh Grade	Eighth Grade
Pre Math	1606.4	1584.0	1536.6
Post Math	1628.3*	1630.2*	1680.7*

*p < .001

- Figure 20 shows that LIM sixth-grade students in the sample had a higher mean scale score (M = 1628.3, SD = 139.4) on the 2018 STAAR 3–8 math test compared to their mean scale score on the 2017 STAAR 3–8 reading test (M = 1606.4, SD = 152.1). The difference was statistically significant, t (8,220) = 19.8, p<.0001. The Hedge's g statistic (0.15) indicated a small effect size (Table12, Appendix A, p. 24).

- Seventh-grade LIM students in the sample had a higher mean scale score (M = 1630.2, SD = 133.5) on the 2018 STAR math test compared to their mean scale score on the 2017 STAAR 3–8 math test (M = 1584.0, SD = 135.0). The difference was statistically significant, t (9,862) = 52.1, p<.0001. The Hedge's g statistic (0.36) indicated a medium and substantially important effect size (Table 12, Appendix A, p. 24).

- Eighth-grade LIM students in the sample had a higher mean scale score (M = 1680.7, SD = 148.8) on the 2018 STAAR 3–8 math test compared to their mean scale score on the 2017 STAAR 3–8 math test (M = 1536.6, SD = 165.0). The difference was statistically significant, t (7,981) = 54.5, p<.0001. The Hedge's g statistic (0.92) indicated a large and substantially important effect size (Table 12, Appendix A, p. 24).

What educational and demographic factors best explained the variance in the literacy and math performance of HISD LIM students?

Results of the regression analyses designed to identify predictors of performance for students whose teachers completed LIM professional development and implemented LIM in their classrooms are presented in **Table 13** and **Table 14** (Appendix A, pp. 32, 33) for reading and math, respectively. The standardized coefficient or Beta are provided in the findings results statements, which follow.

STAAR 3–8 Reading

- Overall, the regression model for sixth-grade predicted 48 percent of the LIM students' scale scores on the 2018 STAAR 3–8 reading test. It predicted 43 percent of the reading performance for the seventh grade and 47 percent for the eighth-grade LIM students.

- All five predictors used in the regression models (economically disadvantaged, at risk[2], special education, Limited English proficiency (LEP), and gifted and talented (G/T) identification were statistically significant (p<.0001, .05) in predicting LIM students' reading scale scores at sixth-, seventh-, and eighth-grades. All predictors, except G/T identification, had an inverse effect on the mean or constant reading scale score for sixth (1630.6), seventh (1701.1), and eighth (1749.6) grade students.

- Being assessed as at-risk was the strongest predictor of reading performance for LIM students at sixth (39%), seventh (33%), and eighth (35%) grades. These students would have scored lower than the average scale scores.

- G/T identification predicted 32 percent of LIM sixth grade reading performance on the 2018 STAAR 3–8 test, while it predicted 30 and 22 percent for seventh and eighth grades, respectively. This was the only positive predictor in the model.

[2] PEIMS defined at-risk indicator as a student who is at risk for dropping out of school using state defined criteria. Such a student must be less under 26 years of age and may possess one or more of thirteen criteria or conditions (See Texas Education Agency, 2018).

- Being economically disadvantaged was the weakest predictor of seventh- and eighth-grade LIM students' performance on the 2018 STAAR 3–8 reading test. Being LEP was the weakest predictor for sixth-grade reading.

STAAR 3–8 Math

- The regression models explained 42 percent of the variation in the 2018 STAAR 3–8 math scale scores for LIM sixth-grade students, 39 percent for seventh-grade, and 39 percent for eighth-grade students.

- All five predictors used in the regression models (economically disadvantaged, at risk, special education, LEP, and G/T identification), except being economically disadvantaged at the eighth grade, were statistically significant ($p<.0001$, .05) in predicting the variance in LIM students' 2018 STAAR 3–8 math scale scores at sixth, seventh, and eighth grades. All predictors, except G/T identification, had an inverse effect on the mean or constant reading scale score for sixth (1674.9), seventh (1693.5), and eighth (1784.5) grade.

- Being identified as G/T was the strongest predictor of math performance for LIM students at sixth (38%), seventh (35%), and eighth (32%) grade. G/T predicted above average performance on the 2018 STAAR 3–8 math test.

- Being identified as at-risk was the strongest adverse predictor of LIM sixth-grade math scale scores (35%) on the 2018 STAAR 3–8 test and predicted 32 and 30 percent of the seventh- and eighth-grade 2018 STAAR 3-8 math performance, respectively. These had adverse effects on the average scale scores.

- Being economically disadvantaged was the weakest predictor of sixth-, seventh- and eighth-grade LIM students' performance on the 2018 STAAR 3–8 reading test. The results were statistically significant ($p<.0001$). Being LEP was the weakest predictor for the sixth-grade math.

Discussion

The purpose of this evaluation was to determine literacy growth and achievement among middle school students who were exposed to the LIM initiative using teacher surveys, descriptive statistics, repeated measures designs, and regression analyses. The evaluation showed that the program had small to large effects using Hedges' g on the reading and math performance of students at the seventh and eighth-grade levels and substantially important effects (0.25) at the seventh and eighth grades. It showed that there were statistically significant increases in the mean scale scores of students on the 2018 STAAR 3–8 reading and math tests at all middle grades compared to their 2017 STAAR performance. This was expected since LIM appeared to promote the key initiatives highlighted in the literature for improving middle school literacy and reading performance.

The data showed increases in the percentages of students who met or exceeded the Approaches Grade Level standard for seventh and eighth-grade reading, and eighth-grade math between 2017 and 2018. In addition, the data showed decreases in the percentages of students who met or exceeded the Approaches Grade Level standard in sixth-grade reading and sixth and seventh-grade math. However, results of the repeated measures or paired t-tests showed gains in the mean scale scores from 2017 to 2018 for all middle school grades in the study. Therefore, students showed improvement, indicating that the initiative was effective after one year but for some students, the improvement may not have been adequate to meet the Approaches Grade Level standard. This was the case for sixth-grade reading. Because math content

involves more than reading, and because the reading component could not be disaggregated, and its effects measured separately, one needs to be cautious with how the math results are interpreted.

Regression analyses showed that being identified as at-risk for school dropout was the strongest predictor for reading and math performance at all middle grades. The findings were all statistically significant. This is significant because the at-risk indicator is a composite of thirteen factors that included class failure, class retention, pregnancy, disciplinary issues, homelessness, displacement, and prior dropout. Students are considered at risk because of one or more of these factors. These factors had adverse effects on middle school LIM students' performance in reading and math. G/T identification was the only positive predictor and predicted that students were likely to have higher than average scores on the STAAR 3–8 math and reading scale scores. The predictions were statistically significant for all three grades.

Site visits were not conducted to observe what happened in the classrooms with LIM implementation expectations and to confirm the findings of existing research on middle school literacy instruction and reading. Self-reported data from surveyed teachers provided some insights into their perceptions and experiences with the implementation of LIM. Survey responses should be interpreted with caution. The findings may not be representative of the entire universe of LIM teachers' experiences and perspectives due to the 20.5 percent response rate.

Teacher survey respondents generally agreed that they learned from the LIM professional development and were prepared for the delivery of LIM. Teachers did not appear to fully agree that they received full support from their campus leaders in implementing LIM. Respondents appeared to be less confident that their students were able to select "Just Right" books, independently (3.06 of 5.0 weighted average) or read "Just Right" books during their independent reading period (3.09 of 5.0 weighted average). Several researchers (Sanacore & Palumbo, 2010; Ivey & Broaddus, 2001) have advocated for more independent reading and that students select their texts. However, Ness (2009) showed that content-area teachers in science and social studies were unlikely to teach reading comprehension because of the pressure to cover content for standardized testing, felt unqualified or were not responsible to do so.

It did not appear that teacher respondents consistently tested using the universal screener to assess students' reading levels (2.81 of 5.0 weighted average), monitor their progress (2.85 of 5.0), or used the results to place students in flexible learning groups (2.74 of 5.0 weighted average). These strategies provide feedback on how to design instruction that meets students' needs. Failure to screen students may mean that they may not have received the targeted assistance they may have needed to demonstrate reading progress.

Results from the Renaissance 360 universal screener for all middle school grade levels appear to confirm this dilemma since about 30 percent of students at those grades met the reading benchmark and about 50 percent met the math benchmark. Before and after, but unmatched reading and math Renaissance assessment results for all three middle-school grades, were used in the analyses. There was very little change in the percentage of students who met benchmark (≥ 40th percentile) on the Renaissance 360 reading and math assessments for sixth, seventh, and eighth grades.

With respect to the open-ended questions, teacher respondents offered several suggestions for improving implementation of LIM. Key among their concerns were the need to better incorporate literacy in the instruction of science, math, and other core content areas, and the need for more resources in the support of LIM.

Recommendations

- Based on teacher survey responses, every effort needs to be made to ensure that LIM teachers use Renaissance 360 Universal Screener as a tool for assessing and monitoring students' reading levels, and reading growth, and use the results to form flexible instruction groups.

- Because teacher survey respondents expressed some level of uncertainty regarding students' selection and use of "Just Right" books for independent reading, students and teachers may need additional training on book selection and in establishing more opportunities for independent reading and documenting reading.

- To ensure reading and math gains are maintained, it is important to reinforce the key elements and practices of the initiative through continued professional development, walkthroughs, and other support services throughout the summer and the 2018–2019 school year.

- Consider focusing professional development on incorporating literacy into core content areas, particularly science and math, like word problems, in response to these and other related concerns raised by respondents. This may require needs assessments of LIM teachers to better target professional development and improve its effectiveness in the delivery of LIM.

- In response to requests for more resources, where possible, additional resources should be made available, following an audit of resource needs, to LIM teachers to improve the implementation of LIM.

- Careful attention needs to be paid to at-risk students at all middle grades to improve the impact of the LIM initiative on students' literacy and math performance. Sustained interventions could include a needs assessment involving focus groups to determine the academic needs of at-risk students.

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Appendix A

Table 1. Distribution of LIM Survey Respondents by Grade Level Taught, HISD, 2017–2018

Grade Level	%	n
Sixth Grade	**37.1**	26
Seventh Grade	**27.1**	19
Eighth Grade	**30.0**	21
Other (please specify)	**5.7**	4
Total		70
No responses		1

Table 2. Distribution of LIM Survey Respondents' Teaching Configurations, HISD, 2017–2018

Teaching Configurations	%	n
Self-contained	**7.1**	5
Departmentalized	**92.9**	65
Other (please specify)	**2.8**	2
Total		70
No response		1

Table 3. Teaching Experience of LIM Survey Respondents, HISD, 2017–2018

Years of Teaching Experience	%	n
0-2 years	**14.3**	10
3-5 years	**27.1**	19
6-10 years	**7.1**	5
11-15 years	**15.7**	11
16 -20 years	**12.9**	9
20+ years	**22.9**	16
Total		70
No responses		1

Table 4. Distribution of LIM Survey Respondents by Content Area Taught, HISD 2017–2018

Core Content Area	%	n
ELA	**40.6**	28
Mathematics	**33.3**	23
Social Studies	**8.7**	6
Science	**17.4**	12
Total		69
No Reponses		2

Table 5. Distribution of LIM Instructional Time Reported by Survey Respondents, HISD, 2017–2018

Instructional Time	%	n
Less than 50 minutes	**51.4**	36
75 minutes	**18.6**	13
90 minutes	**20.0**	14
135 minutes	**1.4**	1
More than 135 minutes	**8.6**	6
Total		70
No response		1

Table 6. Percentage of Respondents who Attended LIM Training, HISD, 2017–2018

Professional Development	%	n	%	n	
I attended the Literacy in the Middle training (Small-group Instruction, Independent Reading, Read Aloud and writing instruction).	**96.1**	49	**3.9**	2	51
Total					51
No responses					20

Table 7. Survey Respondents' Perceptions and Experiences with LIM Professional Development and Support, HISD, 2017–2018

Professional Development and Support	Strongly Disagree		Disagree		Somewhat Agree		Agree		Strongly Agree		N/A		Total	Weighted Average
	%	n	%	n	%	n	%	n	%	n	%	n	n	
The information I learned during the four-day training prepared me to begin implementing Literacy in the Middle in my classroom.	**3.9**	2	**13.7**	7	**31.4**	16	**19.6**	10	**21.6**	11	**9.8**	5	51	**3.46**
The information I learned during the three-day training prepared me to begin implementing Literacy in the Middle in the classroom.	**2.0**	1	**13.7**	7	**29.4**	15	**27.5**	14	**15.7**	8	**11.8**	6	51	**3.47**
The Literacy in the Middle leaders on my campus provide valuable support and information about best literacy practices.	**11.8**	6	**13.7**	7	**39.2**	20	**13.7**	7	**15.7**	8	**5.9**	3	51	**3.08**
I completed the online modules instead of the face-to-face training for Literacy in the Middle.	**33.3**	17	**15.7**	8	**7.8**	4	**3.9**	2	**3.9**	2	**35.3**	18	51	**1.91**
Total														**51**
No responses														**20**

Table 8. LIM Survey Respondents' Perception of Their Efficacy and Instructional Practices, HISD, 2017–2018

Teacher Efficacy and Instructional Practices	Strongly Disagree		Disagree		Somewhat Agree		Agree		Strongly Agree		Total	Weighted Average
	%	n	%	n	%	n	%	n	%	n	%	
In comparison to one year ago, I have a deeper understanding of what it means to be an effective literacy teacher.	**5.7**	3	**3.8**	2	**32.1**	17	**34.0**	18	**24.5**	13	53	**3.68**
The digital and print reading materials and resources available to my classroom are high-quality.	**3.8**	2	**11.3**	6	**34.0**	18	**34.0**	18	**17.0**	9	53	**3.49**
The digital and print materials and resources available to my classroom are useful.	**0.0**	0	**5.9**	3	**33.3**	17	**39.2**	20	**21.6**	11	51	**3.76**
I facilitate interactive read alouds on a daily basis in my classroom.	**7.6**	4	**15.1**	8	**24.5**	13	**35.9**	19	**17.0**	9	53	**3.40**
I facilitate small-group instruction daily in my classroom.	**3.8**	2	**18.9**	10	**28.3**	15	**24.5**	13	**24.5**	13	53	**3.47**
Students read "Just Right" texts by their independent levels during independent reading time daily in my classroom.	**13.2**	7	**20.8**	11	**26.4**	14	**26.4**	14	**13.2**	7	53	**3.06**
Students in my classroom independently select "Just Right" texts for independent reading.	**17.0**	9	**18.9**	10	**20.8**	11	**24.5**	13	**18.9**	10	53	**3.09**
I use the universal screener to form flexible instructional groups.	**17.0**	9	**28.3**	15	**26.4**	14	**20.8**	11	**7.6**	4	53	**2.74**
I use the universal screener to assess student reading levels.	**17.0**	9	**24.5**	13	**26.4**	14	**24.5**	13	**7.6**	4	53	**2.81**
I use the universal screener to monitor reading growth.	**17.0**	9	**24.5**	13	**22.6**	12	**28.3**	15	**7.6**	4	53	**2.85**
Total												53
No responses												18

Table 9. LIM Survey Respondents' Perceptions and Experiences with Curriculum Framework and Support, HISD, 2017–2018

Curriculum Framework and Support	Strongly Disagree		Disagree		Somewhat Agree		Agree		Strongly Agree		N/A		Total	Weighted Average
	%	n	%	n	%	n	%	n		n	%	n	n	
The structure and framework of the HISD secondary curriculum planning guides facilitate the ease of planning.	**5.9**	3	**7.8**	4	**37.3**	19	**29.4**	15	**17.7**	9	2.0	1	51	**3.46**
The Reader's Workshop Model provides structure for reading instruction in my classroom.	**9.8**	5	**13.7**	7	**23.5**	12	**21.6**	11	**13.7**	7	17.7	9	51	**3.19**
The instructional strategies outlined in the HISD curriculum planning guides provide support for my planning and delivery of instruction.	**7.8**	4	**11.8**	6	**35.3**	18	**19.6**	10	**23.5**	12	2.0	1	51	**3.40**
The anchor charts outlined in the HISD master courses provide support for my planning and delivery of instruction.	**3.9**	2	**7.8**	4	**33.3**	17	**27.5**	14	**17.7**	9	9.8	5	51	**3.52**
Total														51
No responses														20

Table 10. Composition of LIM Samples for Analysis of STAAR Performance, 2017–2018

Attributes		Sixth Grade[1]	Seventh Grade[1]	Eighth Grade[1]	District[2]
		n = 9,210	**n = 11,354**	**n = 11,522**	**n = 214,175**
Economically Disadvantaged	No	20.4	18.3	19.9	24.1
	Yes	79.6	81.7	80.1	75.9
At Risk	No	35.5	27.4	26.1	28.4
	Yes	64.5	72.6	73.9	71.6
Special Education	No	91.4	91.5	92.9	92.8
	Yes	8.6	8.5	7.1	7.2
Limited English proficiency	No	67.7	68.7	74.0	68.5
	Yes	32.3	31.3	26.0	31.5
G/T Identification	No	75.9	78.4	83.0	84.3
	Yes	24.1	21.6	17.0	15.7
Ethnicity	Asian	2.9	2.2	3.0	4.1
	Black	28.7	27.3	25.0	24.0
	Hispanic	61.2	65.8	66.4	61.8
	White	6.0	3.7	4.8	8.7

Source: [1] HISD TSDS PEIMS Microsoft Access database, 2017–201.8
[2] TSDS PEIMS 2017–2018, Fall Collection, Resubmission, Texas Education Agency PDM1-120-009 v18.1.1.

Table 11. Paired-Samples T-test and Effect of LIM on STAAR 3–8 Reading by Grade. HISD, 2017–2018

Reading		n	Mean	Paired Differences					t	df	Sig. (2-tailed)	Effect Size
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
							Lower	Upper				
Sixth Grade	Post Reading	8,230	1554.1	29.9	95.3	1.1	27.9	32.0	28.5	8,229	.000	**0.21**
	Pre-Reading		1524.2									
Seventh Grade	Post Reading	10,424	1616.4	90.8	97.1	1.0	88.9	92.7	95.4	10,423	.000	**0.64**
	Pre-Reading		1525.6									
Eighth Grade	Post Reading	10,670	1649.5	43.8	88.2	0.9	42.1	45.5	51.3	10,669	.000	**0.31**
	Pre-Reading		1605.7									

Effect Size (Hedges' g): Small = .2; Moderate = .5, and Large = .8; U.S. Department of Education Institute for Education Sciences (IES) Substantially Important Effect = .25

Table 12. Paired-Samples T-test and Effect of LIM on STAAR 3–8 Math by Grade, HISD, 2017–2018

Math		n	Mean	Paired Differences					t	df	Sig. (2-tailed)	Effect Size
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
							Lower	Upper				
Sixth Grade	Post Math	8,221	1628.3	21.9	100.2	1.0	19.7	24.0	19.8	8,220	0.000	**0.15**
	Pre-Math		1606.4									
Seventh Grade	Post Math	9,863	1630.2	46.2	88.053	.88	44.5	47.9	52.1	9,862	0.000	**0.35**
	Pre-Math		1584.0									
Eighth Grade	Post Math	7,982	1680.7	144.2	236.500	2.6	139.0	149.4	54.5	7,981	0.000	**0.92**
	Pre-Math		1536.6									

Effect Size (Hedges' g): Small = .2; Moderate = .5, and Large = .8; U.S. Department of Education Institute for Education Sciences (IES) Substantially Important Effect = .25

Table 13. Predictors of Reading Performance for LIM Students, 2017–2018

Grade	Predictors	Unstandardized Coefficients	Standardized Coefficients	95.0% Confidence Interval for B	
		B	Beta	Lower Bound	Upper Bound
Sixth Grade	Constant	1630.6**		1624.7	1636.6
	Economically Disadvantaged	-27.8**	-0.08**	-33.2	-22.3
	At Risk	-114.1**	-0.39**	-119.4	-108.7
	Special Education	-75.7**	-0.15**	-83.4	-68.0
	LEP	-10.3**	-0.03**	-15.2	-5.4
	G/T Identification	106.0**	0.32**	100.4	111.5
	R^2		0.48		
	F		1654.3**		
Seventh Grade	Constant	1701.1**		1694.8	1707.5
	Economically Disadvantaged	-14.8**	-0.04**	-20.2	-9.5
	At Risk	-107.0**	-0.33**	-112.4	-101.6
	Special Education	-103.4**	-0.20**	-110.8	-96.0
	LEP	-38.3**	-0.12**	-42.9	-33.7
	G/T Identification	104.2**	0.30**	98.7	109.8
	R^2		0.43		
	F		1684.7**		
Eighth Grade	Constant	1749.6**		1744.0	1755.3
	Economically Disadvantaged	-5.9**	-0.02*	-10.7	-1.1
	At Risk	-111.4**	-0.35**	-116.5	-106.3
	Special Education	-109.9**	-0.20**	-117.3	-102.4
	LEP	-84.4**	-0.26**	-88.8	-79.9
	G/T Identification	83.4**	0.22**	77.8	89.1
	R^2		0.47		
	F		2052.7**		

Dependent Variable: STAAR 3-8 Reading Scale Score

*p < .05. **p <. 001

Table 14. Predictors of Math Performance for LIM Students, HISD, 2017–2018

Grade	Math Predictors	Unstandardized Coefficients	Standardized Coefficients	95.0% Confidence Interval for B	
		B	Beta	Lower Bound	Upper Bound
Sixth Grade	Constant	1674.9**		1668.8	1681.1
	Economically Disadvantaged	-19.8**	-.06**	-25.5	-14.1
	At Risk	-101.1**	-.35**	-106.7	-95.5
	Special Education	-41.7**	-.08**	-49.7	-33.7
	LEP	12.9**	.04**	7.8	18.0
	G/T Identification	123.4**	.38**	117.6	129.2
	R^2		.42		
	F		1322.4**		
Seventh Grade	Constant	1693.5**		1687.3	1699.7
	Economically Disadvantaged	-6.5**	-.02*	-11.7	-1.4
	At Risk	-97.3**	-.32**	-102.6	-92.0
	Special Education	-66.7**	-.14**	-73.7	-59.6
	LEP	-11.4**	-.04**	-15.9	-7.0
	G/T Identification	118.6**	.35**	113.0	124.2
	R^2		.39		
	F		1346.5**		
Eighth Grade	Constant	1784.5**		1776.2	1792.9
	Economically Disadvantaged	-0.16	.00	-6.6	6.3
	At Risk	-120.9**	-.30**	-128.5	-113.2
	Special Education	-105.9**	-.20**	-114.6	-97.3
	LEP	-37.0**	-.12**	-42.5	-31.5
	G/T Identification	158.1**	.32**	148.8	167.4
	R^2		.39		
	F		1103.9**		

Dependent Variable: STAAR 3-8 Math Scale Score

*p < .05. **p <. 001