

ESSA Tier 1 Efficacy Study of Imagine Language & Literacy - Brazosport ISD

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August 2022



JOHNS HOPKINS
SCHOOL *of* EDUCATION

**Center for Research and
Reform in Education**

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EXECUTIVE SUMMARY: ESSA Tier 1 Efficacy Study of Imagine Language & Literacy Brazosport ISD

Program Description

Imagine Learning's Imagine Language & Literacy is an online learning solution designed to build language and literacy skills among students in pre-K through sixth grade, and for English Learner students in pre-K through eighth grade. To improve reading achievement, Imagine Language & Literacy features explicit instruction in phonemic awareness, phonics, vocabulary, fluency, comprehension, grammar, and language development. The program aligns with national academic standards and prioritizes critical reading comprehension and language skills to promote skilled reading across subject areas. Instruction is delivered to students in personalized learning paths based on students' initial performance. Scaffolds support student learning. Formative checkpoints ensure students consistently work in their "zone of proximal development."

Research Design

Imagine Learning contracted with the Center for Research and Reform in Education (CRRE) at Johns Hopkins University to conduct a randomized controlled trial (RCT) of Imagine Learning's Imagine Language & Literacy program in Brazosport Independent School District that would meet Tier 1 evidence criteria for the Every Student Succeeds Act (ESSA) and *Meets Standards without Reservations* for the What Works Clearinghouse (WWC). Across five district elementary schools, half of English Language Arts (ELA) classrooms in Grades K-4 were randomly assigned to participate in Imagine Language & Literacy, while the other half of students were assigned to continue with business-as-usual instruction, with a total of 112 classrooms included in the study. The analyses used in this evaluation allowed us to determine whether students who used Imagine Language & Literacy improved their reading achievement more than control students, controlling for school effects, prior reading achievement, and other student covariates. All schools that used Imagine Language & Literacy were in the first year of program implementation.

The evaluation also examined teachers' perceptions of the Imagine Language & Literacy program through teacher questionnaire and interview responses. Teachers were asked about topics including ELA instructional practices, Imagine Language & Literacy program implementation, professional development, and overall program perceptions. Likert-scale items were used to collect data relating to teachers' perceptions of Imagine Language & Literacy. In addition, teacher interviews were conducted on a voluntary basis to obtain more detailed and nuanced teacher perceptions of the Imagine Language & Literacy program.

Study Sample

The present study sample included 1,440 Grades K-4 students across five elementary schools. About two-thirds of study students were Hispanic, and over 80% of students were classified as economically disadvantaged. Teacher questionnaire data were collected from 39 teachers, and three of those teachers also volunteered to participate in interviews.

Program Impact on Reading Achievement

Imagine Language & Literacy had a directionally positive, but statistically non-significant impact on student reading achievement in spring 2022, as measured by the Renaissance Star Reading assessment. Students who participated in Imagine Language & Literacy gained approximately 4 points more on the Star Reading assessment from fall 2021 to spring 2022 than did control students. Pearson correlations between Imagine Language & Literacy usage variables and reading achievement were generally small-to-moderate in magnitude, with statistically significant positive associations between usage and achievement found for Grades 1 and 3 students. Regression analyses similar to those used in the main impact analyses showed that Imagine Language & Literacy usage data were generally weakly to moderately positively associated with reading achievement scores. Quartile 4 Imagine Language & Literacy usage, which consisted of total program usage of greater than 25 hours, was associated with significantly larger reading achievement gains, in relation to control students. This finding provides support for encouraging Imagine Language & Literacy teachers and students to meet Imagine Learning's recommended usage guidelines of at least 20 total hours of program usage throughout the school year to maximize learning outcomes.

Teacher Perceptions

Teacher perceptions of Imagine Language & Literacy were generally very positive, especially in regard to perceptions of program impacts on student engagement and achievement, with more than 90% of program teachers agreeing that Imagine Language & Literacy had positive impacts on these two sets of student outcomes. Program teachers also expressed very positive overall perceptions of Imagine Language & Literacy, with nearly all (96%) teachers agreeing that they would recommend the program to other ELA/reading teachers. Teacher perceptions of professional development were slightly less positive, with approximately 75% of teachers agreeing that they found aspects of professional development helpful to implementation. In terms of program implementation, teachers generally reported using Imagine Language & Literacy mainly in whole-class or small-group instruction. Teachers generally perceived the Imagine Language & Literacy program very positively, but they did not perceive themselves as prepared or confident enough to fully implement the program.

ESSA Tier 1 Efficacy Study of Imagine Language & Literacy Brazosport ISD

Imagine Learning contracted with the Center for Research and Reform in Education (CRRE) at Johns Hopkins University to conduct a randomized controlled trial (RCT) that would meet Tier 1 evidence criteria for the Every Student Succeeds Act (ESSA) and *Meets Standards without Reservations* for the What Works Clearinghouse (WWC). The primary research interest was to evaluate in Brazosport ISD the implementation and impact of Imagine Language & Literacy on the reading achievement of students in Grades K–4. The study compared reading achievement, based on Renaissance Star Reading scores, of students randomly assigned to use Imagine Language & Literacy vs. a control group that continued with business-as-usual ELA instruction.

Imagine Language & Literacy is an online learning solution designed to build language and literacy skills among students in pre-K through sixth grade, and for English Learner (EL) students in pre-K through eighth grade. To improve reading achievement, Imagine Language & Literacy features explicit instruction in phonemic awareness, phonics, vocabulary, fluency, comprehension, grammar, and language development. The program aligns with national academic standards and prioritizes critical reading comprehension and language skills to promote skilled reading across subject areas. Instruction is delivered to students in personalized learning paths based on students' initial performance. Scaffolds support student learning. Formative checkpoints ensure students consistently work in their "zone of proximal development."

Research questions for this evaluation include the following:

1. Do students in Grades K–4 who use Imagine Language & Literacy achieve greater Renaissance Star Reading gains than students in Grades K–4 who do not use Imagine Language & Literacy?
2. How do changes in student outcomes achieved by subgroups of Imagine Language & Literacy students (based on gender, ethnicity, socioeconomic status, English language classification, special education classification, and prior achievement) compare to changes achieved by control group students?
3. Are changes in Imagine Language & Literacy participants' reading skills associated with how Imagine Language & Literacy is used (including time in the program, percentage of activities completed, and teacher practices)?
4. How do teachers incorporate Imagine Language & Literacy into their classroom instructional period?
5. To what extent do teachers implement Imagine Language & Literacy with fidelity?
6. What are teachers' perceptions of Imagine Language & Literacy?

Method

Research Design

The current study used a randomized-controlled trial (RCT) across five schools in the Brazosport Independent School District. Random assignment took place at the classroom level, such that each Grade K-4 classroom was randomly assigned to the treatment condition (Imagine Language & Literacy) or control condition (business as usual). Random assignment was balanced across schools, grades, and teachers. Teachers with two or more classes were assigned at least one class each to treatment and control conditions. All schools that used Imagine Language & Literacy were in the first year of program implementation.

Qualitative data were collected through an online teacher questionnaire that was administered to all intervention teachers, as well as through teacher interviews. Likert-scale questionnaire items were analyzed descriptively, and interview data were analyzed using qualitative analytic techniques (Miles & Huberman, 1994).

Participants

Brazosport Independent School District (ISD) is a suburban school district located in southeastern Texas, approximately 65 miles south of Houston. Brazosport ISD is a small- to medium-sized district that serves roughly 12,500 students enrolled in 19 schools, including 10 elementary schools, five middle/intermediate schools, three high schools and one learning center (Grades 3-12).

Quantitative sample. Initially, 112 Grades K-4 classrooms across five elementary schools were randomly assigned to either participate in Imagine Language & Literacy or continue business-as-usual instruction. Table 1 shows the counts of treatment condition by grade level and students across all five elementary schools.

Table 1
Grade-level classes and student sample sizes

	Language & Literacy Class <i>N</i>	Language & Literacy Student <i>N</i>	Control Class <i>N</i>	Control Student <i>N</i>
Grade K	10	179	9	172
Grade 1	11	173	11	188
Grade 2	11	192	12	221
Grade 3	12	206	12	183
Grade 4	12	209	12	176
Total	56	959	56	940

The student treatment sample included 959 students in 56 classrooms who were initially assigned to receive Imagine Language & Literacy instruction, along with 940 students in 56 classrooms who were initially assigned to receive business-as-usual instruction. Table 2 shows student characteristics of the analytic sample, which was defined as students with non-missing pretest (beginning of year) and posttest (end of year) Renaissance Star Reading scores.

Table 2
Student characteristics for analytic sample¹

	Language & Literacy	Control
% White	18.23	20.11
% Hispanic	68.42	68.07
% Black	8.73	6.83
% Economically disadvantaged	84.60	80.42
% Students with IEPs	16.56	16.58
% English learners	9.50	11.30
<i>N</i>	779	761

Note. *p* values > .05 across all demographic variables.

Nearly 70% of students in both conditions were Hispanic, followed by White (around 20%) and Black (less than 10% of students). In all, treatment and control conditions were not significantly different on any of the demographic variables to which we had access.

Teacher sample. A total of 48 treatment teachers across Grades K-4 in five elementary schools were invited to complete the questionnaire. A total of 39 teachers completed the survey, yielding a relatively high 81.3% response rate. Most teachers were experienced teachers with six or more years of teaching experience, and two-thirds of teachers stated that they had been in their current positions for at least six years. In addition, all teachers who completed the questionnaire were invited to participate in an interview regarding their personal perceptions of the Imagine Language & Literacy Program. Three elementary school teachers volunteered to participate in these interviews.

Measures

Data sources for the current study include an ELA achievement measure (Renaissance Star), as well as student-level Imagine Language & Learning program usage data from the 2021-22 school year. Teacher data included Likert-scale items relating to their perceptions of the Imagine Language & Literacy program, as well as a teacher interview.

¹ Percentages may not add up to 100% due to rounding error.

Renaissance Star Reading. The Renaissance Star Reading assessment was administered to all students in the current study in the fall and spring of the 2021-22 school year. Renaissance Star Reading is designed as an English Language Arts assessment for students in Grades K-12. Star Reading was designed to track students' reading and language arts levels, as well as identify students' zones of proximal development for independent reading practice. The Star Reading assessment tracks ELA growth and overall progress. Star Reading scores are vertically scaled and can range from 100-1300.

In addition, most kindergarten students were administered the Star Early Literacy assessment. The Star Early Literacy assessment is designed to test students on a variety of reading, language and vocabulary, and numeracy skills. Reading skills tested on the Star Early Literacy assessment include Print Concepts, Phonological Awareness, Phonics and Word Recognition, Fluency, and Vocabulary Acquisition and Use. The Star Early Literacy assessment is designed for Grades K-3, although its use in Brazosport ISD was limited to mostly Grade K and a small number of Grade 1 students. Star Early Literacy scores are vertically scaled in the same manner as are Star Reading scores, so that scores from both assessments can be interpreted on the same scale and thus, directly compared with each other. This allowed us to analyze Star Early Literacy scores together with Star Reading scores in the same sets of analyses.

Imagine Language & Literacy usage data. Imagine Learning provided CRRE with usage data from the Imagine Language & Literacy program. Usage metrics included the total hours of Imagine Language & Literacy usage throughout the school year, along with weeks of active usage. Counts of attempted and passed Imagine Language & Literacy lessons were also included. We chose to use these four usage metrics in our quantitative analyses.

Teacher questionnaire. The teacher questionnaire was administered to teachers of Imagine Language & Literacy students in the 2021-22 school year. Questionnaire items consisted exclusively of yes or no, select all that apply, and Likert-scale items; no open-ended items were included on this questionnaire. Questionnaire items covered topics including prior experience with digital learning, Imagine Language & Literacy program implementation, general reading instruction practices, professional development related to Imagine Language & Literacy, and overall perceptions of the Imagine Language & Literacy program. A copy of the full teacher questionnaire can be found in Appendix A.

Teacher interview. Three elementary school teachers, one each from grades K, 2, and 3 who were implementing Imagine Language & Literacy volunteered to be interviewed as part of this evaluation. The interviews, conducted in May–June 2022 sought to obtain personal reactions to the program, its benefits for students, strengths and weaknesses in implementation, and recommendations for improvement. A copy of

the teacher interview protocol can be found in Appendix B, and a summary of the information collected during these interviews can be found in Appendix C.

Analytical Approach

Hierarchical linear modeling (HLM) with students nested within classrooms was used to examine differences in the Spring 2022 Renaissance Star Reading achievement between Imagine Language & Literacy students and control students, controlling for the Fall 2021 Renaissance Star Reading achievement and other covariates. Because clusters were randomly assigned to classrooms within schools, we also added dummy variables for each school and grade, in accordance with WWC (2020) standards. This was done to create the cleanest comparison of Imagine Language & Literacy students, in relation to control students, while also controlling for school and grade effects.

To examine associations between Imagine Language & Literacy usage and students' achievement gains, we conducted analyses similar to the main impact analyses in which the Imagine Language & Literacy (treatment) indicator variable was replaced with one of the available Imagine Language & Literacy usage variables. These variables allowed us to examine which usage variables were associated with gains on Imagine Language & Literacy students' reading achievement, in relation to that of control students. Student achievement data were analyzed using quantitative analysis software (Stata v. 17.0), while quantitative survey data were analyzed using SPSS.

Achievement Results

We analyzed patterns of ELA achievement for Imagine Language & Literacy and control students, as well as usage patterns and associations between Imagine Language & Literacy usage and achievement. We will begin by descriptively analyzing ELA achievement score gains from fall of 2021 to spring 2022, followed by regression analyses controlling for prior achievement and demographics. This will be followed by Imagine Language & Literacy usage descriptives, Pearson correlations between usage metrics and spring 2022 ELA achievement, and regression analyses controlling for prior achievement and demographics.

Impacts on Student ELA Achievement

Fall 2021 and spring 2022 average Renaissance Star Reading scores for Imagine Language & Literacy and control students, by grade, are shown in Table 3. It is important to note that Grade K students completed the Star Early Literacy assessment, while all other grades completed the Star Reading assessment. Only students with non-missing fall and spring test scores are included in this set of analyses.

Table 3
Mean Renaissance Star Reading scores by grade

	Fall 2021	Spring 2022	Mean Change
Grade K (Early Literacy only)			
Imagine Language & Literacy (<i>n</i> = 96)	670.85	791.80	120.95
Control (<i>n</i> = 113)	674.04	785.48	115.44
Grade 1			
Imagine Language & Literacy (<i>n</i> = 119)	735.45	853.71	118.26
Control (<i>n</i> = 148)	731.61	846.57	114.96
Grade 2			
Imagine Language & Literacy (<i>n</i> = 181)	826.62	909.94	83.32
Control (<i>n</i> = 175)	831.59	914.12	82.53
Grade 3			
Imagine Language & Literacy (<i>n</i> = 184)	889.14	959.60	70.46
Control (<i>n</i> = 155)	897.30	955.90	58.60
Grade 4			
Imagine Language & Literacy (<i>n</i> = 199)	952.98	993.21	40.23
Control (<i>n</i> = 170)	964.21	1006.69	42.48

Score gains were generally comparable for both treatment and control students, with treatment students generally slightly outscoring control students. The biggest relative gains for Imagine Language & Literacy students were in Grade 3, where treatment students outgained control students by nearly 12 points. Treatment students outgained control students by more than 5 points in kindergarten, and by nearly 5 points in Grade 1. Average score gains by school can be found in Appendix F.

Overall impacts. Overall, Imagine Language & Literacy showed a somewhat positive, though not statistically significant, impact on student ELA performance. Students who used Imagine Language & Literacy scored an average of more than 4 points higher on the Spring 2022 Renaissance Star Reading assessment than did otherwise similar control students. Table 4 summarizes the results of this analysis.

Table 4
Overall impact of Imagine Language & Literacy on Spring 2022 Renaissance Star Reading scores

Variable	Estimate	Standard Error	<i>p</i> value	Effect Size
Imagine Language & Literacy	4.288	3.639	.239	0.04
Constant	913.198***	2.646	<.001	
Variance of constant	152.687			
Residual	2352.065			
Student <i>N</i>	1533			
Class <i>N</i>	98			

Notes. 1. *** $p < .001$. 2. The model also controlled for FARMS, ELL, and SPED status, as well as student grade and school effects. 3. Variables were grand mean centered to facilitate interpretation of the constant.

Differential impacts by student subgroup. We conducted a series of analyses to examine whether Imagine Language & Literacy effects varied across different student subgroups. Complete regression tables related to subgroup analyses can be found in Appendix G. No differential impacts of Imagine Language & Literacy were found for students in different grades, schools, special education status, ELL students, or FARMS status.

Imagine Language & Literacy Usage

Imagine Learning tracked a series of Imagine Language & Literacy usage variables, including total hours and weeks of usage, as well as counts of lessons attempted, and lessons passed. Average counts of Imagine Language & Literacy usage variables, by grade, are shown in Table 5.

Table 5
Imagine Language & Literacy average usage, by grade

	Total Hours	Total Weeks	Attempted Lessons	Passed Lessons
Grade K ($n = 96$)	21.47	21.93	31.21	23.82
Grade 1 ($n = 118$)	22.20	24.30	48.07	39.42
Grade 2 ($n = 181$)	16.60	21.36	40.50	32.90
Grade 3 ($n = 183$)	20.14	21.95	54.08	44.49
Grade 4 ($n = 195$)	12.64	18.67	31.67	26.28

Note. Only students with non-missing pretest and posttest scores were included in this analysis.

Usage metrics were generally highest in Grades K, 1, and 3, with students averaging over 20 hours of active Imagine Language & Literacy usage in each of these grades. Grade 4 students, by contrast, averaged less than 13 hours of Imagine Language & Literacy usage. Imagine Learning recommends that students complete at least 20 hours of active usage across the entire school year, so Grades K, 1, and 3 students met recommended usage guidelines, on average. Average usage metrics by school are shown in Appendix D.

Associations between Imagine Language & Literacy usage and achievement. Next, we computed Pearson correlations between Imagine Language & Literacy usage variables and the Spring 2022 Renaissance Star Reading scores. Correlations are shown by grade level in Table 6.

Table 6

Associations between Imagine Language & Literacy usage metrics and Reading achievement

Grade	Total Hours	Total Weeks	Attempted Lessons	Passed Lessons
Grade K ($n = 96$)	+ .09	-.02	+ .04	+ .22
Grade 1 ($n = 118$)	+ .27**	+ .17	+ .35***	+ .35***
Grade 2 ($n = 181$)	-.08	-.03	-.05	+ .01
Grade 3 ($n = 183$)	+ .23**	+ .14	+ .21**	+ .24***
Grade 4 ($n = 196$)	-.05	-.03	-.04	+ .01

Notes. 1. ** $p < .01$; *** $p < .001$. 2. Only treatment students with non-missing pretest and posttest scores were included in these analyses.

Significant positive associations between Imagine Language & Literacy usage variables and spring 2022 reading achievement were evidenced for Grades 1 and 3 students. In both of these grades, total hours of usage, as well as counts of attempted and passed lessons, were significantly related with spring 2022 reading achievement, with magnitudes of these associations being slightly larger for Grade 1 students. None of the associations between program usage and achievement in Grades K, 2, and 4 were statistically significant. Magnitudes of associations were generally weak across grades, with magnitudes only exceeding .30 for Grade 1 students. This indicates that the associations found between usage and achievement were of limited practical significance, even with the statistically significant findings in Grades 1 and 3.

Regression analyses. Next, we report the results of analyses that examined the associations between Imagine Language & Literacy usage variables and students' Spring 2022 Renaissance Star Reading scores, while controlling for prior achievement and the same demographic, school, and grade variables included in previous analyses. The regression estimates can be interpreted as the expected increase in Spring 2022 Renaissance Star Reading score for every unit of the given usage variables. Imagine Language & Literacy usage was generally positively significantly associated with students' Star Reading achievement, with total usage hours and counts of attempted and passed lessons associated with spring 2022 reading achievement. Each hour of Imagine Language & Literacy usage was associated with slightly less than a half-point gain in Star Reading achievement ($p = .006$), while each attempted lesson was associated with a 0.17-point gain in Star Reading achievement, and each passed lesson was associated with a nearly quarter-point increase, in relation to control students who did not use Imagine Language & Literacy. Results of these analyses are displayed in more detail in Table 7.

Table 7

Association between Imagine Language & Literacy usage variables and Spring 2022 Renaissance Star Reading scores (n = 1533)

Usage Variable	Estimate	Standard Error	<i>p</i> value
Hours Usage	0.431**	0.156	.006
Weeks Usage	0.209	0.154	.173
Attempted Lessons	0.171**	0.059	.004
Passed Lessons	0.245**	0.072	.001

Note. ** $p < .01$.

We also conducted regression analyses using quartiles of Imagine Language & Literacy usage, in terms of hours of usage and their association with Renaissance Star Reading scores. The relationship between usage variables, as measured by total usage times and achievement gains is often nonlinear, so regression analyses that include usage quartiles can be used to help examine these potential nonlinear relationships. Results of these analyses are displayed in Table 8. Quartile 1 refers to the lowest quartile of Imagine Language & Literacy usage (least usage), while Quartile 4 refers to the highest quartile of Imagine Language & Literacy usage (most usage). Quartile 1 usage consisted of less than 9.34 hours of usage, while Quartile 2 usage ranged from 9.34 to 17.82 hours of usage, Quartile 3 usage ranged from 17.82 to 24.97 hours, and Quartile 4 usage was greater than 24.97 hours. Regression estimates can be interpreted as the average change in the Spring 2022 Renaissance Star Reading score associated with the usage quartile, in relation to control students.

Table 8

Association between Imagine Language & Literacy usage variables and Spring 2022 Renaissance Star Reading scores (n = 1533)

Usage Quartile	Estimate	Standard Error	<i>p</i> value
Quartile 1	-4.060	5.540	.464
Quartile 2	-0.847	5.040	.866
Quartile 3	7.500	5.025	.136
Quartile 4	13.703*	5.297	.010

Note. * $p < .05$.

Quartiles 3 and 4 of Imagine Language & Literacy usage were associated with spring 2022 reading achievement gains, with Quartile 4 usage students significantly outgaining control students by nearly 14 points. However, students in Quartiles 1 and 2 were outgained by control students, by 4 points and 1 point, respectively, although neither of these associations reached statistical significance. As Quartile 3 usage was defined as approximately 18-25 hours of total usage, and Quartile 4 usage was defined as greater than 25 hours of total usage, these results provide suggestive evidence that

usage that meets Imagine Learning's recommendations is most likely to result in significantly larger reading achievement gains.

Teacher Results

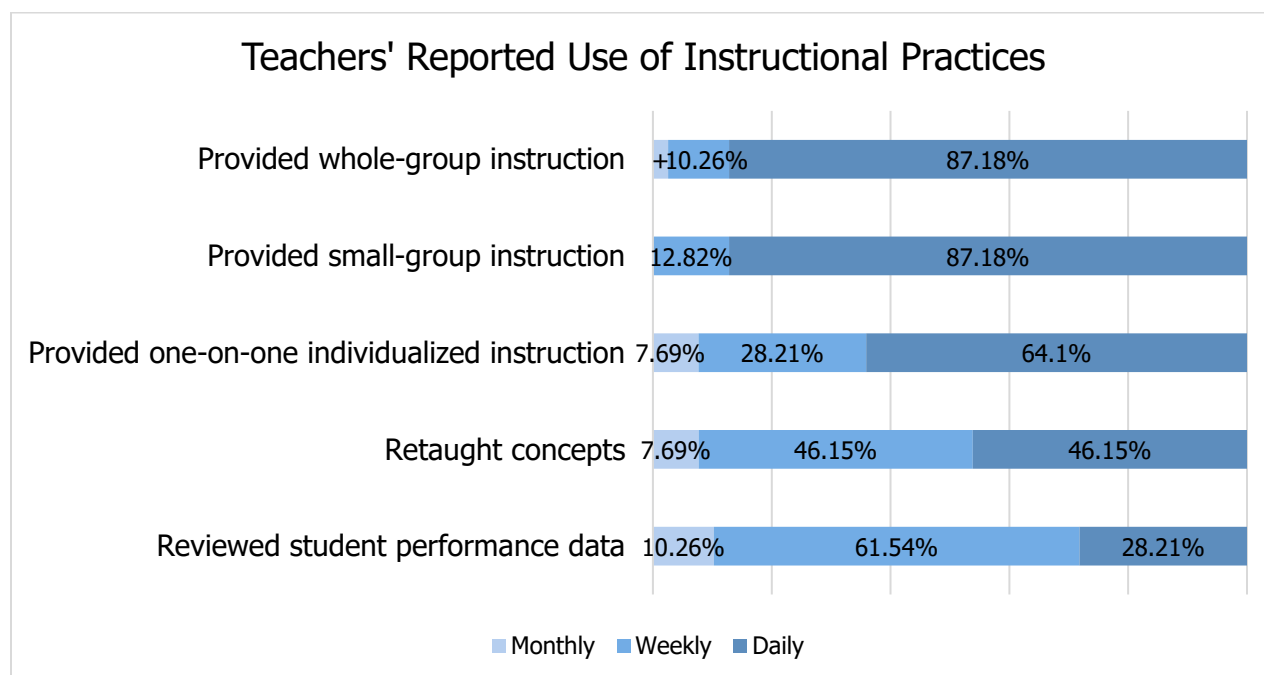
Major takeaways from teacher questionnaire responses are presented in the section below. We begin with findings pertaining to teacher backgrounds and implementation of the Imagine Language & Literacy program. These sections are followed by perceptions of student impact on engagement and achievement, then teacher perceptions regarding Imagine Language & Literacy.

Background

Respondents ($n = 39$) represented five different elementary schools within the district, and all identified primarily as classroom teachers who teach in a variety of grade levels, ranging from kindergarten to Grade 4. They were mostly veteran teachers with more than six years' worth of teaching experience. A minority (10.3%) reported having fewer than six years' teaching experience. Furthermore, most respondents (66.7%) identified as being in their current role for at least six years, with most ($n = 19$) having been in this role for 6–10 years.

Teachers reported on the types of instructional practices that they currently employ to support literacy skills for students in their typical ELA instruction (see Figure 1). The majority of teachers engaged in these instructional practices daily, with the exception of reviewing student performance data, which was most commonly reported as being a weekly practice (61.54%).

Figure 1
Teachers' reported use of instructional practices to support literacy



Note. +<5%.

With regard to comfort using digital learning programs specifically, responses were variable; most teachers reported that they were “very comfortable” using them, but nearly one-quarter of respondents ($n = 9$) indicated that they were “somewhat” or “very” uncomfortable with digital learning programs. This perhaps was related to the quality of the professional development administered to teachers.

Respondents also weighed in on the emphasis that they place on specific instructional practices within their reading lessons. Table 9 conveys these results.

Table 9
Emphasis placed on specific instructional practices in reading lessons

	No Emphasis	Minimal Emphasis	Moderate Emphasis	Strong Emphasis
Teach phonics, decoding, and word recognition.	2.56% ($n = 1$)	17.95% ($n = 7$)	12.82% ($n = 5$)	66.67% ($n = 26$)
Teach academic/domain specific vocabulary.	0.0% ($n = 0$)	2.56% ($n = 1$)	17.95% ($n = 7$)	79.49% ($n = 31$)

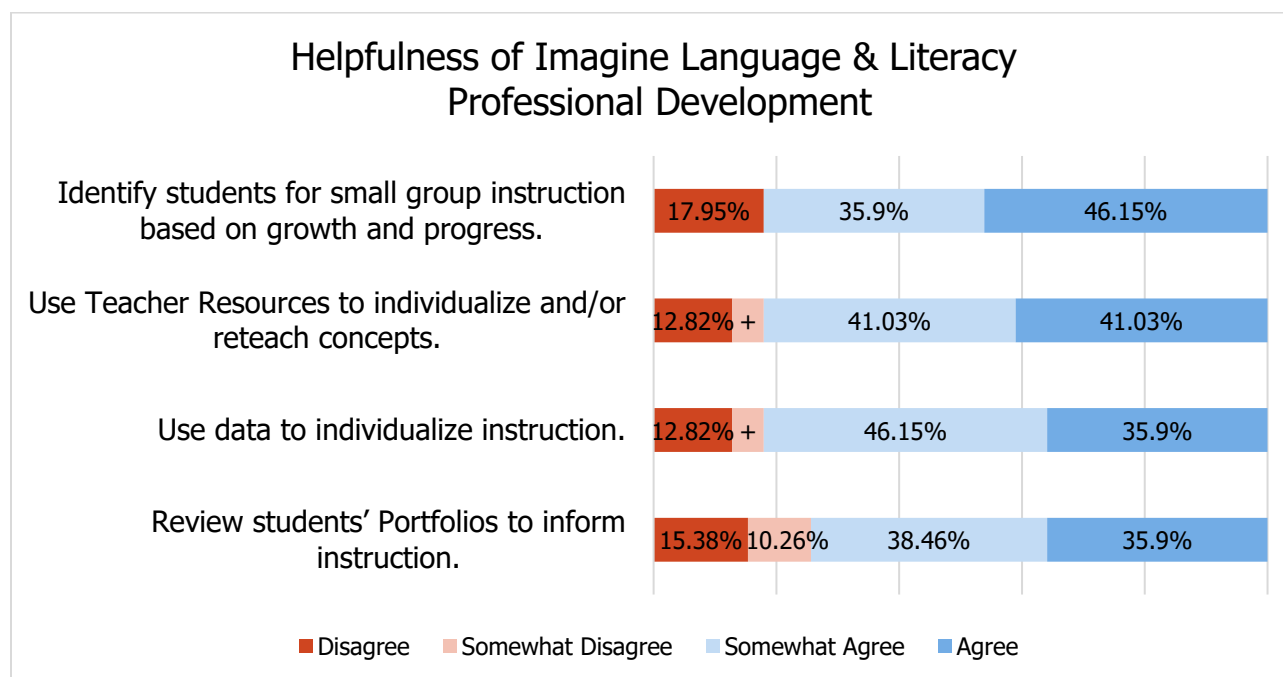
Teach meaning of word parts (e.g., prefixes, suffixes, affixes).	0.0% (<i>n</i> = 0)	2.56% (<i>n</i> = 1)	33.33% (<i>n</i> = 13)	64.1% (<i>n</i> = 25)
Build language competencies (e.g., shades of meaning, grammar, communication).	0.0% (<i>n</i> = 0)	2.56% (<i>n</i> = 1)	38.46% (<i>n</i> = 15)	58.97% (<i>n</i> = 23)
Encourage students to read-aloud to develop and monitor oral reading fluency.	0.0% (<i>n</i> = 0)	7.69% (<i>n</i> = 3)	15.38% (<i>n</i> = 6)	76.92% (<i>n</i> = 30)
Teach pre-reading (e.g., prior knowledge, making predictions), during reading (e.g., monitoring understanding, making inferences), and after reading (e.g., rereading, synthesizing) strategies.	0.0% (<i>n</i> = 0)	0.0% (<i>n</i> = 0)	7.69% (<i>n</i> = 3)	92.31% (<i>n</i> = 36)
Teach students to use text structure (e.g., narrative, description, cause and effect) to aid reading comprehension.	0.0% (<i>n</i> = 0)	5.13% (<i>n</i> = 2)	28.21% (<i>n</i> = 11)	66.67% (<i>n</i> = 26)
Teach students self-regulation skills (e.g., goal setting, self-monitoring).	0.0% (<i>n</i> = 0)	5.13% (<i>n</i> = 2)	43.59% (<i>n</i> = 17)	51.28% (<i>n</i> = 20)

Importantly, nearly all teachers indicated that they placed at least a moderate amount of emphasis on all but one of the instructional practices—teaching phonics, decoding, and word recognition—for which about 20% indicated there was minimal or no emphasis placed on this area. Only one of the practices—teaching pre-reading, during reading, and after reading strategies—was emphasized either moderately or strongly by all teachers. In addition, teachers placed the strongest emphasis on teaching academic/domain specific vocabulary and encouraging students to read aloud.

Professional Development

Teachers received professional development related to the Imagine Language & Literacy program, and the related questionnaire items sought to evaluate the helpfulness of this training. In particular, teachers were asked to indicate their level of agreement with the following statements (see Figure 2).

Figure 2
Teachers' perceived helpfulness of Imagine Language & Literacy Professional Development



Note. +<5%.

In this set of items (and all other Likert-scale items), percent agreement is defined as the percentage of teachers that somewhat agree or agree with an item, while percent disagreement is defined as the percentage of teachers who disagree or somewhat disagree with an item. Overwhelmingly, teachers agreed with each of the statements regarding the Imagine Language & Literacy professional development; however, there was some level of disagreement with each of the statements. The statement that the Imagine Language & Literacy PD helped teachers to “review students’ portfolios to inform instruction” had higher levels of disagreement at 25%. There was slightly stronger agreement (82%) with the statement that the professional development helped teachers to understand how to use teacher resources to individualize and/or reteach concepts and to identify students for small group instruction.

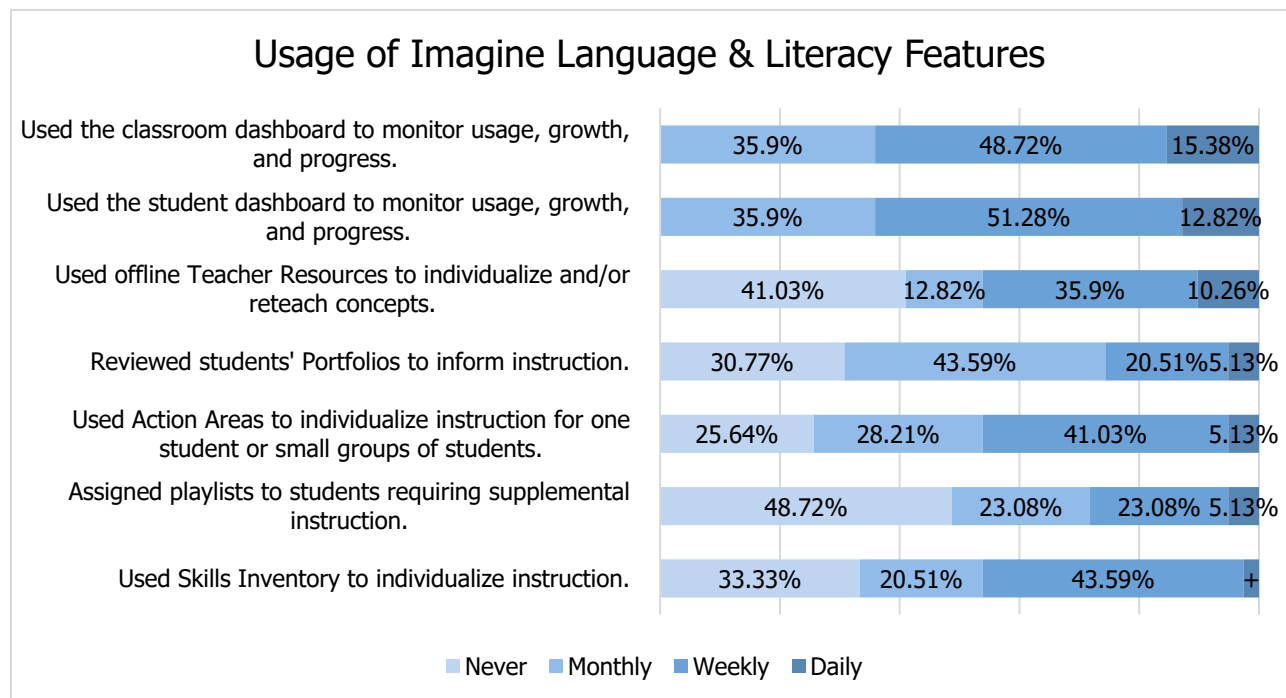
Program Implementation

Respondents were asked about their implementation of digital resources, other than Imagine Language & Literacy, to supplement learning during the 2021-22 school year. Answers varied, but most teachers identified HMH (Houghton Mifflin Harcourt) reading resources ($n = 38$) and Renaissance Star Accelerated Reader ($n = 36$) as being used prevalently in the classroom. There also were other programs that teachers

reported using, including Learning A-Z programs, IXL, Empowering Writers, and Renaissance Star myON, among others.

Regarding the implementation of Imagine Language & Literacy, teachers were asked to specify their usage frequency for specific aspects of the program. Figure 3 displays these results.

Figure 3
Teacher responses for frequency of usage for specific Imagine Language & Literacy features



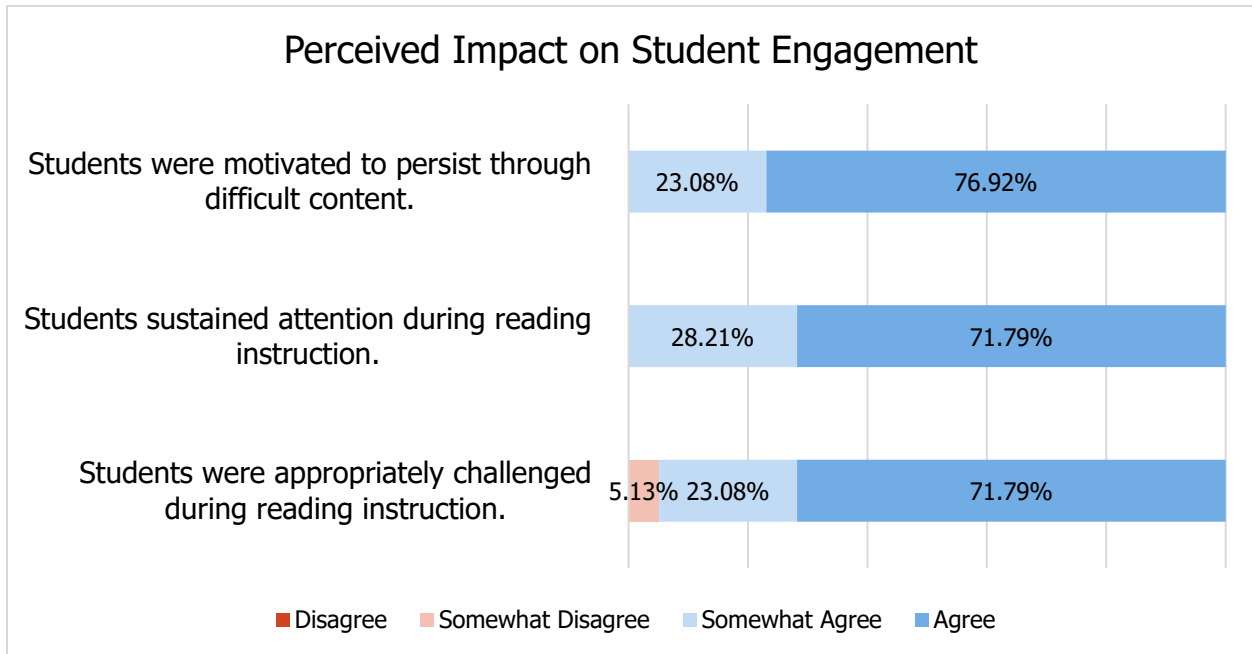
Note. +<5%.

Teachers reported the highest frequency usage for the classroom and student dashboards (15.38% and 12.82%, respectively, used these daily). The Action Areas, Skills Inventory, and student portfolios were used less frequently, and assigning playlists to students was most rare, with 48.72% ($n = 19$) of teachers reporting having never performed this action. Notably, at least 25% of teachers reported never using the offline resources, student portfolios, action areas, or the skills inventory.

Perceived Impact

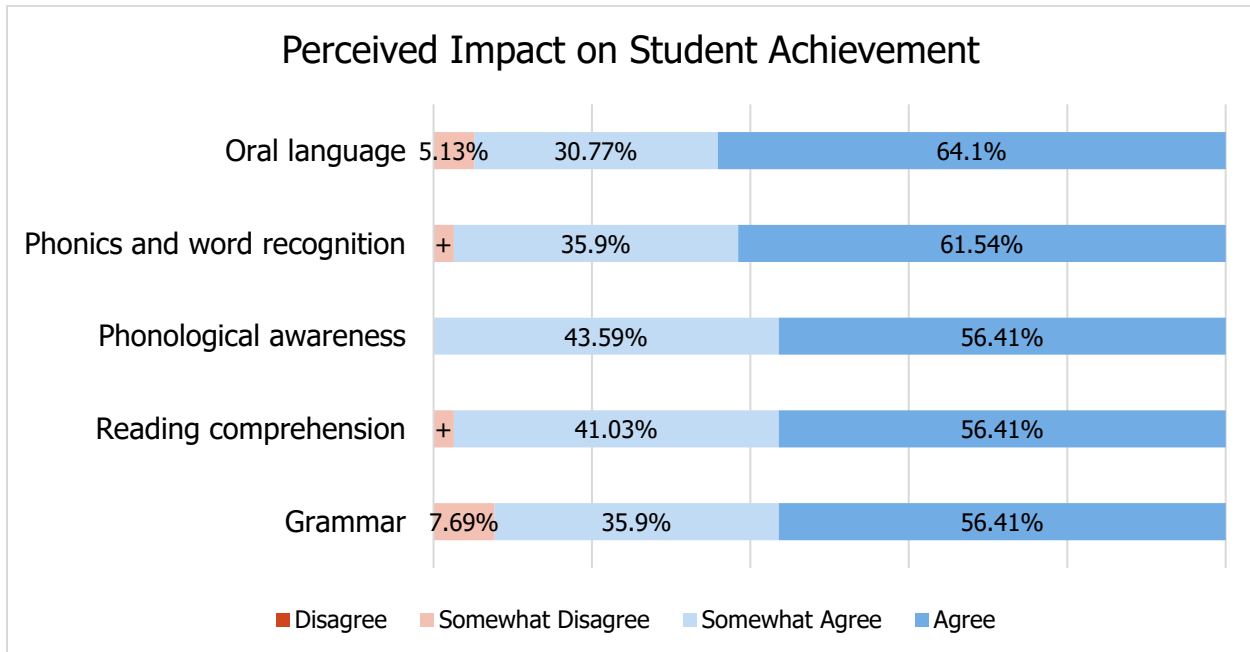
Teachers reported on their perceived impact that Imagine Language & Literacy had on learners in terms of engagement and student achievement. Largely, teachers found the program to challenge their students appropriately, sustain their attention, and motivate learners during reading instruction. Similarly, teachers felt that the program improved their students' reading abilities. Figures 4 and 5 detail these findings.

Figure 4
Teachers' perceived impact of Imagine Language & Literacy on student engagement



There is strong agreement among teachers that Imagine Language & Literacy positively impacts student engagement through motivation, sustained attention, and appropriateness of difficulty. No teacher respondents disagreed with the statements that learners were motivated to persist through difficult content or that students sustained attention during reading instruction. There was slight disagreement (5.13%) that students were appropriately challenged during the reading instruction. Similar to engagement, teachers found the program to benefit learners in terms of their achievement as well (see Figure 5).

Figure 5
Teachers’ perceived impact of Imagine Language & Literacy on student achievement



Note. +<5%.

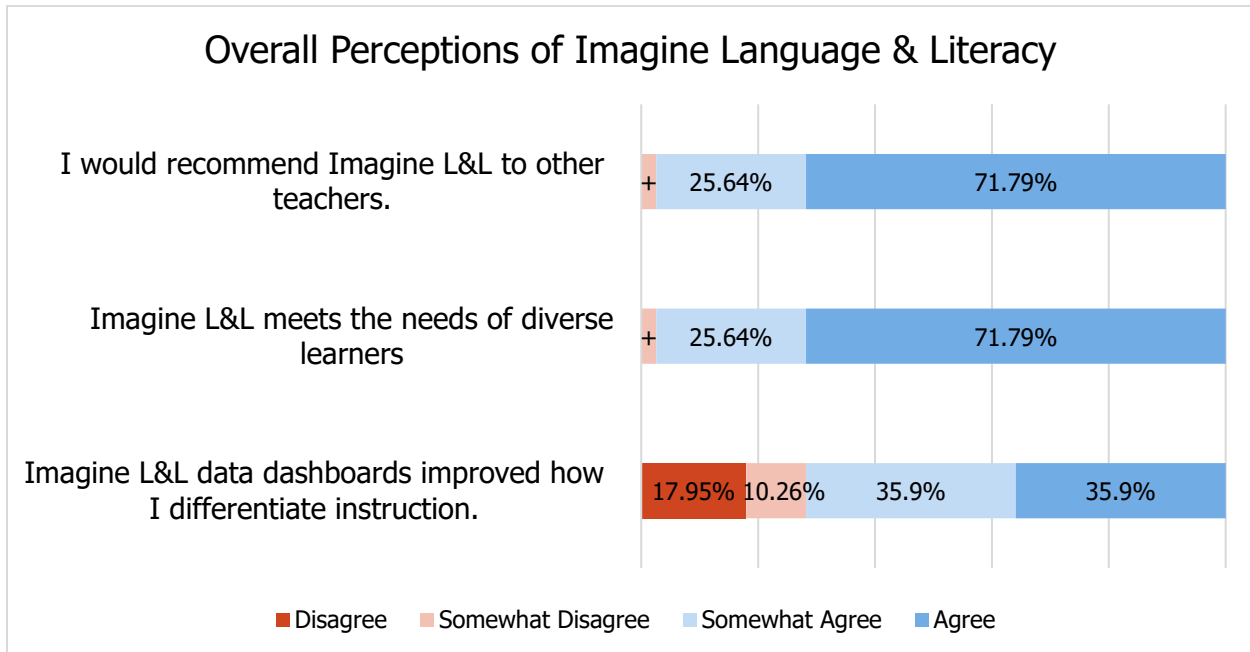
Teachers generally agreed that using Imagine Language & Literacy improved student achievement in all of these areas. Most predominantly, there was full agreement among respondents that Imagine Language & Literacy improved students’ phonological awareness.

Taken together, these findings underscore the teacher perceptions that Imagine Language & Literacy positively impacts both student engagement and achievement in reading instruction. Notably, there was close to unanimous agreement among teacher respondents that Imagine Language & Literacy led to an increased achievement on each of the reading skills, with phonological awareness slightly outperforming the other areas.

Overall Perceptions

Teachers were asked to provide their overall perceptions of the Imagine Language & Literacy program in terms of how the program improved instruction, how it met the needs of diverse learners, and whether respondents would recommend the program to others (see Figure 6).

Figure 6
Overall perceptions from teacher respondents regarding Imagine Language & Literacy



Note. +<5%.

There was some disagreement as to whether the data dashboard improved how teachers differentiated their instruction; more than one-quarter of teachers (28.21%) disagreed with this statement. However, teachers mostly agreed (97.44%) that the Imagine Language & Literacy program meets the needs of diverse learners and that they would recommend the program to other teachers.

Discussion

This study was designed to provide ESSA Tier 1 evidence of the efficacy of the Imagine Language & Literacy program on reading achievement for students in Grades K-4 by comparing treatment students who participated in Imagine Language & Literacy with those who did not. This report includes findings from student achievement and usage data, as well as teacher perceptions obtained through a questionnaire administered to Imagine Language & Literacy teachers, and additional perceptions obtained through teacher interviews.

Results showed that students participated in Imagine Language & Literacy outscored control students on the Spring 2022 Renaissance Star Reading assessment, but these gains did not reach statistical significance. Compared to control students, Imagine Language & Literacy students averaged an approximately 4-point larger gain on the Star Reading assessment from fall 2021 to spring 2022 than did control students. The effect size (.04 SD) was small and not practically significant.

Grade-level analyses of Imagine Language & Literacy usage indicated that usage metrics were highest in Grades K, 1, and 3, with students in each of these grades meeting Imagine Learning's recommended usage guidelines of 20 hours of total usage, on average. Usage metrics were considerably lower in Grade 4, with students averaging less than 13 hours of total usage. All other usage metrics, including counts of attempted and passed lessons, were also considerably lower for Grade 4 students than in other grades. Relatedly, Pearson correlations between Imagine Language & Literacy usage variables and achievement were generally weak-to-moderate, with significant positive associations found in Grades 1 and 3. However, regression analyses that controlled for prior reading achievement showed that usage variables were generally significantly positively related to achievement gains, with each hour of usage associated with slightly less than a half-point gain. Interestingly, only Quartile 4 of Imagine Language & Literacy usage was associated with significantly larger reading achievement gains relative to control students. This finding suggests that meeting Imagine Learning's recommended usage guidelines may be key to students and teachers maximizing the potential benefits of the Imagine Language & Literacy program.

Teacher perceptions of the Imagine Language & Literacy program were generally positive. Importantly, nearly all teachers (96%) agreed that they would recommend the program to other teachers. Teachers were especially positive regarding the effect of Imagine Language & Literacy on student engagement and achievement. All program teachers agreed that Imagine Language & Literacy helped students persist through difficult content and sustain attention during reading instruction, while over 90% of teachers agreed that Imagine Language & Literacy positively affected student achievement relating to oral language, phonics and word recognition, phonological awareness, reading comprehension, and grammar. These attitudes were also borne out in teacher interviews, with two teachers commenting on how Imagine Language & Literacy had a positive effect on student achievement, and one teacher specifically citing increased student engagement in her Imagine Language & Literacy classroom (see Appendix C for interview results).

Teacher perceptions of professional development relating to Imagine Language & Literacy were slightly more mixed. While at least 75% of teachers agreed that the professional development was helpful, 15-25% of teachers disagreed with individual questionnaire items relating to professional development and perceptions of readiness to implement Imagine Language & Literacy. Relatedly, teacher responses relating to suggestions for improving Imagine Language & Literacy nearly all cited more professional development, as well as more access to training materials or personnel who could be available to assist with program-related questions.

In considering the main conclusions from this study, it is important to consider that Imagine Language & Literacy was implemented during a year of learning disruptions caused by the ongoing COVID-19 pandemic, and teachers encountered many obstacles in preparing to use all of the program's many resources. Issues relating

to professional development and preparation could potentially help to explain the null achievement impacts and seems highly likely to explain why teachers used many of the program resources so minimally. It is important to note that teachers' attitudes toward the Imagine Language & Literacy program were generally very positive, especially as they related to student achievement and engagement, and teacher interviews indicated an enthusiasm for increasing their skills in fully implementing the program. The significant achievement advantages realized by frequent users (Quartile 4), who on average exceeded the recommended 20 hours of usage also suggest the potential for a high-fidelity program implementation to positively impact learning. Further evaluation is encouraged to examine Imagine Language & Literacy program impacts in subsequent years, as teachers gain more experience and familiarity with the program and pandemic disruptions continue to decline.

Appendix A: Teacher Questionnaire

ESSA TIER I EFFICACY STUDY OF IMAGINE LANGUAGE & LITERACY BRAZOSPORT ISD

Teacher Questionnaire

Background Information

1. Please indicate your school:

Freeport Elementary
Madge Griffith Elementary
T.W. Ogg Elementary
Gladys Polk Elementary
Velasco Elementary

2. What is your primary role?

Classroom teacher
Interventionist
Instructional Aide/Paraprofessional
Other please specify: _____

3. What grade(s) do you teach? Select all that apply.

Kindergarten
First Grade
Second Grade
Third Grade
Fourth Grade
Fifth Grade
Other (Please specify): _____

4. How many years have you been in a certified teacher (including this year)

1-2
3-5
6-10
11+
N/A

5. How many years have you been in your current role at your school (including this year)?

1-2
3-5

6-10
11+

6. About what percentage of students in your classrooms are ...? (Values must add up to 100%.)

Below-grade level learners
On-grade level learners
Above-grade level learners

Experience with Digital Learning

7. Did you use *Imagine Language & Literacy* during the previous academic (2020-21) year?

Yes
No

8. In general, how comfortable are you in using digital learning programs?

Very uncomfortable
Somewhat uncomfortable
Somewhat comfortable
Very comfortable

Program Implementation

The following questions ask about your instruction during the 2021/22 school year.

9. Did you use the following reading resources during the 2021/22 school year? Check all that apply.

Learning A-Z Programs (Raz-Kids, Reading A to Z)
Renaissance Star myON
Renaissance Star Accelerated Reader
Istation
IXL
Empowering Writers
HMH reading resources
Other (Please specify): _____

10. To support literacy skills for students, how often did you do the following?

	Never	Monthly	Weekly	Daily
Provided whole-group instruction.				
Provided small-group instruction.				

Provided one-on-one individualized instruction.				
Retaught concepts.				
Reviewed student performance data to individualize instruction.				

11. When implementing *Imagine Language & Literacy* during 2021/22, how often did you do the following?

	Never	Monthly	Weekly	Daily
Used the <i>classroom</i> dashboard to monitor usage, growth, and progress.				
Used the <i>student</i> dashboard to monitor individuals' usage, growth, and progress.				
Used <i>Action Areas</i> to individualize instruction for one student or small groups of students.				
Used <i>Skills Inventory</i> to individualize instruction.				
Reviewed students' <i>Portfolios</i> to inform instruction.				
Assigned playlists to students requiring supplemental instruction.				
Used offline <i>Teacher Resources</i> to individualize and/or reteach concepts.				

Reading Instruction

12. Below is a selected list of reading instructional practices that you may be using in your classes. How much emphasis, if any, do you place on the following instructional practices in your reading lessons?

	No emphasis	Minimal emphasis	Moderate emphasis	Strong emphasis
Teach phonics, decoding, and word recognition.				
Teach academic/domain specific vocabulary.				

Teach meaning of word parts (e.g., <i>prefixes, suffixes, affixes</i>).				
Build language competencies (e.g., <i>shades of meaning, grammar, communication</i>).				
Encourage students to read-aloud to develop and monitor oral reading fluency.				
Teach pre-reading (e.g., <i>prior knowledge, making predictions</i>), during reading (e.g., <i>monitoring understanding, making inferences</i>), and after reading (e.g., <i>rereading, synthesizing</i>) strategies.				
Teach students to use text structure (e.g., <i>narrative, description, cause and effect</i>) to aid reading comprehension.				
Teach students self-regulation skills (e.g., <i>goal-setting, self-monitoring</i>).				

Professional Development

13. Please rate the extent to which you agree or disagree with the following statements about *Imagine Language & Literacy* Professional Development.

<i>Imagine Language & Literacy</i> Professional Development helped me understand how to...	Disagree	Somewhat disagree	Somewhat agree	Agree
Identify students for small group instruction based on growth and progress.				
Use data to individualize instruction.				
Use <i>Teacher Resources</i> to individualize and/or reteach concepts.				
Review students' <i>Portfolios</i> to inform instruction.				

Teacher Perceptions

Attitude/Program Impact

14. Please rate the extent to which you agree or disagree with each of the following statements about your experience with *Imagine Language & Literacy*.

	Disagree	Somewhat disagree	Somewhat agree	Agree
<i>Imagine Language & Literacy</i> data dashboards improved how I differentiate instruction.				
<i>Imagine Language & Literacy</i> meets the needs of diverse learners.				
I would recommend <i>Imagine Language & Literacy</i> to other teachers.				

Student Achievement

15. Please rate the extent to which you agree or disagree with each of the following statements about the impact of *Imagine Language & Literacy* on your students.

Using <i>Imagine Language & Literacy</i> improved my students' . . .	Disagree	Slightly Disagree	Slightly Agree	Agree
Phonological awareness				
Phonics and word recognition				
Oral language				
Grammar				
Reading comprehension				

Student Engagement

16. Please rate the extent to which you agree or disagree with each of the following statements about student engagement with reading instruction.

	Disagree	Somewhat disagree	Somewhat agree	Agree
Students were motivated to persist through difficult content (online or in person).				
Students sustained attention (i.e., engagement) during reading instruction (online or in person).				
Students were appropriately challenged during reading instruction (online or in person).				

Appendix B: Teacher Interview Protocol

Imagine Language & Literacy Evaluation -- Teacher Interview Protocol

INTRODUCTION:

Hello. My name is [insert name] with the Center for Research and Reform in Education at Johns Hopkins University. Thank you for agreeing to be interviewed as part of our evaluation of the Imagine Language & Literacy program currently being used in your school.

The interview should take no more than 45 minutes. Your responses will be combined with those of others, and no information that could identify you will be reported.

We have approval for this study from the Johns Hopkins University Institutional Review Board. We would like to audiotape this interview for transcription purposes. With your permission, we will record our discussion, so we don't miss anything. Is that ok with you?

Do you have any questions before we start? Do you have any questions before we start?

Now, let's turn to our first topic— Imagine Language & Literacy *implementation* in your school.

1. How are you currently using Imagine Language & Literacy?
 - a. *If the following questions are not answered are not answered in response to #1, follow-up with these specific prompts:*
 - i. What period during the day is it used (ELA block, RTI block, etc.)?
 - ii. How many times per week are students using Imaging Language & Literacy?
 1. For approximately how many minutes each time?
 - iii. Do you use the data dashboard or action areas tool to identify students who need extra support?
 - iv. Do you use playlists or the activity explorer to assign students supplemental lessons?
 - v. Do you use any of the downloadable resources from Language & Literacy to reteach or support skills?
 - vi. Has your use of Language & Literacy changed across the school year?
2. Do you feel you were adequately prepared to use Imagine Language & Literacy? Why or why not?

Our next set of questions focus on the perceived *impact* of Imagine Language & Literacy.

3. Do you feel the program had a positive impact on student achievement (e.g., grades, test scores)? Why or why not?

4. To what degree does the program meet the needs of most of your students?
5. Does Imagine Language & Literacy increase the time available to you for teaching individual students or groups of students (or completing other relevant instructional activities)?
6. To what degree do students enjoy using Imagine Language & Literacy?
7. Do you feel online learning programs, like Imagine Language & Literacy, positively impact student learning? Why or why not?
8. Would you recommend this program to other educators? Why or why not?

Our last topic is about the *overall perceptions* of the program.

9. What do you see as the strengths of Imagine Language & Literacy? For teachers? For students?
10. What suggestions would you have to improve the program? For teacher use? For student use?
11. How would you compare your experience with Imagine Language & Literacy to other digital learning tools?
12. Is there anything else you would like to add?

Appendix C: Teacher Interview Results

How are you currently using Imagine Language & Literacy?

During interviews, teachers were asked a series of questions regarding their implementation of Imagine Language & Literacy in the classroom. Two reported that their students utilized the program five days a week while the third reported use three to five days per week. The average length of time that students used the program during any given session ranged from 15 to 30 minutes. Imagine Language & Literacy was frequently used during the morning, during ELA and RTI blocks although one teacher also utilized the program as a "To Do" item that students could work on at various times during the day. Two teachers shared descriptions of their experience as follows:

It's always in the morning during our ELA time. I use it to pull small groups so or I have them on it while I'm pulling small groups. It kind of keeps from interruptions and minimizes those during our small group time.

I use it as a rotation in my classroom in the mornings or something on their "to do" list for the day. They love getting on it. And then also our computer lab has to help get their minutes for the week. They use it for about 20 minutes each day but it depends.

The teachers frequently were not familiar with the features and/or had not utilized them to a great degree. One teacher stated, "I think there's so much more there that I would love to just dig into." When teachers were asked if they had utilized the data dashboard and action area tool features of the program their comments included, "No, I haven't. I'm not that familiar with them," and "[I]looked at data a few times...I wish I had remembered to look at it more." None of the teachers indicated that they had used either the playlists or the activity explorer to assign students supplemental lessons with one stating "I used the playlists a little bit, but not really."

Finally, teachers were asked about their use of downloadable resources from Imagine Language & Literacy to reteach or support skills. Again, use was limited or non-existent. One teacher regretted this saying that a lack of time limited her to using them, "a couple of times, not more like I wanted to. I found those very, very helpful." The other two teachers said they had not used these resources at all with one stating,

My school actually has an interventionist and she gives us a lot of material already. So that wasn't something we used from Imagine Learning...but I bet she would have liked to have known that there may have been a resource for her because she was actually making...the resources herself.

Has your use of Imagine Language & Literacy changed across the school year?

Two of the three teachers reported that their use of Imagine Language & Literacy had remained consistent throughout the school year. One elaborated by saying that while there were some weeks when program usage varied in her classroom, overall, she tried to be consistent and to see that students were logging in every week. The third teacher said that her use of the program changed over time, with usage increasing during the spring of 2022. She explained that when she began implementation in mid-October of 2021 her knowledge of the program was limited. As she learned how to make use of the student recording feature and the action area tools, overall usage increased.

Do you feel you were adequately prepared to use Imagine Language & Literacy? Why or why not?

Mixed perceptions of professional development were present in teacher interview responses, where only one of the three teachers interviewed believed they were adequately prepared to use Imagine Language & Literacy. This teacher attributed this to two things:

- **The initial professional development.** The teacher stated that she was given a lot of information at the start and said, "I feel like the training and the introduction meeting that we had; they really did do a great job explaining everything."
- **The Imagine Language & Literacy Help Desk.** She added that the Imagine staff had been helpful and always available, "you know, very, very attentive to any needs or problems." She also liked knowing that she always had access to the Help Desk and remembered that "I used the help desk for questions about getting a new student access ID added to my roster. That was successful."

The two teachers who did not feel adequately prepared to use the program indicated that this largely stemmed from the following:

- Their training was too brief.
- The initial training was held too early in relation to the time the program was implemented.

One teacher reported that she received a brief training in August 2021 but did not initiate program use until October of that year. She commented,

When we finally got it in October, I'd already forgotten what we've done in August...So I don't feel like I knew exactly how to use the data part of it. So my kids were using it, but I didn't wasn't necessarily getting anything from it in the beginning. But then once I figured out how to do that I was completely pleased with it."

The second teacher who did not feel prepared added that she would have preferred to have had a more intensive, in-person training vs. the online training that she received.

Do you feel the program had a positive impact on student achievement?

Teachers agreed that Imagine Language & Literacy had a positive impact on student achievement. Examples given included students mastering vowels, visuals offering support for ELLs, and students being highly engaged. One teacher commented, "I think they [the students] actually enjoy getting on [Imagine Language & Literacy]. So anytime there's something positive and a kid that can enjoy it, it's going to make an impact."

To what degree does the program meet the needs of most of your students?

Teachers also agreed that Imagine Language & Literacy met the needs of most of their students. One teacher described the success of the program for the struggling reader, the "middle of the road" reader, as well as the above-grade reader saying, "I feel like they just love it. I feel like it keeps them highly engaged as well." Comments from the other teachers included, "[E]ven my GT [gifted and talented] kids loved getting on it and they had fun with it because it was on their level. I think with it, being able to jump whichever level it needed to be as it helps them fill in their own gaps," and, "All of them were able to use it...Even my lower-level readers were able to use the program and it kept them on the level or leveled them up whenever they improved."

Does Imagine Language & Literacy increase the time available to you for teaching individual students or groups of students (or completing other relevant instructional activities)?

All three teachers were in agreement that Imagine Language & Literacy increased the time available to them for teaching individual students or groups of students or completing other relevant instructional activities. As one teacher said, "It really helped!" The most common explanations for this increase in available time were related and were:

- **Use of Imagine Language & Literacy minimized the number of interruptions to the teacher.** Each teacher reported that having students using Imagine Language & Literacy, particularly during small groups freed

them up to work one-on-one or in small groups with students needing more individualized instruction. One provided a description of this by saying:

I meet with small groups all day long in my guided reading groups, and that [Imagine Language & Literacy] was just was something else they [students] could do when they were away from me... So that was always on their "To Do" list, but then they could always go back and do it again...And I had weeks that some kids were getting 100 minutes on it and I was like, 'Cool, go! More power to you!'

- **Students were able to use the program independently.** The third teacher commented on the fact that Imagine Language & Literacy was “not something that I have to stand over them [students] and do.” She related that her students were comfortable logging themselves in from Google Classroom and she established team leaders who were tasked to inform her if any students ran into problems while using the program. This allowed her to focus her attention on her small group “or anything of that sort.” One teacher also mentioned that she liked that the program logged students out automatically. It saved her from having to set timers and track students while she was engaged in instruction.
- **Student recordings freed up more time during the school day.** Teachers were able to listen to recordings of students reading at times that were convenient to them, resulting in less time being taken out of the school day for this activity. One teacher stated, “Having the kids read and getting to hear them read...that takes so much time, and if I can take that home and listen to them, because it's recorded, it's a lot easier.”

To what degree do students enjoy using Imagine Language & Literacy?

The three teachers all provided very positive feedback when asked to what degree students enjoy using Imagine Language & Literacy with comments like, “They loved it, they loved it!” and, “I really feel like they like it.” Teachers indicated that their students enjoyed using the program, especially when they “leveled up” within the program or had the opportunity to create recordings of themselves. Teachers also noted that Imagine Language & Literacy did not any “pushback” from students, as another online literacy program had. Two teachers mentioned that their students had had previous experience with another program, which they “hated,” with one stating, “I have never had that attitude toward this program [Imagine Language & Literacy] ever.”

Do you feel online learning programs, like Imagine Language & Literacy, positively impact student learning? Why or why not?

The three teachers shared positive opinions regarding the ability of online learning programs to positively impact student learning with one saying, "I really do feel like it enhances their learning." In responding to the question, teachers identified one or more of the following strengths of online programs:

- **They empower students.** All three teachers noted that online programs help students to take ownership of their learning. Comments included, "[I]t holds them accountable. It gives them a sense of responsibility. They get to see their immediate feedback and the growth. So it gives them a sense of accomplishment," and:

I thought it was really neat, when we would get to like some digraphs. Or we would start diving into vowel teams and things like that. My students already knew some of them (from Imagine Language & Literacy) and they were like, 'we did this in Imagine Learning!' and I was so impressed with that.

- **They are engaging.** Two of the three teachers stated that online programs were engaging to students.
- **They provide teachers with additional resources.** One teacher stated that online programs provided teachers with the opportunity to avail themselves of a broad range of data resources that enabled the successful grouping of students for instruction, as well as other benefits.

Would you recommend this program to other educators? Why or why not?

Teachers were all in agreement that they would recommend Imagine Language & Literacy to other educators. Teacher comments included: "Yes. Because, like I said, the children were interested in it, which is always a bonus. Because if they want to do it, they're going to get more from it. And also, just because I've seen the growth and the kids that have been using it," and:

I would because it's all-around platform that has things that can be aligned with whatever you're using at your campus or district. It allows you to do small groups, allows you to do guided reading. It has supplemental materials that you can print off or use with students, you can give us like I say I did it as stations, so I will recommend it.

What do you see as the strengths of Imagine Language & Literacy? For teachers? For students?

Teachers were also asked in interviews to identify what they viewed as the strengths of Imagine Language & Literacy. They reported three main areas of program strength specifically for teachers:

- **Aligns with the curriculum.** A teacher noted that the program went “right along” with her school’s curriculum and that she added that, “I just really feel like it’s a good program for us to use.”
- **Engages students.** Throughout the interviews each of the teachers spoke to the engagement piece, saying that they all believed the program was successful in being fun to use and keeping their students engaged, particularly the recording feature. This engagement in independent learning time allowed the teachers devote more of their own time to various activities including providing instruction to students needing extra support. One teacher stated: “I think the kids were actively engaged in it, that’s, that’s always a positive. It was something that they enjoyed doing...I think it will be a benefit to all the students.”
- **Provides useful information on student progress.** One teacher said that she liked the student reports generated by the program, and the updates she received that indicated which students needed additional work in a given area.

What do you think is a main strength from the students’ point of view?

Teachers were also asked to name what they saw as a program strength from the students’ point of view. Teacher responses focused on two primary attributes:

- **Engagement/Interaction.** Students enjoyed using the program and found features such as being able to record themselves talking and reading very engaging. Teacher comments included, “I really like it, because like I said, it’s engaging, and it keeps their attention, and they’re learning so much with it.”
- **Opportunity to take responsibility and to accomplish tasks.** Teachers also believed that the program gave their students “a sense of accomplishment, responsibility, and allowed them to have that control and see their feedback.”

What suggestions would you have to improve the program? For teacher use?

Teachers were asked if they had any suggestions to improve the program for teacher use. One of the three had no suggestions to make. The remaining two teachers provided several suggestions for improving professional development:

- **Improve the scheduling, accessibility, and number of professional development (PD) sessions.** Teachers would like to have their initial PD session(s) delivered close to the date of implementation so that the information will be fresh in their minds when they go to use it. In answering the question, one teacher said, "I just wish we would have had a better training, more knowledge about everything the program implemented. That would have helped me as a teacher. But everything that I use, I didn't see any improvement needed."
- **Provide a more immediate check-in after initial program implementation.** This would address any issues that arise during that phase, allowing them to be solved quickly. One teacher stated that she did not receive any follow-up PD early on "and we were kind of left hanging until December...unless we emailed directly." The other teacher suggested that having a liaison or contact person available on campus would be helpful. She commented, "I know a lot of our programs have a contact person, that they're the teacher that we go to [with questions]. And if they can't answer the question, they contact the company." This same teacher concluded by saying:

I did hear we're supposed to be getting it [a contact person] for our campus next year, which I'm really excited about. For everyone else. So I'm hoping that's not just a rumor mill thing. So we won't know until the fall, obviously. But hope so. It's a good program.

- **Access to a teacher handbook.** One teacher stated that having access to a teacher handbook, "would have been nice." She added that having a handbook to reference "like an index of the programming" would have been a useful resource during implementation.

What suggestions would you have to improve the program? For student use?

Only one of the three teachers who were interviewed had any suggestions for improving the program for student use. This teacher recommended that at least some part of the program be adapted in order for visually impaired students to be able to use it.

How would you compare your experience with Imagine Language & Literacy to other digital learning tools?

When teachers were asked to compare their experience with Imagine Language & Literacy to other digital learning tools, they indicated that they liked Imagine

Language & Literacy over another reading program that they had used at their school. Reasons for this included the following:

- Students prefer Imagine Language & Literacy/Imagine Language & Literacy is more engaging to students
- Imagine Language & Literacy is more comprehensive than the other program
- Imagine Language & Literacy is an all-in-one program.

Teacher comments included, "I feel like imagine learning is more educational. I feel like it reaches more topics and things like that, it's great, and "I did like the all in one and then not having to pull from different things like YouTube and things like that. It kept [students] more focused and gave them a desire to try to level up and keep going."

Appendix D: Descriptive Statistics for Imagine Language & Literacy Usage

Table D1

Imagine Language & Literacy average usage, by school

	Total Hours	Total Weeks	Attempted Lessons	Passed Lessons
School 1 ($n = 152$)	18.00	20.81	37.30	29.45
School 2 ($n = 151$)	15.08	21.64	35.56	28.85
School 3 ($n = 217$)	16.73	18.30	34.05	27.27
School 4 ($n = 106$)	20.43	25.43	53.95	45.40
School 5 ($n = 147$)	20.58	23.12	53.89	44.88

Note. Only students with non-missing pretest and posttest scores were included in this analysis.

Appendix E: Tables to Meet ESSA Tier 1 Standards

Table E1

Summary of cluster attrition

C Cluster <i>N</i>	T Cluster <i>N</i>	<i>N</i> Randomized to C	<i>N</i> Randomized to T	Attrited C Clusters	Attrited T Clusters	Overall Cluster Attrition Rate (%)	Differential Cluster Attrition Rate (%)
48	50	56	56	8	6	12.50	3.57

Table E2

Summary of student attrition

C Student <i>N</i>	T Student <i>N</i>	<i>N</i> Randomized to C	<i>N</i> Randomized to T	Attrited C Students	Attrited T Students	Overall Student Attrition Rate (%)	Differential Student Attrition Rate (%)
761	779	940	959	179	180	18.90	0.27

Table E3

Baseline equivalence, Imagine Language & Literacy

	Overall Mean	Imagine Mean (SD)	Control Mean (SD)	Adjusted T v C Difference	Pooled Unadjusted SD	Stan. Mean Diff.
Grade K	672.57	670.85 (60.49)	674.04 (67.74)	-3.18	64.52	-0.05
Grade 1	733.32	735.45 (79.56)	731.61 (78.65)	4.25	79.06	0.05
Grade 2	829.06	826.62 (88.95)	831.59 (101.29)	-6.31	95.21	-0.07
Grade 3	892.87	889.14 (96.75)	897.30 (89.36)	-3.87	93.45	-0.04
Grade 4	958.15	952.98 (78.74)	964.21 (77.18)	-9.12	78.03	-0.11
All students	836.20	840.54 (126.87)	831.76 (132.73)	22.74	129.80	0.18

Note. Baseline assessment is the Fall 2021 Star Reading assessment (Grade K is Star Early Literacy).

Appendix F: Descriptive Statistics for Renaissance Star Reading Scores

Table F1
Mean Renaissance Star Reading scores by school

	Fall 2021	Spring 2022	Mean Change
School 1			
Imagine Language & Literacy ($n = 152$)	744.86	848.44	103.58
Control ($n = 124$)	733.47	820.21	86.84
School 2			
Imagine Language & Literacy ($n = 152$)	862.16	941.37	79.21
Control ($n = 173$)	869.87	940.87	71.00
School 3			
Imagine Language & Literacy ($n = 219$)	824.80	907.33	82.53
Control ($n = 166$)	830.53	916.29	85.76
School 4			
Imagine Language & Literacy ($n = 106$)	867.74	949.41	81.67
Control ($n = 201$)	823.91	915.66	91.75
School 5			
Imagine Language & Literacy ($n = 150$)	919.36	967.50	48.14
Control ($n = 97$)	907.84	955.62	47.78

Appendix G: Subgroup Analyses

All regression models controlled for prior reading achievement, grade, FARMS, and SPED status, as well as school effects. In addition, all variables were grand mean centered to facilitate interpretation of the intercept. Student and classroom sizes were identical to those outlined in previous regression tables. Note that the treatment effect for each subgroup was calculated by adding the overall treatment effect and the treatment interaction term. None of the treatment effects for any subgroups had p values less than .05, indicating no significant treatment effects for subgroups.

Table G1

Renaissance Star Reading regression results with SPED interaction

	Estimate	Standard Error	p value
Imagine Language & Literacy	6.861	3.819	.072
Imagine*SPED	-15.459*	6.985	.027
SPED	-22.577***	5.091	<.001
Constant	923.771***	2.653	<.001

Note. * $p < .05$; *** $p < .001$.

Table G2

Renaissance Star Reading regression results with FARMS interaction

	Estimate	Standard Error	p value
Imagine Language & Literacy	8.150	6.845	.234
Imagine*FARMS	-4.620	6.933	.505
FARMS	-11.436*	4.819	.018
Constant	913.032***	2.660	<.001

Note. * $p < .05$; *** $p < .001$.

Table G3

Renaissance Star Reading regression results with ELL interaction

	Estimate	Standard Error	p value
Imagine Language & Literacy	3.686	3.779	.329
Imagine*ELL	5.817	9.613	.545
ELL	-7.961	6.869	.246
Constant	913.265***	2.653	<.001

Note. *** $p < .001$.

Table G4

Renaissance Star Reading results with grade-level interactions

	Estimate	Standard Error	<i>p</i> value
Imagine Language & Literacy (Grade 4)	-3.837	7.094	.589
Imagine*Grade K	13.629	12.307	.268
Imagine*Grade 1	14.123	11.228	.208
Imagine*Grade 2	2.563	10.361	.805
Imagine*Grade 3	15.404	10.277	.134
Constant	913.099***	2.623	<.001

Note. *** $p < .001$.

Table G5

Renaissance Star Reading regression results with school-level interactions

	Estimate	Standard Error	<i>p</i> value
Imagine Language & Literacy (School 5)	3.912	8.460	.644
Imagine*School 1	11.752	12.094	.331
Imagine*School 2	4.307	11.455	.707
Imagine*School 3	-7.986	11.068	.471
Imagine*School 4	-3.186	11.949	.790
Constant	913.208***	2.615	<.001

Note. *** $p < .001$.