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Impact Evaluation of Imagine Language & Literacy® in a Florida Public School District

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Contents

Abstract

This report examines the impact of Imagine Language & Literacy, on the English language proficiency of English language learners (ELLs) in Grades 1 through 5 within a Florida public school district during the 2022–2023 academic year. Employing a quasi-experimental design with propensity score matching, the study compared the literacy achievement of students who used the program against those who did not. Achievement was measured using the WIDA ACCESS assessment for Grades 1–5 and the Florida Assessment of Student Thinking (FAST) for Grades 4–5. Overall, findings revealed statistically significant positive effects for both assessments. Students engaging with Imagine Language & Literacy scored on average 5.71 points higher on the 2023 WIDA ACCESS and 2.89 points higher on the Spring 2023 FAST assessment compared to matched peers. Differential analyses indicated that the program's impact varied by grade, with significant improvements concentrated in Grades 3 through 5 for WIDA ACCESS and Grade 5 for FAST. Results demonstrate the program's effectiveness in supporting English language proficiency among elementary ELL students.

Introduction

Providing effective strategies and tools for English language learners (ELLs), who represent about 10% of America's student population (NCES, 2023), to achieve English language proficiency is imperative. In fact, the 2022 National Assessment of Educational Progress (NAEP) Reading Report Card indicates that elementary ELLs scored statistically significantly lower on the 202 reading assessment than their non-English language learner peers (U.S. DOE, n.d.). Digital learning tools are anticipated to be an effective way to support all students, especially ELLs, in developing English language proficiency (Rahmati et al., 2021).

Technology can support ELLs develop English language proficiency in several ways. First, studies have indicated that educational technology provides ELLs with opportunities to learn content that interests them (Pourhossein Gilakjani, 2017; Solanki & Shyamleel, 2012) and provides them with opportunities to develop autonomy in their learning (Pourhossein Gilakjani & Sabouri, 2014). Further, educational technology can provide ELLs with opportunities to learn with support in their native language (Park & Son, 2009). Finally, many educational technology platforms can adapt to the learner's initial and developing ability, providing a personalized and adaptive learning opportunity that can support language acquisition (Faria et al., 2019).

Imagine Language & Literacy by Imagine Learning is a digital supplemental English language solution designed to personalize learning for students through direct, explicit, and systematic instruction and practice that ensures students learn critical skills in four language domains. The program provides personalized learning pathways for each student that adapt automatically to maximize engagement and progress. As such, students who utilize Imagine Language & Literacy are expected to improve and accelerate their English language proficiency.

Methods

RESEARCH DESIGN

Imagine Learning partnered with a public school district in Florida to evaluate how Imagine Language & Literacy impacted the success of its ELL students. During the 2022–2023 school year, Imagine Language & Literacy was made available to ELL students in Grade 1 through Grade 5 and was used at teachers' discretion. In many cases, it was implemented in the classroom or at home if a teacher deemed it valuable to support the learning of an individual student outside of the classroom. ELL students who did not use Imagine Language & Literacy were instead supported through the use of an array of district-provided resources including, at times, other digital literacy programs.

This study was conducted retrospectively using data from the 2022–2023 school year to evaluate the difference in literacy achievement between treatment and control students. The treatment group was comprised of all ELL students who logged any usage in the Imagine Language & Literacy program during the 2022–2023 school year, while the control group included all ELL students who did not. This study is a quasi-experimental design as assignment to the treatment and control groups was not random. Statistical procedures were used to ensure baseline equivalence of the treatment and control samples.

MEASURES

Multiple data sources were compiled to describe students, their performance, and their work in Imagine Language & Literacy. Student literacy proficiency outcomes were determined using two standardized assessments. Student demographic data were collected to provide additional information on student characteristics that may impact measures of learning outcomes. Data from the Imagine Language & Literacy program were incorporated to evaluate student engagement in Imagine Language & Literacy. These data sources are reviewed in more detail below.

Literacy Proficiency. Students' English literacy proficiency was determined using the WIDA ACCESS 2.0 (WIDA ACCESS) assessment for students in Grades 1 through 5 and the Florida Assessment of Student Thinking (FAST) for students in Grades 4 and 5.

- WIDA ACCESS overall scale scores were obtained for students in 2022 and 2023. In Florida, WIDA ACCESS is administered between January and March of each school year. Scores from 2022 were used to establish baseline equivalence between study groups, and 2023 scores were used to estimate the effect of Imagine Language & Literacy on literacy proficiency.

- FAST scaled scores were obtained for students in Spring 2023. FAST was first administered during the 2022–2023 school year, and only Spring FAST scores were provided, so scaled scores from the previous version of the Florida English Language Arts standardized test — Florida Standards Assessment (FSA) — from Spring 2022 were used to establish baseline equivalence. Spring 2022 FSA was administered in April 2022, and Spring 2023 FAST were administered between April and May 2023.

Student Demographics. Information on individual student demographic characteristics was also collected along with each assessment. In particular, grade, gender, ethnicity, race, and disability status were collected with the WIDA ACCESS assessment, and grade, gender, ethnicity, and race were collected with the FAST assessment. Note that students could select multiple races.

Imagine Language & Literacy Usage. Program usage data was obtained to determine students' engagement and progress in Imagine Language & Literacy. These data included the total minutes students spent in the program and the number of lessons students passed.

WIDA ACCESS ANALYTICAL SAMPLE

Separate analytical samples were created for the WIDA ACCESS and FAST analyses. WIDA ACCESS scores were collected for students in Grades 1–5. A total of 4,633 treatment students who used Imagine Language & Literacy and 5,458 control students who did not use Imagine Language & Literacy were initially identified. To ensure that the baseline characteristics of treatment and control students used in analyses were comparable, 1:1 nearest neighbor propensity score matching without replacement was used to create a statistically equivalent analytical sample.[1] In the WIDA ACCESS sample, control students were matched to treatment students based on their Spring 2022 WIDA ACCESS overall scaled score, gender, race, ethnicity, and disability status. This matching process was completed on each grade individually before combining the matched grade-level samples to create the total analytical sample. The resulting WIDA ACCESS analytical sample included 1,381 users of Imagine Language & Literacy and 1,381 non-users. **Table 1** below describes the characteristics of the resulting WIDA ACCESS sample.

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[1]Propensity score matching was executed using the matchit function in R's MatchIt package with the caliper set to 0.05 for the WIDA ACCESS sample to achieve sufficient baseline equivalence.

Table 1: Student Characteristics of the WIDA ACCESS Analytical Sample

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	1,381	1,381		
Average (SD) Spring 2022 WIDA ACCESS Overall Scaled Score	254.55 (56.55)	251.91 (59.40)	.233	0.045
Grade			>.999	<0.001
Grade 1	356	356		
Grade 2	434	434		
Grade 3	242	242		
Grade 4	183	183		
Grade 5	166	166		
Gender			.909	0.006
Female	669	673		
Male	712	708		
Ethnicity: Hispanic/Latino			.568	0.024
No	270	283		
Yes	1,111	1,098		
Race: Black/African American			.066	0.0072
No	1,224	1,191		
Yes	157	190		
Race: White			0.046	0.0078
No	210	250		
Yes	1,171	1,131		
Has Disability			.900	0.007
No	1,242	1,239		
Yes	139	142		

FAST ANALYTICAL SAMPLE

FSA and FAST scores were collected for students in Grades 4 and 5. In total, 795 treatment students who used Imagine Language & Literacy and 2,699 control students who did not use Imagine Language & Literacy were identified. Similar to the WIDA ACCESS sample, 1:1 nearest neighbor propensity score matching without replacement was used to create a statistically equivalent analytical sample.[2] In the FAST sample, control students were matched to treatment students based on their Spring 2022 FSA scaled score, gender, race, and ethnicity. This matching process was completed on each grade individually before combining the matched grade-level samples to create the total analytical sample. The resulting FAST analytical sample included 757 users of Imagine Language & Literacy and 757 non-users. **Table 2** below describes the characteristics of the resulting FAST sample.

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[2]Propensity score matching was executed using the matchit function in R's MatchIt package with the caliper set to 0.10 for the FAST sample to achieve sufficient baseline equivalence.

Table 2: Student Characteristics of the FAST Analytical Sample

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	757	757		
Average (SD) Spring 2022 WIDA ACCESS Overall Scaled Score	269.74 (19.78)	270.17 (20.31)	.681	0.021
Grade Level			>.999	<0.001
Grade 4	383	383		
Grade 5	374	374		
Gender			.959	0.005
Female	348	350		
Male	409	407		
Ethnicity: Hispanic/Latino			.559	0.033
No	142	152		
Yes	615	605		
Race: Black			.703	0.024
No	655	661		
Yes	102	95		
Race: White			.944	0.007
No	118	120		
Yes	639	637		
Race: Asian			.567	0.039
No	745	741		
Yes	12	16		
Race: Pacific Islander			.682	0.042
No	755	753		
Yes	2	4		

ANALYTICAL APPROACH

Multiple linear regression was used to evaluate the differences in achievement between Imagine Language & Literacy users and non-users, controlling for baseline achievement and demographic covariates. An indicator of whether a student was a control or treatment student was included in the regression as the primary predictor variable. Using multiple linear regressions after propensity score matching ensured that any remaining differences in the underlying treatment and control samples were controlled for by the regression model, effectively isolating the impact of Imagine Language & Literacy.

WIDA ACCESS Results

IMAGINE LANGUAGE & LITERACY USAGE

Treatment students spent an average of 11.43 hours in Imagine Language & Literacy and passed an average of 5.00 literacy lessons.[3] Average time in Imagine Language & Literacy varied by grade level, with the highest average usage in Grade 1 and the lowest average usage in Grade 4. See **Figures 1** and **2** for a distribution of hours and literacy lessons passed by grade.

Figure 1. Distribution of Hours Spent in Imagine Language & Literacy by Grade
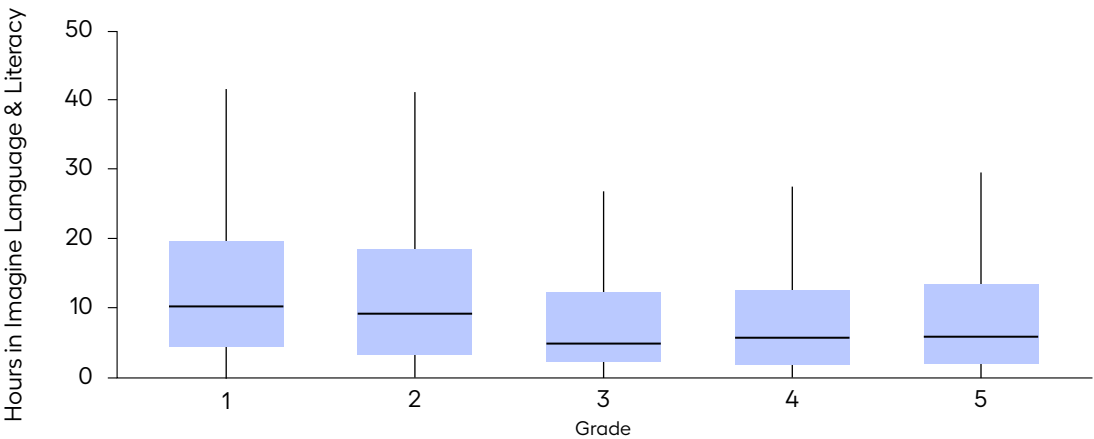
Note: Outliers that fall above 1.5 times the interquartile range are not included in this figure to ensure readability. The global maximum hours spent in Imagine Language & Literacy is 80.56 hours.

Figure 2. Distribution of Literacy Lessons Passed in Imagine Language & Literacy by Grade
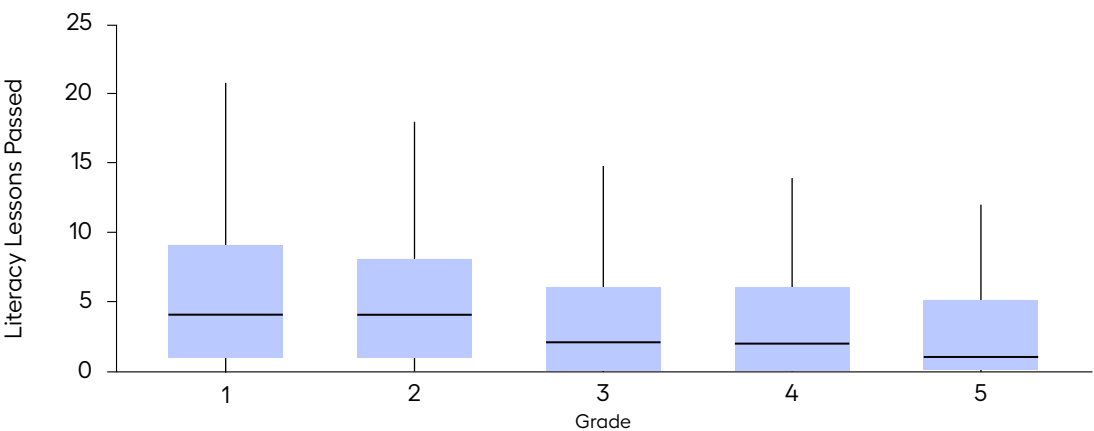
Note: Outliers that fall above 1.5 times the interquartile range are not included in this figure to ensure readability. The global maximum number of lessons passed in Imagine Language & Literacy is 45 lessons.

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[3]There are three types of lessons in Imagine Language & Literacy: literacy, language, and grammar. The number of literacy lessons are presented here as they tend to be the most highly correlated with growth on English proficiency assessments.

PROGRAM IMPACT ON STUDENT ACHIEVEMENT

Overall, use of Imagine Language & Literacy was found to generate a positive and statistically significant impact on students' English language proficiency. Specifically, students who used Imagine Language & Literacy scored an average of 5.71 points higher on the 2023 WIDA ACCESS assessment than otherwise similar non-user students, $B = 5.71$, $t(2750) = 6.663$, $p < .001$. Program usage and the other covariates in the model accounted for 70% of the variance found in 2023 scores, $R^2 = .700$, $F(11,2750) = 582.7$, $p < .001$. The Hedges' g effect size of Imagine Language & Literacy program usage is .140.[4] **Table 3** summarizes the results of the multiple linear regression. The covariate-adjusted mean 2023 WIDA ACCESS overall scaled score was 299.25 for Imagine Language & Literacy users and 293.54 for non-users.

Table 3: Overall Impact of Imagine Language & Literacy on 2023 WIDA ACCESS Overall Scaled Score

Variables	Estimate	Standard Error	*p*-value
Intercept	166.07	2.99	<.001
Imagine Language & Literacy User Indicator	5.71	0.86	<.001
Grade-Level Indicator			
Grade 2	-15.00	1.49	<.001
Grade 3	-6.09	1.64	<.001
Grade 4	6.08	1.91	.001
Grade 5	3.61	1.97	.067
2022 WIDA ACCESS Overall Scaled Score	0.56	0.01	<.001
Male Indicator	0.29	0.86	.738
Ethnicity: Hispanic/Latino Indicator	-2.08	1.38	.131
Race: Black/African American Indicator	-6.11	2.03	.003
Race: White Indicator	-2.14	2.03	.293
Disability Indicator	-14.36	1.47	<.001

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[4]The effect size is calculated using Hedges' g computation following What Works Clearinghouse's Procedures and Standards Handbook, Version 5.0. The unadjusted standard deviations of the 2023 WIDA ACCESS scores can be found in **Appendix A.**

DIFFERENTIAL IMPACT BY GRADE

A series of analyses were further conducted to examine whether the effects of Imagine Language & Literacy varied across grade levels. Descriptive tables of unadjusted average WIDA ACCESS overall scaled scores by grade can be found in **Appendix A**, and tables demonstrating baseline equivalence by grade can be found in **Appendix B**. Imagine Language & Literacy users achieved statistically significantly higher 2023 WIDA ACCESS overall scaled scores than comparable non-users for students in Grades 3–5; the difference is non-significant for students in Grades 1 and 2 (**Table 4**). Complete regression results can be found in **Appendix C**.

Table 4: Impact of Imagine Language & Literacy on 2023 WIDA ACCESS Overall Scaled Scores by Grade

Grade	Estimate on Imagine Language & Literacy Indicator Variable	Standard Error	*p*-value
Grade 1	-0.68	1.58	.669
Grade 2	2.28	1.47	.120
Grade 3	12.35	1.81	<.001
Grade 4	9.41	2.09	<.001
Grade 5	10.58	2.47	<.001

FAST Results

IMAGINE LANGUAGE & LITERACY USAGE

Treatment students spent an average of 11.77 hours in Imagine Language & Literacy and passed an average of 5.13 literacy lessons. Average time in Imagine Language & Literacy varied by grade level, with the higher average usage in Grade 4. See **Figures 3** and **4** for a distribution of hours and lessons passed by grade.

Figure 3. Distribution of Hours Spent in Imagine Language & Literacy by Grade

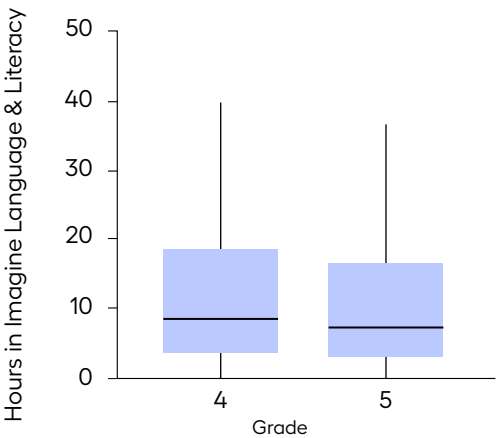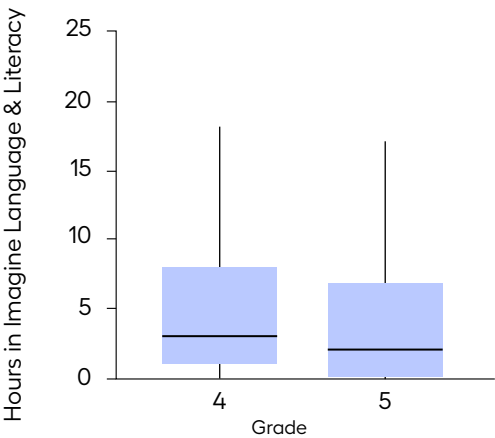**Figure 4.** Distribution of Literacy Lessons Passed in Imagine Language & Literacy by Grade

Note: Outliers that fall above 1.5 times the interquartile range are not included in this figure to ensure readability. For Figure 3, the global maximum hours spent in Imagine Language & Literacy is 66.27 hours. For Figure 4, the global maximum number of lessons passed in Imagine Language & Literacy is 33 literacy lessons.

PROGRAM IMPACT ON STUDENT ACHIEVEMENT

Overall, use of Imagine Language & Literacy was found to generate a positive and statistically significant impact on students' FAST performance. Specifically, students who used Imagine Language & Literacy scored an average of 2.89 points higher on the Spring 2023 FAST assessment than otherwise similar non-user students, B = 2.89, $t(1504)$ = 3.02, p = .003. Program usage and the other covariates in the model accounted for 38% of the variance found in Spring 2023 scores, R^2 = .380, $F(9,1504)$ = 102.3, p < .001. The Hedges' g effect size of Imagine Language & Literacy program usage is .123.[5] **Table 5** summarizes the results of the multiple linear regression. The covariate-adjusted mean Spring 2023 FAST overall scaled score was 295.75 for Imagine Language & Literacy users and 292.86 for non-users.

Table 5: Overall Impact of Imagine Language & Literacy on Spring 2023 FAST Scaled Score

Variables	Estimate	Standard Error	p-value
Intercept	93.52	8.21	<.001
Imagine Language & Literacy User Indicator	2.89	0.96	.003
Grade-Level Indicator			
Grade 5	2.72	0.96	.005
Spring 2022 FSA Scaled Score	0.71	0.02	<.001
Male Indicator	0.07	0.97	.944
Ethnicity: Hispanic Indicator	-2.21	1.61	.170
Race: Black Indicator	2.48	4.68	.595
Race: White Indicator	2.48	4.50	.581
Race: Asian Indicator	5.12	5.30	.334
Race: Pacific Islander Indicator	6.98	8.52	.413

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[5]The effect size is calculated using Hedges' g computation following What Works Clearinghouse's Procedures and Standards Handbook, Version 5.0. The unadjusted standard deviations of the Spring 2023 FAST scores can be found in **Appendix A**.

DIFFERENTIAL IMPACT BY GRADE

Analyses were further conducted to examine whether the effects of Imagine Language & Literacy varied across individual grades. Descriptive tables of unadjusted average FSA and FAST scaled scores by grade can be found in **Appendix A**, and tables demonstrating baseline equivalence by grade can be found in **Appendix D**. Imagine Language & Literacy users achieved statistically significantly higher Spring 2023 FAST scaled scores than comparable non-users for students in Grade 5; the observed difference was non-significant for students in Grade 4 (**Table 6**). Complete regression results can be found in **Appendix E**.

Table 6: Impact of Imagine Language & Literacy on Spring 2023 FAST Overall Scaled Scores by Grade

Grade	Estimate on Imagine Language & Literacy Indicator Variable	Standard Error	*p*-value
Grade 4	1.54	1.41	.275
Grade 5	4.22	1.28	.001

Conclusion

Educational technology provides a means for improving student achievement through supplemental instruction that is individualized to meet the needs of each student. Moreover, digital learning solutions have a demonstrated impact on student literacy outcomes for English language learners (Rahmati et al., 2021) and are a critical component of the future of education (Haleem et al., 2022). Imagine Language & Literacy offers such a solution.

This study set out to examine the impact of Imagine Language & Literacy on the development of English language proficiency of ELL students in Grades 1–5. Overall, findings revealed a statistically significant impact with both WIDA ACCESS and FAST assessments. Students who used Imagine Language & Literacy scored 5.71 points higher on the 2023 administration of the WIDA ACCESS assessment and 3.13 points higher on the Spring 2023 administration of the FAST assessment than did similar comparison students ($p < .01$).

A limitation of this study includes the lack of baseline scores for students in Grades 1–3 on the FAST assessment. Particularly, only Grades 4 and 5 were included in FAST analyses since they are the only grades that also took the FSA assignment in Spring 2022. In the future, use of fall FAST scores can provide baseline scores to expand the FAST analysis to include additional grade levels.

In summary, this study provides evidence of effectiveness of Imagine Language & Literacy on English language proficiency. Specifically, it demonstrates Imagine Language & Literacy's impact on the literacy achievement of students in Grades 1–5 on the WIDA ACCESS assessment and of students in Grades 4–5 on the FAST assessment by comparing the outcomes of students who participated in the program to those who did not.

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Appendix A

Table A1: Unadjusted Mean WIDA ACCESS Overall Scaled Score by Grade Band

	2022 (SD)	2023 (SD)	Mean Change
Grade 1			
Imagine Language & Literacy (*n* = 356)	178.22 (52.84)	263.74 (28.47)	85.53
Comparison (*n* = 356)	187.68 (54.90)	267.74 (30.85)	80.06
Grade 2			
Imagine Language & Literacy (*n* = 434)	266.53 (30.46)	298.00 (31.39)	31.48
Comparison (*n* = 434)	266.51 (28.32)	295.77 (33.13)	29.26
Grade 3			
Imagine Language & Literacy (*n* = 242)	270.12 (34.42)	315.67 (32.76)	45.56
Comparison (*n* = 242)	270.21 (33.47)	303.33 (30.36)	33.12
Grade 4			
Imagine Language & Literacy (*n* = 183)	295.20 (31.68)	340.36 (34.63)	45.16
Comparison (*n* = 183)	295.41 (31.04)	331.25 (31.78)	35.84
Grade 5			
Imagine Language & Literacy (*n* = 166)	297.51 (36.03)	339.60 (37.42)	42.08
Comparison (*n* = 166)	298.77 (35.44)	330.48 (33.39)	31.71
Combined Grades 1–5			
Imagine Language & Literacy (*n* = 1,381)	251.91 (59.40)	302.88 (42.55)	50.97
Comparison (*n* = 1,381)	254.55 (56.55)	298.75 (39.15)	44.20

Table A2: Unadjusted Mean FSA and FAST Score

	Spring 2022 FSA Score (SD)	Spring 2023 FAST Score (SD)
Grade 4		
Imagine Language & Literacy (*n* = 383)	269.63 (19.94)	286.92 (25.27)
Comparison (*n* = 383)	269.09 (19.42)	284.86 (21.88)
Grade 5		
Imagine Language & Literacy (*n* = 374)	270.72 (20.69)	291.60 (25.29)
Comparison (*n* = 374)	270.42 (20.15)	287.17 (20.87)
Combined Grades 4–5		
Imagine Language & Literacy (*n* = 757)	270.17 (20.31)	289.23 (25.37)
Comparison (*n* = 757)	269.74 (19.78)	286.00 (21.40)

Appendix B

Table B1: Grade 1 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	356	356		
Average (SD) 2022 WIDA ACCESS Overall Scaled Score	187.68 (54.90)	178.22 (52.84)	.019	0.176
Gender			.154	0.113
Female	163	183		
Male	193	173		
Ethnicity: Hispanic/Latino			.924	0.014
No	69	67		
Yes	287	289		
Race: Black/African American			>.999	0.010
No	328	327		
Yes	28	29		
Race: White			.730	0.034
No	45	41		
Yes	311	315		
Has Disability			.822	0.025
No	309	312		
Yes	47	44		

Table B2: Grade 2 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	p-value	Standardized Mean Difference (SMD)
n	434	434		
Average (SD) 2022 WIDA ACCESS Overall Scaled Score	266.51 (28.32)	266.53 (30.46)	.995	<.001
Gender			.035	0.148
Female	215	183		
Male	219	251		
Ethnicity: Hispanic/Latino			.931	0.012
No	82	80		
Yes	352	354		
Race: Black/African American			.071	0.129
No	379	359		
Yes	55	75		
Race: White			.029	0.155
No	67	93		
Yes	367	341		
Has Disability			>.999	<0.001
No	366	366		
Yes	68	68		

Table B3: Grade 3 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	242	242		
Average (SD) 2022 WIDA ACCESS Overall Scaled Score	270.21 (33.47)	270.12 (34.42)	.975	0.003
Gender			>.999	0.008
Female	124	125		
Male	118	117		
Ethnicity: Hispanic/Latino			.213	0.124
No	43	55		
Yes	199	187		
Race: Black/African American			.366	0.094
No	211	203		
Yes	31	39		
Race: White			.289	0.107
No	39	49		
Yes	203	193		
Has Disability			>.999	0.020
No	232	231		
Yes	10	11		

Table B4: Grade 4 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	p-value	Standardized Mean Difference (SMD)
n	183	183		
Average (SD) 2022 WIDA ACCESS Overall Scaled Score	295.41 (31.04)	295.20 (31.68)	.948	0.007
Gender			.834	0.033
Female	99	102		
Male	84	81		
Ethnicity: Hispanic/Latino			.629	0.063
No	43	48		
Yes	140	135		
Race: Black/African American			>.999	0.026
No	160	159		
Yes	23	24		
Race: White			.502	0.084
No	31	37		
Yes	152	146		
Has Disability			.818	0.048
No	174	172		
Yes	9	11		

Table B5: Grade 5 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	166	166		
Average (SD) 2022 WIDA ACCESS Overall Scaled Score	298.77 (35.44)	297.51 (36.03)	.748	0.035
Gender			.225	0.146
Female	68	8		
Male	98	86		
Ethnicity: Hispanic/Latino			>.999	<0.001
No	33	33		
Yes	133	133		
Race: Black/African American			.744	0.054
No	146	143		
Yes	20	23		
Race: White			.885	0.032
No	28	30		
Yes	138	136		
Has Disability			.571	0.093
No	161	158		
Yes	5	8		

Appendix C

Table C1: Grade 1 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	204.80	4.49	<.001
Imagine Language & Literacy User Indicator	-0.68	1.58	.669
2022 WIDA ACCESS Overall Scaled Score	0.36	0.01	<.001
Male Indicator	-0.05	1.60	.978
Ethnicity: Hispanic/Latino Indicator	2.33	2.38	.328
Race: Black/African American Indicator	-6.71	3.84	.081
Race: White Indicator	-4.40	3.62	.225
Disability Indicator	-17.25	2.42	<.001

Table C2: Grade 2 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	93.28	7.83	<.001
Imagine Language & Literacy User Indicator	2.28	1.47	.120
2022 WIDA ACCESS Overall Scaled Score	0.78	0.03	<.001
Male Indicator	0.73	1.48	.622
Ethnicity: Hispanic/Latino Indicator	-3.30	2.36	.162
Race: Black/African American Indicator	-3.57	3.41	.295
Race: White Indicator	-1.17	3.49	.738
Disability Indicator	-9.97	2.08	<.001

Table C3: Grade 3 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	121.08	9.19	<.001
Imagine Language & Literacy User Indicator	12.35	1.81	<.001
2022 WIDA ACCESS Overall Scaled Score	0.71	0.03	<.001
Male Indicator	2.28	1.84	.215
Ethnicity: Hispanic/Latino Indicator	-7.25	3.27	.027
Race: Black/African American Indicator	-14.15	4.82	.004
Race: White Indicator	-4.55	5.02	.366
Disability Indicator	-2.51	1.81	<.001

Table C4: Grade 4 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	99.60	11.58	<.001
Imagine Language & Literacy User Indicator	9.41	2.09	<.001
2022 WIDA ACCESS Overall Scaled Score	0.80	0.04	<.001
Male Indicator	-0.63	2.13	.769
Ethnicity: Hispanic/Latino Indicator	-3.46	3.28	.291
Race: Black/African American Indicator	-5.98	4.85	.218
Race: White Indicator	0.64	4.83	.894
Disability Indicator	-16.71	4.86	.001

Table C5: Grade 5 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	107.23	11.66	<.001
Imagine Language & Literacy User Indicator	10.58	2.47	<.001
2022 WIDA ACCESS Overall Scaled Score	0.76	0.04	<.001
Male Indicator	1.51	2.53	.553
Ethnicity: Hispanic/Latino Indicator	4.65	4.47	.298
Race: Black/African American Indicator	-5.75	6.13	.349
Race: White Indicator	-8.59	5.53	.121
Disability Indicator	-21.84	6.40	.001

Appendix D

Table D1: Grade 4 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	383	383		
Average (SD) Spring 2022 FSA Scaled Score	269.09 (19.42)	269.63 (19.94)	.703	0.028
Gender			.828	0.021
Female	193	197		
Male	190	186		
Ethnicity: Hispanic			.789	0.026
No	77	81		
Yes	306	302		
Race: Black			.752	0.030
No	329	333		
Yes	54	50		
Race: White			.923	0.014
No	64	66		
Yes	319	317		
Race: Asian			.642	0.050
No	375	372		
Yes	8	11		
Race: Pacific Islander			>.999	0.042
No	382	381		
Yes	1	2		

Table D2: Grade 5 Baseline Equivalence

Group	Comparison Students	Imagine Language & Literacy Students	*p*-value	Standardized Mean Difference (SMD)
n	374	374		
Average (SD) Spring 2022 FSA Scaled Score	270.42 (20.15)	270.72 (20.69)	.840	0.015
Gender			.636	0.042
Female	155	153		
Male	219	221		
Ethnicity: Hispanic			.912	0.016
No	65	71		
Yes	309	303		
Race: Black			>.999	<0.001
No	326	328		
Yes	48	46		
Race: White			>.999	0.008
No	54	54		
Yes	320	320		
Race: Asian			>.999	0.025
No	370	369		
Yes	4	5		
Race: Pacific Islander			>.999	0.042
No	373	372		
Yes	1	2		

Appendix E

Table E1: Grade 4 Regression Results

Variables	Estimate	Standard Error	*p*-value
Intercept	115.41	13.63	<.001
Imagine Language & Literacy User Indicator	1.54	1.41	.275
Spring 2022 FSA Scaled Score	0.66	0.04	<.001
Male Indicator	-2.79	1.42	.049
Ethnicity: Hispanic Indicator	-4.49	2.28	.049
Race: Black Indicator	-4.69	8.63	.587
Race: White Indicator	-1.64	8.26	.843
Race: Asian Indicator	1.49	9.36	.874
Race: Pacific Islander Indicator	8.60	12.65	.497

Table E2: Grade 5 Regression Results Variables

Variables	Estimate	Standard Error	*p*-value
Intercept	79.07	10.48	<.001
Imagine Language & Literacy User Indicator	4.22	1.28	.001
Spring 2022 FSA Scaled Score	0.75	0.03	<.001
Male Indicator	2.94	1.30	.024
Ethnicity: Hispanic Indicator	0.74	2.31	.748
Race: Black Indicator	6.74	5.55	.225
Race: White Indicator	2.95	5.37	.583
Race: Asian Indicator	1.97	6.88	.774
Race: Pacific Islander Indicator	3.51	11.43	.759