

Effects of the Literacy First Tutoring Program on Grade 2 Students' Reading Skills

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Background: Over the past two decades, national attention has emphasized the critical role of early literacy and language instruction in preventing reading difficulties and improved our understanding of how young children learn to read (Connor et al., 2014; National Reading Panel, 2000; Raynor et al., 2001). The research has established that students who are not strong readers by Grade 3 are less likely to build vocabulary and interact with a wide variety of texts (Good, Simmons, & Kame'enui, 2001).

Literacy First is based at the Charles A. Dana Center at the University of Texas at Austin and is an AmeriCorps program that engages approximately 106 trained tutors to deliver daily research-based tailored support related to early literacy skills to K–2 students. Literacy First has invested in rigorous research to evaluate program impacts by implementing regression discontinuity design studies over the past 3 years, using students' beginning-of-the-year reading ability to determine program eligibility. Findings from the evaluations provide strong evidence that Literacy First significantly accelerated students' reading skills across Grades K–2 in two Austin-area school districts and charter schools (Tackett, Leroux, & McFarland, 2013; Tidd, 2014, 2015). Effect sizes found across the annual evaluations range from 0.20 to 0.40 (Tidd, 2014, 2015). Additionally, a quasi-experimental study investigating the impact of Literacy First on students' reading skills found that first- and second-grade students who graduated from Literacy First scored statistically significantly higher than matched comparison students on the Development Reading Assessment (Agile Analytics, 2018). However, there are limitations to this research base: None of the studies used an experimental design, and the RDD and propensity score matching studies have the potential for sampling and selection bias.

Purpose: During the 2017/18 school year, American Institutes for Research partnered with Literacy First to conduct an independent evaluation of the impact of the Literacy First program on Grade 2 student outcomes. The study is designed to answer the following research questions:

1. Does participation in Literacy First one-on-one tutoring have significant impacts on grade 2 students' basic reading skills, as measured by the DIBELS Oral Fluency or IDEL Fludidez en Relato Oral assessment?
2. Does participation in Literacy First one-on-one tutoring have significant impacts grade 2 students' reading comprehension skills, as measured by the Grade 2 ITBS or Logramos reading comprehension assessment?

Setting: The study took place in 22 elementary schools in the Austin Independent School District.

Subjects: The sample consisted of 430 grade 2 students who scored at the Tier-2 level on a literacy screening assessment at the beginning of the school year (table 1).

Intervention: Literacy First is designed to strengthen students' early reading and comprehension skills through daily, 30-minute tutoring sessions. The program tracks student data, including benchmark assessments, weekly progress monitoring, attendance, and demographics, as well as program fidelity of implementation data from tutors. Fifty percent of

Literacy First's tutors are bilingual, allowing the program to provide support to both Spanish and English speakers. The program identifies struggling readers each fall and provides tutoring across the school year.

Literacy First has established itself as a unique tutoring program in three key areas. First, Literacy First tutors are highly trained volunteers who receive more than 70 hours of training in best practices, as well as weekly follow-up visits from Literacy First experts and coaches. Second, Literacy First is intensive; each child is seen daily for approximately 30 minutes and receives tailored tutoring to address literacy/language needs. Third, Literacy First uses data to drive instruction. Tutors use a response-to-intervention model, with benchmark assessments (which take place three times per year) and weekly progress monitoring.

Research Design: The study used a multi-site design in which students were randomly assigned within schools to treatment and control groups.

Data Collection and Analysis: Administrative data from AISD consisted of student background characteristics and test score results on the DIBELS/IDEL assessment, while data from the ITBS/ Logramos assessment was collected by AIR.¹ A two-level hierarchical linear model was used to analyze the data, with students at level-1 and schools at level-2 (equation 1). Prior to conducting the analyses, students' test scores were converted to standardized z-scores using sample-based means and standard deviations on each of the assessments. This was necessary in order to place students' oral fluency scores and reading comprehension scores on the same scales.²

Results: Results of the analyses showed statistically significant effects of Literacy First on students' oral fluency and reading comprehension (tables 2 & 3). On average across sites, students receiving Literacy First tutoring score about 0.41 standard deviations higher than students in these sites who did not receive Literacy First tutoring in oral fluency and about 0.28 standard deviations higher than students in these sites who did not receive Literacy First tutoring in reading comprehension. For both outcomes, additional analyses were conducted to assess whether there was a significant interaction between the treatment effect and taking the Spanish version of the assessments. These analyses did not reveal statistically significant differences in the treatment effect for students who completed Spanish versions of the assessments.

Conclusions: Because the program uses trained AmeriCorps volunteers as one-on-one tutors, Literacy First functions at a very low cost to schools. The findings from the study show that the program has statistically significant effects on Grade 2 students' early literacy skills and reading comprehension. As such, Literacy First has the potential to serve as an effective model for providing low-cost, effective literacy tutoring services to students in early grades.

¹ For students completing the English versions of the assessments, oral fluency data was collected using the DIBELS oral fluency (DIBELS ORF) test and the reading comprehension data was collected using the Grade 2 ITBS reading comprehension assessment. For students completing the Spanish versions of the assessments, oral fluency data was collected using the IDEL Fludidez en Relato Oral (IDEL FRO) and reading comprehension data was collected using the Grade 2 Logramos reading comprehension assessment.

² While the Spanish and English versions of the two sets of assessments were substantively similar, they are not considered to be equivalent.

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Table 1. Student Characteristics

	Number of Students	Percentage of Students
Race/ethnicity		
Black	29	6.7%
Hispanic	377	87.7%
White	13	3.0%
Other Race	5	1.2%
Gender		
Female	225	52.3%
Male	205	47.7%
Other Student Characteristics		
Limited English Proficient	288	67.0%
Special Education	44	10.2%
Economic Disadvantage	398	93.0%

Equation 1. Analytic Model

Level-1 Students

$$Y_{ij} = \beta_{0j} + \beta_{1j}*(Treatment_{ij}) + \beta_{2j}*(Tutoring\ 2015-16_{ij}) + \beta_{3j}*(Tutoring\ 2016-17_{ij}) + \beta_{4j}*(Black_{ij}) + \beta_{5j}*(White_{ij}) + \beta_{6j}*(Other\ Race_{ij}) + \beta_{7j}*(Male_{ij}) + \beta_{8j}*(Special\ Education_{ij}) + \beta_{9j}*(Economic\ disadvantage_{ij}) + \beta_{10j}*(BOY\ ORF_{ij}) + \beta_{11j}*(Spanish_{ij}) + r_{ij}$$

Level-2 Schools

$$\begin{aligned} \beta_{0j} &= \gamma_{00} + u_{0j} \\ \beta_{1j} &= \gamma_{10} + u_{1j} \\ \beta_{2j} &= \gamma_{20} \\ \beta_{3j} &= \gamma_{30} \\ \beta_{4j} &= \gamma_{40} \\ \beta_{5j} &= \gamma_{50} \\ \beta_{6j} &= \gamma_{60} \\ \beta_{7j} &= \gamma_{70} \\ \beta_{8j} &= \gamma_{80} \\ \beta_{9j} &= \gamma_{90} \\ \beta_{10j} &= \gamma_{100} \\ \beta_{11j} &= \gamma_{110} \end{aligned}$$

where Y_{ij} is the standardized student outcome (i.e., ORF/FRO or ITBS/Logramos), β_{0j} is the adjusted mean outcome score across school sites, and β_{1j} is the adjusted treatment effect across school sites. All variables, with exception of the treatment indicator, were group-mean centered. As shown, the treatment effect was allowed to vary across sites.

Table 2. Impact Analysis Results for Oral Fluency

Fixed Effect	Coefficient	Standard error	<i>t</i> -ratio	Approx. <i>d.f.</i>	<i>p</i> -value
Intercept	-0.20	0.07	-2.99	21	0.01**
Treatment	0.41	0.07	5.94	21	<0.01**
BOY ORF/FRO	0.70	0.03	21.86	355	<0.01**
Tutoring 2015-17	0.01	0.07	0.14	356	0.89
Tutoring 2016-17	-0.06	0.07	-0.84	356	0.40
Black	0.09	0.13	0.68	356	0.50
White	0.82	0.20	4.11	356	<0.01**
Other race	-0.17	0.30	-0.58	356	0.56
Male	-0.01	0.06	-0.21	356	0.83
LEP	0.30	0.09	3.27	356	<0.01**
Special education	0.00	0.11	0.04	356	0.97
Economic disadvantage	-0.19	0.13	-1.40	356	0.16
Spanish	-0.13	0.10	-1.46	356	0.14

* $p < 0.05$, ** $p < 0.01$

Table 3. Impact Analysis Results for Reading Comprehension

Fixed Effect	Coefficient	Standard error	<i>t</i> -ratio	Approx. <i>d.f.</i>	<i>p</i> -value
Intercept	-0.13	0.07	-1.96	21	0.06
Treatment	0.28	0.11	2.47	21	0.02*
Tutoring 2015-17	-0.06	0.11	-0.60	374	0.55
Tutoring 2016-17	0.10	0.10	0.95	374	0.34
Black	0.07	0.20	.037	374	0.72
White	0.01	0.29	0.04	374	0.97
Other race	-0.97	0.45	-2.15	374	0.03*
Male	-0.18	0.10	-1.91	374	0.06
LEP	0.46	0.13	3.45	374	<0.01**
Special education	-0.57	0.16	-3.50	374	<0.01**
Economic disadvantage	-0.50	0.19	-2.59	374	0.01*
Spanish	-0.33	0.14	-2.37	374	0.02*

* $p < 0.05$, ** $p < 0.01$