

Literacy by 3 Classroom Practices and Campus Literacy Growth

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Greater utilization of certain Literacy by 3 classroom practices is associated with the increased likelihood of a campus exceeding district average growth in reading. Though the Literacy by 3 program has been in the Houston Independent School District (HISD) since the 2014-2015 school year, this study is the first to examine the relationship between Literacy by 3 practices and campus literacy growth in HISD. Specifically, this study aimed to identify which, if any, instructional practices contributed to literacy growth for a campus, by looking at the relationship between literacy practices in the classroom, student literacy practices at home, campus composition, and growth in literacy.

Key Findings

- **Some Literacy by 3 classroom practices were associated with campuses having higher than average growth in reading.** Specifically, more frequent use of phonics practices and greater utilization of Renaissance 360 assessments for assessing reading behaviors, developing reading groups and monitoring growth at a campus, were associated with the increased likelihood of a school experiencing above-average literacy growth.

- **One classroom practice was associated with a decreased likelihood of a campus experiencing above-average growth in literacy.** Campuses in which there was greater utilization of Snapshot Assessments for assessing reading behaviors, developing reading groups, and monitoring growth were less likely to exhibit above-average literacy growth.

- **Campuses with a greater proportion of economically disadvantaged students had a lower likelihood of exhibiting above- average literacy growth in the district.** However, the connection between the percentage of economically disadvantaged students and campus literacy growth was explained by the use of Literacy by 3 classroom practices.



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Study Purpose

The end of third grade is a critical point in the literacy development of students. Students who are reading on grade level by the end of third grade have higher reading achievement in later grades¹. Fourth- and fifth-grade students with better reading comprehension skills also have better applied mathematics skills². Additionally, students who are reading on grade level at the end of third grade are more likely to graduate³ and attend college⁴, indicating that early literacy has a long-lasting and persistent influence on students' educational trajectories.

In the 2014-2015 school year, HISD implemented Literacy by 3, a districtwide movement aimed to have all HISD students reading and writing at or above grade level by the end of third grade. Literacy by 3 was implemented in kindergarten through fifth grade classrooms throughout the district and provides guidance for teachers regarding how to organize their classrooms and instructional time. The Literacy by 3 framework recommends teachers spend 135 minutes of instructional time each day on literacy-related practices and includes recommendations related to six key components: guided reading, independent reading, read-alouds, word work/phonics, writing instruction, and data-driven instruction.

HISD was interested in assessing the extent to which the Literacy by 3 framework and its recommended practices are associated with growth in student literacy achievement. In particular, HISD was interested in those campuses at which the most growth in literacy was taking place. Therefore, the purpose of this study was to examine the relationship between Literacy by 3 classroom practices at a school and campus-level literacy growth. The purpose of this brief was to identify the Literacy by 3 instructional practices that occurred on campuses experiencing above-average growth in literacy, accounting for other factors also commonly associated with student literacy.

Research Questions

To better understand the relationship between Literacy by 3 classroom practices and campus-level literacy growth, this brief addresses two research questions:

1. Which Literacy by 3 classroom practices are associated with above-average campus growth in literacy scores?
2. To what extent are any gaps in literacy growth by campus characteristics (i.e., percent of economically disadvantaged status) explained by variations in average Literacy by 3 classroom practices among teachers at a campus?

Data and sample

Three sources of data were used for this study. The first was student-level, administrative data from HISD for the 2018-19 school year. The second data source was a fall 2018 teacher survey, which asked about Literacy by 3 practices and strategies used in the classroom. The third source of data was a survey administered to families of HISD elementary-aged students to understand their home literacy context.

¹ Lesnick et al., 2010; Stanley et al., 2018

² Rutherford-Becker & Vanderwood, 2009

³ Hernandez, 2012; Lesnick et al., 2010

⁴ Lesnick et al., 2010

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To measure campus literacy growth, we used student assessment data from the English Renaissance 360 at the beginning, middle, and end of the school year (BOY, MOY, and EOY, respectively). For each campus, two change scores were calculated, one for the BOY and MOY scores and one for the MOY and EOY scores. The two change scores were then averaged to determine the average literacy growth that occurred at each campus. The same method was used to create a measure of average literacy growth that occurred in the district. Campuses were then categorized into two groups, one comprised of campuses with growth that exceeded the district average and the other comprised of campuses with growth that did not exceed the district average.

Campus-level aggregate demographic characteristics were calculated using the 2018-19 Public Education Information Management System (PEIMS).

Teacher and parent responses from the two surveys administered in fall 2018 were aggregated to the campus-level to reflect average literacy practices among teachers and average literacy practices among families at home for a particular school.

Predictor variables

Four campus-level Literacy by 3 classroom practices from the teacher survey were included in the final models⁵:

- average frequency at which teachers use phonics strategies in their classrooms (scale ranges from 0 to 3)
- teachers' average use of Renaissance 360 to assess student reading behaviors, form reading groups, and monitor student growth (scale ranges from 0 to 3)
- teachers' average use of Snapshot Assessments to assess student reading behaviors, form reading groups, and monitor student growth (scale ranges from 0 to 3)
- percent of teachers that utilize round robin reading

One additional teacher characteristic measured from the teacher survey, the average number of years spent teaching in HISD, was also included in the models.

Previous research has found home literacy practices, including how frequently children read at home, is associated with literacy growth. Children who read, and are read to, more frequently at home for both school and fun, and who have more home support for literacy had higher reading achievement and performed better in school.^{6,7} The following home literacy practice was included in the final analysis⁸:

- average frequency at which child(ren) read for school (ranged from 0 to 4)

⁵ See Appendix 3 for full list of Literacy by 3 variables explored in these analyses. Other Literacy by 3 variables in the appendix did not have a significant relationship with above-average campus literacy growth.

⁶ Foertsch, 1992

⁷ Bus et al., 1995

⁸ See Appendix 4 for full list of home literacy variables explored in these analyses. Other home literacy variables in the appendix did not have a significant relationship with above-average campus literacy growth.

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Additionally, students from disadvantaged backgrounds are less likely to be “school ready” at kindergarten and often have lower reading achievement.⁹ The following campus-level demographic variable was included in the final analysis¹⁰:

- percent of students who were economically disadvantaged

The sample is restricted to elementary schools in which there is Renaissance 360 data to measure campus literacy growth, at least one teacher response to the survey about classroom Literacy by 3 practices, at least one parent response to the survey about home literacy practices, and campus-level demographic data. Given these data requirements, the final models explore literacy growth across 77 out of 179 elementary schools in HISD¹¹.

Analytic plan

To identify whether any literacy practices in the Literacy by 3 framework were associated with above-average growth in literacy at a campus, the first part of this analysis examined the relationship between classroom literacy practices and above-average literacy growth at the campus level. To ensure that the relationship between Literacy by 3 classroom practices and above-average literacy growth was not explained by variations in home literacy practices, this analysis controls for student reading behaviors at home. The final analysis examines variation in above-average literacy growth by campus characteristics, with subsequent models including indicators of Literacy by 3 classroom practices to assess whether any of these practices can reduce any observed literacy gap between campuses¹².

⁹ Whitehurst & Lonigan, 1998

¹⁰ See Appendix 5 for a full list of campus-level demographic variables explored in these analyses. Other campus-level demographic variables in the appendix did not have a significant relationship with above-average campus literacy growth.

¹¹ There is an increased possibility of error due to the small number of cases/campuses included in the analysis.

¹² See Appendix 1 for a more detailed discussion of the analytic plan

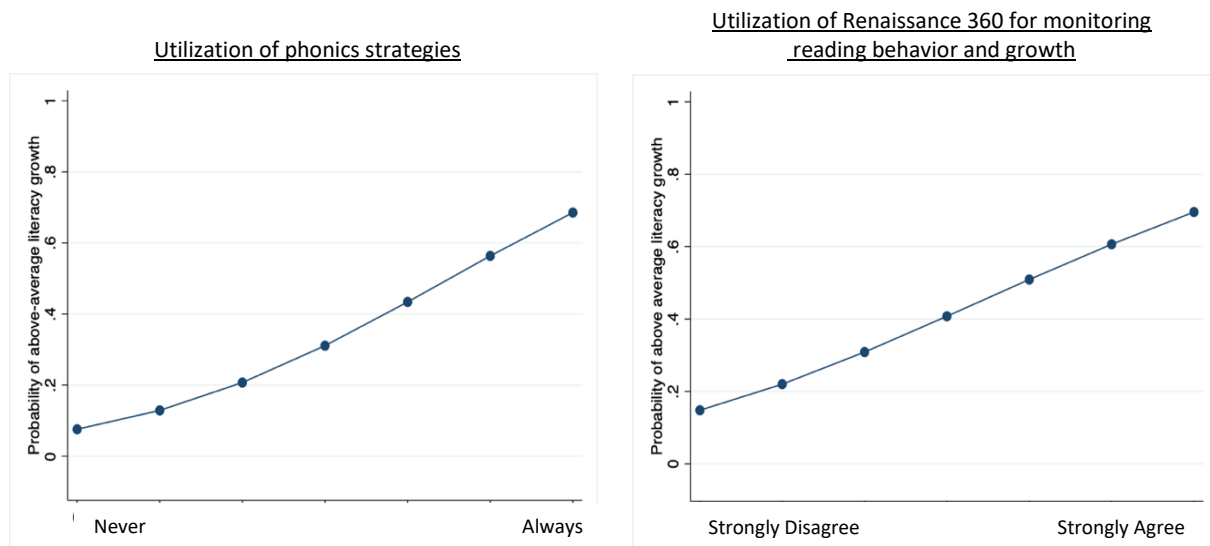
Key Findings

1

Three classroom practices and one home literacy practice were associated with a campus having above-average literacy growth.

Of the 77 campuses included in the sample, about half experienced above-average literacy growth. More frequent use of phonics strategies and greater utilization of Renaissance 360 assessments for assessing reading behaviors, developing reading groups, and monitoring growth, were associated with the increased likelihood of a school experiencing above-average literacy growth. As seen in Figure 1, the relationships between these Literacy by 3 practices and the likelihood of exceeding district average literacy growth are upward and linear: the more a campus utilized these practices, the higher the likelihood of having above average growth.

Figure 1: Expected probability of exceeding district average literacy growth, by classroom practice



One of the home literacy practices, frequency of reading for school, was aggregated at the campus level and added in the analysis as a control variable. The relationship was significant in the final model (Model 3). Students' more frequent school-related reading at home is significantly associated with the increased likelihood of a campus having above-average literacy growth. Therefore, this home literacy practice could explain some of the variation in campus literacy growth as well as the association between Literacy by 3 classroom practices and campus literacy growth.

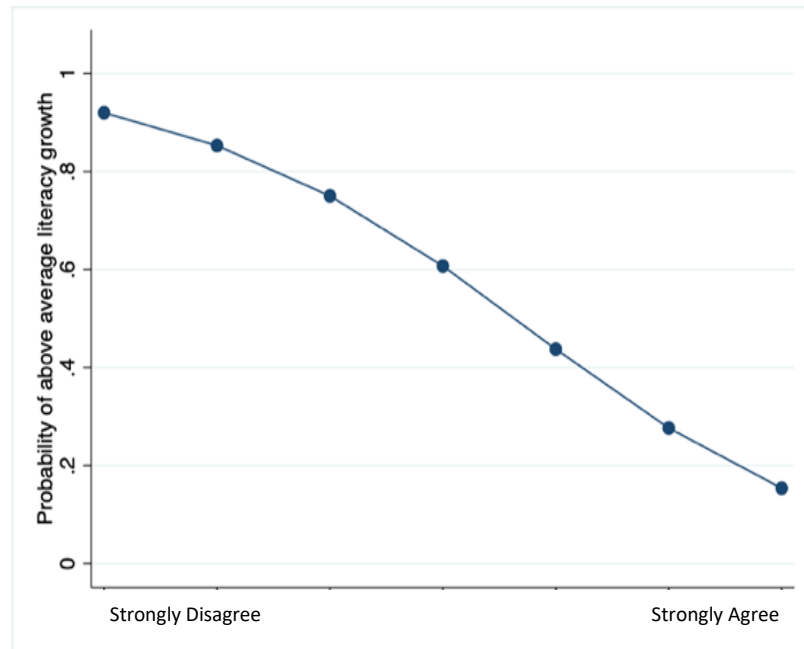
Key Findings

2

One classroom practice was associated with a decreased likelihood of a campus having above-average literacy growth.

Greater utilization of Snapshot Assessments for assessing reading behaviors, developing reading groups, and monitoring growth was associated with a decreased likelihood of exhibiting above-average literacy growth as shown by the downward slope of the line.

Figure 2: Greater utilization of Snapshot Assessments was associated with a decreased likelihood of exhibiting above-average literacy growth



Key Findings

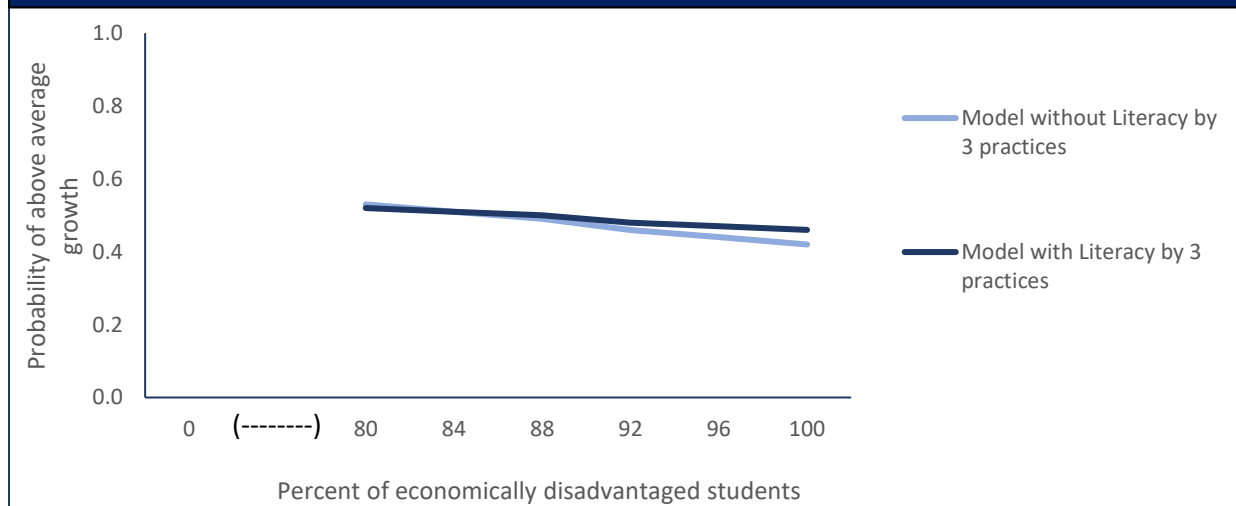
3

Campuses with more economically-disadvantaged students were less likely to have above-average literacy growth in the district. This connection between the percentage of economically-disadvantaged students and campus literacy growth was explained by the use of Literacy by 3 classroom practices.

Campuses with lower proportion of economically disadvantaged students were more likely to exhibit above-average literacy growth. As seen in Figure 2, as the percentage of economically disadvantaged students on a campus increases, the likelihood of a campus achieving above average literacy growth decreases.

*However, Literacy by 3 practices can reduce these gaps in the likelihood of above-average literacy growth, as shown in Figure 2. The light blue line represents the relationship between the proportion of economically disadvantaged students on a campus and the likelihood the campus experienced above average literacy growth. The downward slope suggests a negative relationship, in that as the proportion of economically disadvantaged students increases, the likelihood of above average literacy growth decreases. The dark blue line represents the relationship between the proportion of economically disadvantaged students on a campus and the likelihood of above average literacy growth, when accounting for variation in Literacy by 3 practices between campuses. The dark blue line appears flatter, or less steep, than the lighter blue line, demonstrating that **when accounting for the variation in literacy practices across campuses, the negative relationship between proportion of economically-disadvantaged students and above average literacy growth no longer exists.***

Figure 2: When accounting for Literacy by 3 practices, the relationship between percent of economically disadvantaged students and likelihood of above average literacy growth is decreased



Note: Though the analytic model (see Table 1) includes all campuses in this study, this figure shows only campuses where 80% or more of students were classified as economically disadvantaged, as a majority of campuses in this study are clustered in this range. The light blue line represents Model 2 (Table 1) and the dark blue line represents Model 3 (Table 1).

Conclusion and Recommendations

Conclusion

The purpose of this brief was to identify the Literacy by 3 instructional practices that occurred on campuses experiencing above-average growth in literacy. Recognizing that a host of other factors can also contribute to literacy growth, including students' home reading activities and school characteristics, this brief considers whether these instructional practices are related with literacy growth beyond these other factors. This brief suggests that utilization of certain Literacy by 3 classroom practices may improve campus likelihood of exhibiting above average literacy growth, and more importantly, reduce the literacy growth disparities between economically advantaged and less advantaged campuses.

Recommendations

Based on the findings presented above, the following are implications of this study and areas for potential teacher and home support:

Ensure all teachers have adequate training in literacy instruction that aligns with research. Current Literacy By 3 training and instructional materials should be aligned to the science of reading. The district has already undertaken further training efforts to better prepare teachers to make sure all practices are used correctly.

Outreach to teachers to understand why certain Literacy by 3 practices are not effective. Because of the mixed associations between different Literacy by 3 practices and campus literacy growth, it might be helpful to hear feedback from teachers and understand why some of the Literacy by 3 practices did not work as expected at the student level. It might be helpful to remove, or alter and re-examine, the practices that are less effective from the Literacy by 3 program.

Encourage and facilitate reading practices at home. As school-related reading at home is associated with campus literacy growth, it may be important for schools and teachers to encourage more reading activities at home, particularly those related to school curriculum and work. The district's current instruction directive of encouraging students to read 20 minutes a day at home could strengthen parental involvement in students' at-home reading activities. The district should consider ensuring parents and students are aware of free resources available to students, including those available through the Houston Public Library and through the district's technology applications.

1. Methods - Analytic Strategy

Literacy growth in this study was defined by averaging the change scores between BOY and MOY, and between MOY and EOY at the student level. The dependent variable, above average growth, was created by comparing campus average growth to district average growth. Within the 77 analytical samples, 39 campuses had growth scores that were above district average while 38 campuses were below district average growth scores. Due to the binary nature of the dependent variable, logistic regression models were estimated to predict the likelihood of exceeding district average growth at the campus level. The key predictor variables were Literacy by 3 practices. In exploring variables, we tested all the Literacy by 3 practices but retained a few due to their significant relationships with growth and non-multicollinearity nature.

Three models were explored (Table 1). The first model included only the Literacy by 3 practice variables with no controls. Results from the first model can be interpreted as the differences in the likelihood of exhibiting above-average literacy growth by utilization of the Literacy by 3 practices. In the second model, the campus characteristic variable (percent of economically disadvantaged students), teacher characteristic variable (number of years teaching in HISD) and home literacy practice variable (frequency of reading for school at home) were added in order to understand how the likelihood of being above-average literacy growth varied between campuses when controlling for the teacher characteristic and home literacy practice. Results from the second model can be interpreted as the differences in the likelihood of exhibiting above-average literacy growth by schools with differential level of economically disadvantaged students. The final model added the Literacy by 3 practice variables. The results from the final model show the relationship between the Literacy by 3 practices and the likelihood of a school exhibiting above-average literacy growth, while controlling for the teacher and home characteristics described above. Because the results from logistic regressions can be difficult to interpret, odds ratio were presented in the table.

To visualize the findings, the graphs in Figure 1 were produced based on the adjusted differences (Model 3) in the likelihood of the dependent variable (being above-average growth). Predictive margins/adjusted predictions of different levels of the Literacy by 3 practices were graphed to visualize how the likelihood changed with the practices. As seen in Model 3, the campus characteristic variable, the percent of economically disadvantaged students, became insignificant after controlling for Literacy by 3 practices. This change indicates that some of the variation in the likelihood of being above-average literacy growth explained by campus differences might be captured by the Literacy by 3 practices. To understand whether and how Literacy by 3 practices shaped the gaps in literacy growth between campuses, the predictive margins of exhibiting above-average literacy growth by different levels of the campus characteristic with and without Literacy by 3 practice variables were estimated based upon Model 2 and 3. The values of predictive margins for percent of economically disadvantaged students of the campuses from the two models were used to create Figure 2 to understand the patterns.

2. Table of Regression Model Estimates

Table 1. Odds ratio estimated from logistic regression models

Predictor	Model 1	Model 2	Model 3
Frequency in which teachers use phonics strategies	1.87		4.20*
Use of Renaissance 360 assessment	1.81		3.46 ⁺
Use of Snapshot assessment	0.25*		0.15**
Percent of teachers utilizing round robin reading	2.12		3.47
Percent of economically disadvantaged students		0.98*	0.98
Number of years teaching in HISD		0.95	0.89*
Frequency in which child(ren) read for school		1.27	2.41 ⁺
N	77	77	77

Note: ⁺ < 0.1. **p* < 0.05. ***p* < 0.01.

3. Full list of questions from teacher survey about classroom literacy practices explored in these analyses:

Questions included in the final model:

1. Phonics Strategies (scale created from three questions):
 - a. After direct instruction for phonics/word work, how often do students have time to practice what they learned through work stations?
 - i. Response options: Never, Sometimes, Often, Always
 - b. After direct instruction for phonics/word work, how often do students have time to practice what they learned through independent reading?
 - i. Response options: Never, Sometimes, Often, Always
 - c. After direct instruction for phonics/word work, how often do students have time to practice what they learned through small group tables?
 - i. Response options: Never, Sometimes, Often, Always
2. Use of Renaissance 360 in the classroom (scale created from three questions):
 - a. I use Renaissance 360 to assess student reading behaviors.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - b. I use Renaissance 360 to form guided reading groups.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - c. I use Renaissance 360 to monitor reading growth.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
3. Use of Snapshot/District-Level assessments in the classroom (scale created from three questions):
 - a. I use HISD Snapshot/District-Level Assessments to assess student reading behaviors.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - b. I use HISD Snapshot/District-Level Assessments to form guided reading groups.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - c. I use HISD Snapshot/District-Level Assessments to monitor reading growth.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
4. Do you utilize round robin reading?
 - a. Response options: Yes, No
5. Including the 2018-19 school year, how many years have you been a teacher/teacher assistant/teacher specialist in HISD?
 - a. Free-response

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Questions not included in the final model:

1. Perceived curriculum support (scale created from four questions):
 - a. The structure and framework of the HISD ELA/SLA unit planning guides facilitate ease of planning.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - b. The “First 25 days” document supported my implementation of Literacy by 3.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - c. The instructional strategies outlined in the HISD unit planning guides provide support for my planning and delivery of instruction.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - d. The ELA/SLA unit planning guide is user friendly.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
2. Did you receive specialty training or certifications in literacy/English instruction?
 - a. Response options: Training, Certification
3. Teachers spend the recommended 135 minutes per day on literacy instruction (dichotomous variable created by summing the responses from six questions):
 - a. On average, how many minutes each day are devoted to small group instruction?
 - i. Free response
 - b. On average, how many minutes each day are devoted to writing instruction?
 - i. Free response
 - c. On average, how many minutes each day are devoted to phonics/word work?
 - i. Free response
 - d. On average, how many minutes each day are devoted to read-alouds?
 - i. Free response
 - e. On average, how many minutes each day are devoted to independent reading?
 - i. Free response
 - f. On average, how many minutes each day are devoted to mini-lessons?
 - i. Free response
4. Read-aloud strategies (scale created from seven questions):
 - a. I choose read-aloud books that align with ELA/SLA TEKS/Standards.
 - i. Response options: Never, Sometimes, Often, Always
 - b. I choose read-aloud books that will build students’ knowledge and vocabulary.
 - i. Response options: Never, Sometimes, Often, Always
 - c. I choose mentor texts that can be used for reading AND writing.
 - i. Response options: Never, Sometimes, Often, Always
 - d. I model and demonstrate comprehension strategies when I read.
 - i. Response options: Never, Sometimes, Often, Always

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- e. I encourage students to talk to classmates about the text.
 - i. Response options: Never, Sometimes, Often, Always
 - f. I encourage students to listen to their classmates about the text.
 - i. Response options: Never, Sometimes, Often, Always
 - g. I encourage students to think critically about the text.
 - i. Response options: Never, Sometimes, Often, Always
5. Use of Benchmark Running Records in the classroom (scale created from three questions):
- a. I use Benchmark Running Records to assess student reading behaviors.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - b. I use Benchmark Running Records to form guided reading groups.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
 - c. I use Benchmark Running Records to monitor reading growth.
 - i. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
6. English/Spanish Language Arts TEKS are a common thread throughout my daily literacy block.
- a. Response options: Strongly Disagree, Disagree, Agree, Strongly Agree
7. How often do you meet with Tier 2 students?
- a. Response options: Never, A few times a month, 1x week, 2-3x a week, Every day
8. How often do you meet with Tier 3 students?
- a. Response options: Never, A few times a month, 1x week, 2-3x a week, Every day
9. How often do you meet with students one-on-one for feedback for writing?
- a. Response options: Daily, A few times a week, Once a week, A few times a month
10. How often do you use mentor text to teach authors' craft?
- a. Response options: Daily, A few times a week, Once a week, A few times a month
11. Do you provide individualized instruction while students are reading?
- a. Response options: Yes, No
12. Comfort level with administering various aspects of Literacy by 3 (scale comprised of eight questions):
- a. Comfort level with administering small group guided reading?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - b. Comfort level with administering mini-lessons?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable

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- c. Comfort level with administering teacher read aloud?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - d. Comfort level with administering independent reading?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - e. Comfort level with administering literature circles/book clubs?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - f. Comfort level with administering word work/phonics?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - g. Comfort level with administering writing instruction?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
 - h. Comfort level with using data to make decisions?
 - i. Response options: Extremely comfortable, Mostly comfortable, Somewhat comfortable, Not very comfortable
13. Perceived value of professional development opportunities (scale created from eight questions):
- a. The information I learned during Foundation of Literacy by 3 training prepared me to implement Literacy by 3 in my classroom.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - b. The running record training provided an opportunity to practice administering a running record.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - c. The running record training helped me to learn how to analyze student reading behaviors.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - d. The Literacy Summit 2017 provided me with literacy instructional practices that I could implement in my classroom.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - e. The HISD Literacy by 3 video resources are a useful model for good literacy instructional practices.
 - i. Response options: Strongly agree, Agree, Disagree, Strongly Disagree
 - f. The Literacy by 3 lead teachers on my campus provide valuable support.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - g. The Literacy by 3 lead teachers on my campus provide information about best literacy practices.
 - i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree
 - h. I utilize non-HISD literacy resources to improve my literacy instruction.

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- i. Response options: Strongly Agree, Agree, Disagree, Strongly Disagree

14. Did you receive specialty training or certifications in elementary education?

- a. Response options: Training, Certification

15. Have you ever attended the Foundations of Literacy by 3 training offered by HISD?

- a. Response options: Yes, No

4. Full list of questions from parent survey about home literacy practices explored in these analyses:

Questions included in the final model:

- 1. Consider {{CHILD}}'s reading habits at home, how often does he/she read for school?
 - a. Response options: Never, Once a month, 2-3 times a month, Once a week, Daily

Questions not included in the final model:

- 1. What language do you speak most frequently with {{CHILD}} at home?
 - a. Response options: English, Spanish, Other (please specify)
- 2. Consider {{CHILD}}'s reading habits at home, how often does he/she read for pleasure on their own (independently)?
 - a. Response options: Never, Once a month, 2-3 times a month, Once a week, Daily
- 3. Consider {{CHILD}}'s reading habits at home, how often does he/she read with a parent/other adult?
 - a. Response options: Never, Once a month, 2-3 times a month, Once a week, Daily
- 4. Since the beginning of the school year, have you received any communication from {{CHILD}}'s teacher regarding child's reading progress?
 - a. Response options: Yes, No
- 5. Since the beginning of the school year, have you received any communication from {{CHILD}}'s teacher regarding tips to help child's reading skills?
 - a. Response options: Yes, No
- 6. When you consider the reading habits of any adults in the household, how often would you estimate that you or another adult has time to read for pleasure (e.g. magazines, newspapers, books, ebooks)?
 - a. Response options: Never, Once a month, 2-3 times a month, Once a week, Daily

5. Full list of campus-level demographic variables explored in these analyses:

Appendix

Variables included in the final model:

1. Percent of students at the school who were economically disadvantaged

Variables not included in the final model:

1. Percent of students at the school who identified as Black
2. Percent of students at the school who received special education services
3. Percent of students at the school who were English learners

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