Exploring the Impacts of Community Services on Student Reading Achievement in a Title I School

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Abstract

Low-income families face myriad stressors and challenges that often negatively affect students' reading achievement. Although community partners are crucial in supporting K–12 students, there is little research on how different types of community services affect students' reading achievement in Title I schools. The present study aims to assess the impacts of comprehensive community services funded by a nonprofit organization on K–5 students' reading achievement. The study employed a two-phase post-hoc design to examine the reading achievement of 347 elementary students (ages 5–10) in a Title I school. Reading achievement was measured by the i-Ready assessment of overall reading scale scores and percentile rankings. Independent samples t-tests, regression models, and ANOVA reveal that students who received community services had higher winter percentile rankings than their peers not receiving community services. Additionally, students who received targeted in-school service demonstrated the most significant improvement in i-Ready reading during the winter semester, compared to afterschool service, holistic in-school service, and in-home service. Implications and limitations of the present study are discussed.

Key Words: community services, Title I school, low-income families, i-Ready reading achievement, impacts, in-school, afterschool, home

Introduction

Several underlying factors explain why students from low-income families are likely to underperform in school. One of the main factors is a lack of resources, which makes it hard for students living in poverty to obtain the same level of academic achievement as students not living in poverty (Lacour & Tissington, 2011). Other factors include higher levels of stress, poor nutrition, reduced access to healthcare, and low psychological well-being (Claro et al., 2016). To help combat the unequal distribution of resources in schools, the Title I program provides federal funds through the state educational agencies (SEAs) to local educational agencies (LEAs) to ensure that schools with a high rate of students living in poverty will have a better chance to help their students meet the state's challenging academic content and achievement standards.

Despite the Title I funds, there are still teacher and resource inequities in schools (Luebchow, 2009). Many community partners thus are involved in supporting Title I schools in their local communities to offer free programs, services, resources, and financial support. The collaboration between communities and schools improves student success by affecting policymaking, allocating grants and personnel, and monitoring program implementation fidelity (Anderson-Butcher et al., 2008; Lockwood, 1996).

School–Community Collaboration: What Has Been Found?

Epstein (2010) argued that developing a school–community partnership is a process, not a single event. In facilitating this process, timely, deliberative, and continuous communication among stakeholders is crucial (Badgett, 2016; Hands, 2005). Poynton et al. (2018) emphasized stakeholder training as a solution in which all parties stay up-to-date on intervention and project development. Forming an effective outline for training reduces miscommunication in planning, implementing, and assessing the service. With these factors managed according to the outline, schools could optimize the use of in-school and out-of-school resources to foster students' development and learning. Partnerships are essential for collecting information to understand students' learning needs and factors that may affect students' experiences in learning (Epstein & Sanders, 2006). Gathering intervention outcome data and evaluating student performance benefit stakeholders' roles in their interventions and engage them in the co-development of programs.

Over time, the partnership has been extended to include families and universities to improve student academic achievement and behavior through various supports (Henderson & Mapp, 2002). For example, Berryhill et al. (2016) evaluated the Elementary Parent Leadership Academy's (EPLA) effectiveness, a

training program developed by the University of Alabama that equipped parents and educational leaders with tools to support students, particularly in low-income families. The 2014–15 EPLA report showed that EPLA participants demonstrated increased willingness to lead and positive attitudes towards collaboration, enhancing their leadership development and student achievement.

Types of Community Services

Community services can be grouped into (1) in-school services, (2) afterschool services, and (3) in-home services. It is important to note that because various community partners have different organizational missions and funding resources, each partner has different scopes and types of services, even if they may be grouped in the same categories.

In-School Services

There are different types of in-school services offered by communities. One example is intensive interventions of foundational reading skills such as phonics and word recognition. Research shows that early interventions influence students' later reading skills (Wanzek et al., 2018). Intensive reading interventions positively impact students' reading performance, especially after the summer when they lose ground in their reading performance (Rasinski et al., 2017). Furthermore, school-based mentoring programs also effectively promote positive youth development. Herrera and Karcher's (2013) synthesis of research studies showed that school-based mentoring programs promoted students' positive academic and social success.

A meta-analysis conducted by Ritter et al. (2009) of 21 research studies indicated that reading tutoring programs increased student achievement, particularly in writing, letters, word recognition, and oral fluency in Grades K–8. Additionally, Wanzek et al.'s (2018) meta-analyses of 25 reading intervention studies showed that early reading interventions resulted in positive reading outcomes for struggling students in Grades K–8. These successful tutoring programs shared common characteristics: (1) a high level of standardization in which students received structured reading interventions; (2) an emphasis on phonological awareness, phonics, word recognition, and fluency; and (3) sufficient intervention dosage or time with fidelity. Overall, intensive and explicit interventions appear to be an effective way of improving reading outcomes.

Afterschool Services

Afterschool services foster students' academic achievement, behavioral skills, and well-being through interventions and peer interactions (Anderson-Butcher et al., 2008; Hall et al., 2003). One challenge many afterschool services face is how to improve students' attendance, which is affected by transportation,

parents' work schedules, schoolwork, and funding (Nelson-Royes & Reglin, 2011). Students who consistently attend afterschool programs are more likely to improve learning outcomes. However, this cannot be achieved without collaboration among families, schools, and communities.

In-Home Services

Financial and social support to students' families also increases the likelihood of student success (Greene & Anyon, 2010). Family dollars can provide resources like computers, tablets, the internet, food, and clothes to students in low-income families. Research shows that such support positively impacts students' academic achievement and school improvement (Sanders & Harvey, 2002). Financial supports and resources reduce students' stress and help keep them healthy, further supporting them to stay focused on their schoolwork.

Although community partners are essential in supporting K–12 struggling students, there is little research on how different types of community services affect students' reading achievement in low-income families. In collaboration with community partners and one Title I school, our research study thus aims to address the following questions:

1. Compared to students who did not receive any community service, how did students who received one or multiple services perform on the norm-referenced test?
2. Did students perform differently on the norm-referenced test because of the different community services they received?
3. How did students' achievement scores change over time, from fall (August) to winter (December) and from fall (August) to spring (May)?

Methods

Setting

A nonprofit organization organized four community partners to help students in a Title I school located in the state of Georgia. The school was selected for the present study because it was a pilot school that received comprehensive community support in and outside the school setting, which we believe would offer valuable experiences and lessons to inform community engagement in other Title I schools. The average of its student graduation score in the three years from 2019–22 was 59.37 out of 100, which was lower than the average district student graduation score (64.03) and the average state student graduation score (75.83). Upon receiving Institutional Review Board (IRB) approval, we analyzed this Title I school students' reading performance over time based on whether or not they received community services and what types of community services they received.

Participants

The school had 347 students from Grades preK–5 (preK: 52, 1st grade: 68, 2nd grade: 65, 3rd grade: 53, 4th grade: 54, and 5th grade: 55) in the school year 2019–20. The ethnic and racial composition of the sample was 91% African American or Black, 2% Hispanic or Latino, 2% others, and 5% Caucasian. The school had 83% of students who were qualified for free/reduced lunch. In addition, 48% of the students were female, and 13% had IEPs. Among them, 115 students (33%), considered the most struggling students, were referred by their classroom teachers and the school social worker to receive community services under their parents' permission.

Procedures

Student assessment data was collected at the beginning, middle, and end of the school year. The school collected the i-Ready data and shared them with the project stakeholders under the school district's and parents' permission. The community partners further provided us with the lists of students who they served. We used statistical techniques to match different data sets, using student name identifier, gender, and state ID. The matched rate was nearly 85% between the data provided by the Title I school and the data provided by community partners due to the fact that these community partners served multiple schools, not just this Title I school. Fifty-one students who were not matched across data sets were deleted in the current analysis. For students who took the i-Ready test multiple times in each quarter, we used their earliest test scores to avoid the overestimation of the impact of the program. We also generated a dummy variable to explore the impact of multiple test-takers. Less than 4% of students ($N < 15$) were multiple test-takers each quarter. Among 347 students, 23 students had missing values in their spring i-Ready score (i.e., approximately 7%). Given the missing data occurred only for the spring score, this study reported the descriptive statistics using 347 students. Stata 14.0 was used to identify statistical relationships among the quantitative data within and across the comparison groups.

Dependent Variables

Two outcomes were used to measure students' reading performance, i-Ready overall scale scores and percentile rankings. Overall scale scores, ranging from 0 to 800, inform educators about students' reading performance, growth, and improvement needs during the school year. Percentile rankings, ranging from 1st through 99th, show students' reading performance compared to their peers at the same grade level. For example, assuming that Jessie is at the 34th percentile of the third-grade i-Ready reading test, this indicates that Jessie performs

better than 34% of her peers in the third grade who take the same norm-referenced test.

Independent Variables

There were three independent variables in the present study. The first one was *service recipients*, including non-service, one-service, and multiple-service recipients. The second one was *covariates*, including gender, ethnicity, and grade level. Each of them was coded with dummy variables. Gender was coded with male = 0, female = 1; ethnicity was coded with White = 0, Black = 1, Hispanic = 2, and others = 3; grade level was coded with K = 0, Grade 1 = 1, Grade 2 = 2, Grade 3 = 3, Grade 4 = 4, and Grade 5 = 5. The third one was *service types*. The community services were organized and funded by a nonprofit organization. Each service type is described in the following:

1. *The targeted in-school service* provided struggling students with systematic and intensive intervention implemented by teacher candidates from a nearby university's special education program. Each student received 30 minutes of reading interventions per day, four days a week. Each teacher candidate worked with one to three students using IXL, an adapted reading program to improve students' phonological awareness. IXL was closely aligned with students' grade-level English language arts standards. One university special program faculty member supervised the interventions daily from 7:20 am to 10:20 am. The intervention team discussed student learning performance for teaching improvement at the end of each day.
2. *The afterschool service* helped students build self-efficacy and confidence through social and emotional activities. Literacy was incorporated into these activities.
3. *The holistic in-school service* assisted school teachers through a full-time on-site staff person and other workers from a community organization. The additional personnel tutored students, provided them with eyeglasses, worked with the principal to develop parent education programs, and gave them birthday books to enhance their sense of belonging.
4. *The in-home service* aimed to increase educational access for low-income and disadvantaged populations. Wraparound service dollars were provided to families to pay electricity and utility bills and to buy food and educational materials for students, thus reducing financial stress.

Results

Non-Service, One Service, vs. Multiple Services

There were 44 students (12.68%) who received targeted in-school service, 45 students (12.98%) who received afterschool service, 44 students (12.68%)

who received holistic in-school service, and 7 students (2.01%) who received in-home service. On the other hand, 218 students (62.68%) did not receive any community service during the school year. Table 1 shows the mean and standardized deviation of i-Ready reading performance between students who did not receive services (N = 218, 62.68%), students who received one service (N = 115, 33.14%), and students who received multiple services (N = 14, 4.18%).

Before the intervention (fall semester), students whose teachers did not refer them to receive services had a significantly greater average scale score than students referred to receive community services. After the intervention (winter semester), the percentile rankings indicate that students who received one service had significantly higher reading percentile rankings in winter than their peers who did not (M = 46.43, M = 40.62, t = 1.72, p = 0.08). However, there was no significant difference in the spring semester's percentile rankings during the initial COVID-19 outbreak.

For one-service recipients, there were 115 students, approximately evenly divided across genders (44% female; 56% male). By grade level, there were 23% Kindergarteners, 20% first graders, 20% second graders, 13% third graders, 15% fourth graders, and 9% fifth graders. For multiple-services recipients, there were 14 students. By grade level, these included 21% Kindergarteners, 21% first graders, 43% second graders, and 14% third graders. We used ANOVA to determine whether two or more subpopulation means were different. In the ANOVA analysis, if the result is statistically significant, we could then conclude that at least one group is different than the others in terms of service types. To see which groups are different from the others, we further employed the Tukey's post-hoc test to make pairwise comparisons of students' mean scores.

There was a statistically significant difference in the i-Ready fall scale score across non-service, one service, and multiple services as determined by one-way ANOVA ($F_{(2, 344)}$ = 8.79, p = .000). These results are also consistent in i-Ready winter scale score ($F_{(2, 344)}$ = 6.89, p = .003) and i-Ready spring scale score ($F_{(2, 323)}$ = 8.77, p = .000). We further used a Chi-square test to examine the group difference in community service participation by gender, race/ethnicity, and grade level. Our results suggest that gender (chi-square (2) =2.02, p = .364) and ethnic/racial group (chi-square (6) =4.62, p = .594) in our sample does not differ significantly from the hypothesized values that we assumed. For grade level differences in the patterns of community service participation, the results indicate a significant group difference by grade level in participating in community service.

Table 1. Descriptive Statistics of Non-Service, One-Service, and Multiple-Service Samples

	Non-service		One-service		Multiple-service			
	Mean	SD	Mean	SD	Mean	SD	ANOVA [a]	*p*-value
Overall SS (Fall)	442.44	72.95	411.62	70.34	395.21	48.56	$F_{(2, 344)}$ =8.79	.000
Overall SS (Winter)	461.02	74.07	438.50	71.43	409.43	44.31	$F_{(2, 344)}$ =6.89	.003
Overall SS (Spring)	475.77	68.13	449.25	66.30	420.86	40.17	$F_{(2, 323)}$ =8.77	.000
Percentile (Fall)	30.95	24.34	26.60	23.52	23.71	15.87	$F_{(2, 344)}$ =1.64	
Percentile (Winter)	40.62	28.43	46.43	30.68	39.00	30.65	$F_{(2, 344)}$ =1.35	
Percentile (Spring)	38.30	26.04	38.31	26.58	30.57	23.49	$F_{(2, 323)}$ =0.58	
N	218		115		14			
%	62.68		33.14		4.03			
	%	Freq.	%	Freq.	%	Freq.	Chi-square test	
Male	0.48	105	0.56	64	0.43	6		
Female	0.52	113	0.44	51	0.57	8	2.02 (df=2)	.364
White	0.05	11	0.04	5	0.07	1		
Black	0.89	195	0.94	108	0.93	13		
Others	0.03	6	0.00	0	0.00	0		
Hispanic	0.00	0	0.02	2	0.00	0	4.62 (df=6)	.594
Grade K	0.10	22	0.23	27	0.21	3		
Grade 1	0.19	42	0.20	23	0.21	3		
Grade 2	0.17	36	0.20	23	0.43	6		
Grade 3	0.17	36	0.13	15	0.14	2		
Grade 4	0.17	37	0.15	17	0.00	0		
Grade 5	0.21	45	0.09	10	0.00	0	26.67 (df=10)	.003

Notes. ANOVA was applied to compare the group difference by the number of service recipients. $^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Types of Services

Table 2 shows the group difference in reading achievement between various service recipients. The results indicate a statistically significant difference in i-Ready scale score and percentile rankings between various service recipients

as determined by one-way ANOVA. For scale score results, a Tukey post-hoc test revealed similar patterns across fall, winter, and spring. Before interventions, non-service recipients had a statistically significantly higher scale score compared to the targeted in-school service recipients and the holistic in-school service recipients. In addition, results show that afterschool service recipients had significantly higher scale scores compared to the targeted in-school service recipients in the fall semester (M = 446.96 vs. M = 393.72; M = 470.93 vs. M = 420.98; M = 479.58 vs. M = 434.35). A similar situation was also observed in the pairwise comparisons of means with the holistic in-school service recipients (M = 446.96 vs. M = 384.50; M = 470.93 vs. M = 408.14; M = 479.58 vs. M = 418.32). The descriptive statistics reveal that afterschool service recipients had significantly higher scale scores. However, the percentile rankings show that the targeted in-school service recipients had a significantly higher percentile rankings in winter than the non-service recipients (M = 55.38 vs. M = 40.92). As indicated in Table 2, a Tukey post-hoc test for percentile rankings revealed similar patterns across fall, winter, and spring.

Changes in Achievement Scores Over Time

We used the ordinary least squares (OLS) regression, a statistical technique for estimating linear regression coefficients to evaluate the relationship between one or more independent quantitative variables and a dependent variable. Table 3 shows the results from the OLS model using the overall scale score, suggesting one-service and multiple-service recipients had similar gains in the winter (Model 1) and spring (Model 2) i-Ready reading score, controlling for the fall reading score, grade level, race/ethnicity, and gender. We ran a similar model using the winter and spring percentile rankings. Model 3 shows that one-service recipients had significant gains in their winter percentile rankings, controlling for the fall reading percentile and other covariates. We found limited evidence for multiple-service recipients on their winter percentile rankings. Model 4 also shows limited evidence for both types of service recipients on their gains in the spring percentile rankings. Overall, results suggest students could gain greatly on the winter percentile rankings when they received one community service compared to peers who did not receive any community service. However, this reading improvement was observed only for the winter semester and seemed not to sustain in the spring semester after the winter break. It is worth noting that the spring semester's i-Ready assessment was implemented in February/March instead of May/June before the school closed and transitioned to remote learning due to COVID-19.

Table 2. Mean and Standard Deviation of i-Ready Scores With Demographic Statistics by Service Types

	Non-service		Targeted in-school service		Afterschool service		Holistic in-school service		In-home service		ANOVA p-value	pairwise post-hoc
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Overall SS (Fall)	442.44	72.95	393.72	52.90	446.96	67.97	384.50	63.89	409.43	60.06	.000	a, b, c, d
Overall SS (Winter)	461.02	74.07	420.98	49.00	470.93	70.34	408.14	62.80	422.14	95.33	.001	a, b, c, d
Overall SS (Spring)	475.77	68.13	434.35	44.75	479.58	63.81	418.32	62.28	433.14	70.41	.002	a, b, c, d
Percentile (Fall)	30.94	24.34	32.30	16.51	33.82	28.43	13.09	10.19	15.29	27.35	.000	b; d; e
Percentile (Winter)	40.92	29.84	**55.38**	**26.26**	48.73	31.53	33.57	28.68	22.57	34.59	.000	a; d; e
Percentile (Spring)	38.30	26.04	44.80	20.66	41.60	29.01	26.36	22.77	18.57	31.38	.000	d, e
N	218		44		45		44		7			
%	62.68		12.68		12.98		12.68		0.20			
			%	Freq.	%	Freq.	%	Freq.	%	Freq.		
Male			48.94	23	53.33	24	54.55	24	71.43	5		
Female			51.06	24	46.67	21	45.45	20	28.57	2		
White			8.51	4	4.44	2	2.27	1	0.00	0		
Black			87.23	41	95.56	43	97.73	43	100.00	7		
Others			0.00	0	0.00	0	0.00	0	0.00	0		
Hispanic			4.26	2	0.00	0	0.00	0	0.00	0		
Grade K			29.79	14	13.33	6	29.55	13	0.00	0		
Grade 1			34.04	16	11.11	5	15.91	7	14.29	1		
Grade 2			23.40	11	20.00	9	27.27	12	42.86	3		
Grade 3			12.77	6	11.11	5	15.91	7	14.29	1		
Grade 4				0	31.11	14	4.55	2	14.29	1		
Grade 5				0	13.33	6	6.82	3	14.29	1		

Notes. SD = standard deviation of Diagnostic scores; Overall = Overall i-Ready scale score in the school year of 2019–20; Percentile = i-Ready percentile rankings in the school year of 2019–20. The *p*-value indicates Tukey HSD post-hoc homogenous subsets for samples where ANOVA shows a significant difference among types of services.

a. The Tukey post-hoc test reveals a statistical significance between non-service recipients and the targeted in-school service recipients at the alpha level of .05.

b. The Tukey post-hoc test reveals a statistical significance between non-service recipients and the holistic in-school service recipients at the alpha level of .05.

c. The Tukey post-hoc test reveals a statistical significance between the targeted in-school service recipients and afterschool service recipients at the alpha level of .05.

d. The Tukey post-hoc test reveals a statistical significance between afterschool service recipients and the holistic in-school service recipients at the alpha level of .05.

e. The Tukey post-hoc test reveals a statistical significance between the targeted in-school service recipients and the holistic in-school service recipients at the alpha level of .05.

Table 3. OLS Regression for Non-Service vs. One-Service and Multiple Service

	Model 1: Overall Scale Score (Winter)	Model 2: Overall Scale Score (Spring)	Model 3: Percentile (Winter)	Model 4: Percentile (Spring)
	b/se	b/se	b/se	b/se
One-Service recipients (cf. non-service recipients)	0.068	-0.016	0.192*	0.040
	(0.05)	(0.05)	(0.08)	(0.08)
Multiple-Service recipients	-0.076	-0.183	0.069	-0.133
	(0.12)	(0.11)	(0.19)	(0.18)
Overall Scale Score (Fall)	0.827***	0.882***		
	(0.04)	(0.04)		
Percentile (Fall)			0.654***	0.733***
			(0.04)	(0.04)
Grade 1 (cf. kindergarten)	-0.179*	-0.041	-0.813***	-0.760***
	(0.09)	(0.08)	(0.13)	(0.13)
Grade 2	-0.121	-0.038	-0.976***	-0.807***
	(0.10)	(0.10)	(0.13)	(0.13)
Grade 3	0.034	0.087	-0.843***	-0.668***
	(0.12)	(0.11)	(0.14)	(0.14)
Grade 4	0.018	-0.076	-1.004***	-1.016***
	(0.13)	(0.12)	(0.14)	(0.13)
Grade 5	0.337**	0.297*	-0.725***	-0.550***
	(0.12)	(0.12)	(0.14)	(0.14)
Female	-0.017	-0.106*	-0.007	-0.165*
	(0.05)	(0.05)	(0.08)	(0.07)
White (Ref. Black)	-0.091	-0.134	-0.283	-0.280
	(0.12)	(0.11)	(0.18)	(0.17)
Other	0.093	0.040	-0.118	0.180
	(0.18)	(0.18)	(0.29)	(0.29)
Hispanic	-0.212	-0.190	-0.275	-0.087
	(0.16)	(0.15)	(0.25)	(0.23)
Constant	0.009	0.059	0.702***	0.738***
	(0.09)	(0.09)	(0.11)	(0.11)
R-square	0.815	0.849	0.552	0.623
N	347	324	347	324

Note. Standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

To further explore the effect of three types of services on students' gains in reading achievement between winter and spring, we conducted six OLS models shown in Table 4 and Table 5. Students who received different types of services have similar fall-to-winter gain scores to their counterparts, and students who received the holistic in-school service lost greatly in their i-Ready scale score from fall-to-spring (B = -0.152). This result is consistent with the findings in the ANOVA analysis. Other covariates, such as students' grade level and gender, also influenced reading achievement, particularly for the fall-to-spring period. Female students had significantly lower scale scores in spring, while first grade had significantly lower ones in winter, holding constant on other covariates. Furthermore, the fifth graders have significantly higher scale scores and percentile rankings for both winter and spring.

Table 4. OLS Regression of i-Ready Scale Score for Community Service Types

	M1A: Overall SS (Winter)	M1B: Overall SS (Winter)	M1C: Overall SS (Winter)	M2A: Overall SS (Spring)	M2B: Overall SS (Spring)	M2C: Overall SS (Spring)
	b/se	b/se	b/se	b/se	b/se	b/se
Overall Scale Score (Fall)	0.828***	0.830***	0.825***	0.890***	0.891***	0.875***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Targeted in-school service	0.101			0.028		
	(0.07)			(0.07)		
Afterschool service		0.063			0.027	
		(0.07)			(0.07)	
Holistic in-school service			-0.070			-0.152*
			(0.07)			(0.07)
Grade 1 (cf. kindergarten)	-0.198*	-0.201*	-0.210*	-0.062	-0.062	-0.078
	(0.08)	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)
Grade 2	-0.165	-0.181	-0.176	-0.098	-0.103	-0.091
	(0.10)	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
Grade 3	0.019	-0.002	0.002	0.056	0.051	0.063
	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Grade 4	0.016	-0.026	-0.018	-0.096	-0.109	-0.105
	(0.13)	(0.12)	(0.12)	(0.12)	(0.11)	(0.11)

Table 4, continued

Grade 5	0.327**	0.293*	0.292*	0.278*	0.268*	0.270*
	(0.12)	(0.12)	(0.12)	(0.12)	(0.11)	(0.11)
Female	-0.018	-0.017	-0.018	-0.100*	-0.099*	-0.099*
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
White (Cf. Black)	-0.092	-0.077	-0.085	-0.105	-0.100	-0.117
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.10)
Other	0.080	0.076	0.061	0.049	0.050	0.039
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Hispanic	-0.227	-0.204	-0.223	-0.179	-0.170	-0.195
	(0.16)	(0.16)	(0.16)	(0.14)	(0.14)	(0.14)
Constant	0.032	0.054	0.072	0.063	0.068	0.092
	(0.09)	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)
R-square	0.815	0.814	0.814	0.847	0.847	0.849
BIC	461.633	462.816	462.689	379.473	379.480	374.429
N	340	340	340	317	317	317

Note. Standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ Given a small sample of the service D recipients, we dropped those students in the regression analysis.

In Table 5, the targeted in-school service recipients have greater fall-to-winter gains in their i-Ready percentile rankings (B = 0.260) than their peers who did not receive any services or received other types of services. However, we did not find similar reading improvement effects in other service recipients or the spring percentile rankings compared with non-service recipients. For other covariates, students' grade level and gender also influenced their i-Ready percentile rankings.

Table 5. OLS Regression i-Ready Percentile Ranking for Community Service Types (Continued)

	M1A: i-Ready percentile (Winter)	M1B: i-Ready percentile (Winter)	M1C: i-Ready percentile (Winter)	M2A: i-Ready percentile (Spring)	M2A: i-Ready percentile (Spring)	M2A: i-Ready percentile (Spring)
	b/se	b/se	b/se	b/se	b/se	b/se
Percentile (Fall)	0.651***	0.651***	0.653***	0.737***	0.736***	0.726***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)

Table 5, continued

Targeted in-school service	0.260*			0.068		
	(0.11)			(0.10)		
Afterschool service		0.130			0.060	
		(0.11)			(0.10)	
Holistic in-school service			-0.009			-0.112
			(0.12)			(0.11)
Grade 1 (Cf. K)	-0.852***	-0.857***	-0.863***	-0.806***	-0.806***	-0.827***
	(0.13)	(0.13)	(0.13)	(0.12)	(0.12)	(0.12)
Grade 2	-1.020***	-1.053***	-1.051***	-0.874***	-0.883***	-0.889***
	(0.13)	(0.13)	(0.13)	(0.12)	(0.12)	(0.12)
Grade 3	-0.875***	-0.917***	-0.918***	-0.718***	-0.729***	-0.742***
	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)
Grade 4	-0.998***	-1.088***	-1.071***	-1.038***	-1.066***	-1.082***
	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Grade 5	-0.745***	-0.818***	-0.819***	-0.578***	-0.598***	-0.627***
	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)
Female	-0.019	-0.014	-0.017	-0.164*	-0.162*	-0.161*
	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)
White (Cf. Black)	-0.300	-0.264	-0.265	-0.255	-0.244	-0.255
	(0.17)	(0.17)	(0.17)	(0.16)	(0.16)	(0.16)
Other	-0.150	-0.164	-0.185	0.181	0.184	0.174
	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)
Hispanic	-0.327	-0.272	-0.292	-0.083	-0.065	-0.092
	(0.25)	(0.25)	(0.25)	(0.23)	(0.23)	(0.23)
Constant	0.765***	0.818***	0.837***	0.772***	0.782***	0.821***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
R-square	0.560	0.555	0.553	0.629	0.629	0.630

Note. Standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ Given a small sample of the service D recipients, we dropped those students in the regression analysis.

Discussion

Among 347 students in this Title I school, 115 students were referred by their teachers, and the school worked to receive additional support from the

community partners. Our discussions focus on three aspects: (1) non-service, one service, vs. multiple services, (2) types of services, and (3) changes in achievement scores over time.

Non-Service, One Service, vs. Multiple Services

Students who received services, particularly for targeted in-school services, had a positive and statistically significant improvement in percentile rankings over those who did not receive services. This is consistent with the findings in the existing literature about the positive impacts of community involvement on student achievement (Dryfoos, 2000; Epstein et al., 1997; Henderson & Mapp, 2002; Newman, 1995). Seeing that these struggling students performed significantly better after receiving community services is encouraging. This indicates that the community services can positively impact students' reading achievement in the Title I school and reduce the gap of educational inequality.

However, although students who received multiple community services had positive gains, there was no statistical difference in reading achievement between students who received one or multiple services. More data are still needed to explain why students who received multiple services did not perform significantly better than their peers who only received one service in terms of reading achievement. One potential reason is that some services did not focus on students' reading skills but on their social and emotional skills. In the future, if social and emotional performance data are provided, the analyses will be more inclusive, covering more than reading achievement. Knowing the data limitation is important and educational to community partners. It reminds community partners that documenting data associated with their services is needed for analyzing students' overall learning outcomes. Moreover, the number of students who received multiple services was too small to generate statistical power. This encourages all stakeholders to work more closely in the future when referring students to receive community services if they hope to see the statistical significance, whether positive or negative, to hold a degree of confidence that the results are reliable and not due to chance.

Types of Services

Both targeted and holistic in-school services were necessary and beneficial to students, but targeted reading interventions that were explicit and systematic had more positive impacts on the students' reading achievement. In the present study, the available data only allow the research team to examine students' reading achievement. Under this limitation, it is predictable that direct and targeted reading interventions would be more likely to increase students' reading achievement than indirect services like family dollars or social–emotional learn-

ing activities. This highlights the importance of deliberative communication addressed by Badgett (2016), which requires all stakeholders to be thoughtful and considerate, knowing what goals they want to achieve and what data are needed to measure progress.

Changes in Achievement Scores Over Time

Students who received services sustained the intervention effectiveness better from fall to winter than from winter to spring. Due to COVID-19, the spring scores of i-Ready were gathered in February/March instead of May/June as they would normally have been. In other words, students did not receive an entire semester of instruction in the spring semester when they took the end-of-the-year assessment. Thus, it is reasonable to assume that the pandemic had negatively affected students' reading achievement. Numerous studies show similar outcomes: students' test scores were lower than those of same-grade peers before the pandemic (Kuhfeld et al., 2022). It is important to note the Individuals with Disabilities Act (IDEA) requires that when schools provide services to typical learners, they must also make these services available to students with disabilities. Under no preparation for the pandemic that caused an unprecedented disruption to the educational provision, the school decided to stop all instructional activities, including community services, for the rest of the spring semester. Because the pandemic affected all students who received or did not receive community services, the data were not skewed in that sense.

Although many educators are aware of summer learning loss (The National Summer Learning Association, 2017), our study indicates that winter learning loss might also exist because both groups of students in this Title I school, receiving or not receiving community services, had lower reading achievement after the winter break. This suggests that students in the Title I school may need continuous support even during the winter break. The data inform community partners to redesign their services beyond school semesters. Structured, creative, and enjoyable in-home or outdoor activities that students can do individually or with their families may keep up their learning over the winter break.

Conclusion

In summary, our study shows that students who received community services performed better on the norm-referenced test than those who did not receive any community service, even after the winter break learning loss and before the school closure due to COVID. Each community partner had a touchpoint with the students and families they served. However, there was no significant difference between students who received one or multiple types

of community services regarding reading achievement. The quantitative data from OLS models indicate that direct and explicit reading intervention is more likely to improve students' reading achievement than other services. Still, such results should not be overgeneralized to deny the value that different community services brought to schools and their students' lives. All stakeholders should communicate deliberatively to understand the specific value different types of community services create. Each community partner should view data collection as part of their responsibility to monitor the effectiveness of the services they provide to K–12 schools.

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