

The Impact and Scaling of the 2019-20 Future Forward Literacy Program Prior to School
Closures Due to COVID-19

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Future Forward is an early elementary literacy program that leverages a school-community-family partnership approach (Epstein et al., 2002) to support the literacy development of students and families. Future Forward provides one-on-one tutoring to students while also supporting literacy development opportunities at home and in the community. In 2011, Future Forward was awarded an Investing in Innovations (i3) development grant to develop the program and test the impact of two years of participation on students in seven Milwaukee schools. Participation in two years of Future Forward was found to have positive impacts on literacy development and school attendance (Jones, 2018; Jones & Christian 2021). In 2017, Future Forward received an Education Innovation and Research (EIR) Mid-Phase grant from the U.S. Department of Education to expand to 14 schools across seven school districts in three states. An important change made to Future Forward during the new grant was that participation was shortened from two years to one. This was done to reduce cost and to increase implementation flexibility. This paper presents the results of an implementation and impact evaluation of this shortened Future Forward approach executed during the 2019-20 school year.

The Future Forward Approach

The Future Forward approach to literacy development accounts for skill deficits while also addressing reasons why students are unable to read by third grade. Future Forward was developed in response to the mixed evidence about how well skill-based program impacts are sustained after students leave a program (D'Agostino et al., 2017; Hurry & Sylva, 2007). After an intervention helps a student get back on track in their literacy development, there is a risk that the same family, school, and community factors that led them to fall behind originally will again

interfere with the student's education. Future Forward accounts for this by not solely focusing on literacy skill development but also working to build an environment around students that is more conducive to students learning to read and to maintaining their literacy development beyond their participation in Future Forward. Through its school-family-community partnership approach (Epstein et al., 2002), Future Forward views literacy through a systems lens (Bronfenbrenner, 1979) (Figure 1). At its center, students receive 30 minutes of phonics-focused, one-on-one tutoring from a paraprofessional or volunteer three times each week. Learning opportunities are also embedded in the community through community events. Family engagement involves ongoing communications with families regarding their student's progress. Communications are focused on student successes and meant to be positive (Love, 1996). Families are also provided development opportunities for supporting their student's literacy outside of school. These occur during home visits and monthly family events held at the school or a community center. Teachers work with Future Forward staff to align instruction and supports to individual student's strengths, interests, and needs. Teachers may help plan and often attend family events, leveraging the resources of Future Forward to effectively engage families and connect with students. The collaborative work between teachers, Future Forward staff, and families helps develop a learning team and builds trust between the three partners (Graham-Clay, 2005) that may continue past a student's direct participation in Future Forward.

At each site, an instructional coordinator, who is typically a certified teacher, oversees and supports the tutors and coordinates the collaboration between local Future Forward and school staff. Tutors participate in a series of all-program trainings at the beginning of the year, which include the implementation of the lesson, how to develop a lesson plan, and how to administer and use literacy assessments. At the site level, other individualized training

opportunities are developed throughout the year as needs arise. These are more specialized trainings that reflect the different components of the lesson plan. Tutors are informally observed and supported while they provide tutoring. They are also formally observed, using a structured observation instrument, at least once monthly by their program manager and receive feedback following these observations.

Each site also has a family engagement coordinator who leads engagement efforts with participating students' families. Family engagement coordinators are typically community members and often parents of children attending the school. Their work is designed to bridge the divide between school and home by translating literacy concepts, educating families about a variety of literacy activities, and validating the literacy practices already happening in the home. Family engagement coordinators receive a variable amount of training, depending on their experience, but all receive training about Future Forward tutoring, how to document communications, using scripts to facilitate effective communications, how to conduct a family night, how to conduct a safe home visit, how to build trust, and cultural differences in communicating with families.

Tutoring

One-on-one tutoring is managed by a certified teacher who oversees a group of five to seven tutors in each school. Tutors are typically paraprofessionals but may also be community members or college students. If possible, the same tutors work with students for the entirety of their participation in Future Forward. Students are pulled out of non-core classes during the school day for 30 minutes, up to three times per week. Each tutoring session includes a number of literacy-focused activities. First, tutoring starts with a *Familiar Activity*, reviewing skills they recently learning. Next, students receive phonics-based instruction. *Word Play* (Wasik & Jacobi-

Vessels, 2016) includes two core activities: *Word Sorts* and *Making Words*. *Word Sorts* involve students sorting words into various categories to increase their understanding of the structure of sounds and letters (Morris, 1982; Zutell, 1996; Zutell, 1998). Students also use letters to *Make Words*, which supports students learning the way sounds are put together to make words (Cunningham et al., 1998). *Word Play* also involves reading phonics-based books and other activities designed to support student understanding of targeted skills. Tutors then support students reading a book at their instructional level. This typically starts with a “book walk”, introducing students to the book’s content and vocabulary. Tutors use a variety of strategies to help students decode and make meaning of text. Part of this involves helping students use graphic organizers to build comprehension skills. Students then write sentences connected to the *Word Play* or book. This may involve the use of *Elkonin boxes*, which helps build phonological awareness by segmenting words into individual sounds/boxes (Keesey et al., 2014). Each lesson then ends with tutors reading a book aloud.

Family engagement

Future Forward family engagement involves a variety of activities and communication strategies that help develop literacy support in the natural environment of students and families. Sites send home a monthly newsletter, hold monthly family events, send books home to help build a home library, and conduct home visits. Communications are intended to keep families updated about their student’s progress in the program and to broker conversations between home and school. These can include phone calls, emails, texts, and face-to-face conversations at the school. The motivation behind family engagement work is to leverage the family as a critical partner in the reading development of students. Engaging families in tutoring programs has proven to improve student academic knowledge, skills, and confidence (Bryan, 2005; Little,

2009; Harvard Family Research Project, 2009). This approach has proven to have an even greater literacy benefit for low-income children with less-educated parents (Dearing et al., 2006; Lin, 2003). Future Forward family engagement goes far beyond the typical approach of education programs that focus on superficial engagement like families attending events, receiving information from staff, volunteering (Epstein, 2001), and exhibiting “good parent” behaviors (Li, 2010). Instead, Future Forward honors what the family is already doing at home to support the development of their student’s academic skills (Nieto, 2012), empowering them to be more effective in doing so. Future Forward also helps mitigate challenges to family engagement, such as if there is a mismatch between schools and families in terms of language, schedules, and expectations (Lopez & Stoeling, 2010). Schools getting to know families and the ways that their lives are structured outside of the educational setting may lead to a reciprocal relationship that can increase their involvement over time (Graue & Hawkins, 2010). Further, research has shown school, family, and community partnership practices can decrease the likelihood that students are chronically absent from school (Sheldon & Epstein, 2004). Students need to regularly attend school to improve their literacy.

Previous Future Forward Research/Evaluation

Two i3-funded randomized control trial (RCT) studies established the impact that Future Forward has on student reading development and school attendance. The first RCT study, funded by i3, was a pilot evaluation conducted as the program was still being developed in six Milwaukee schools during the 2011-12 and 2012-13 school years (Jones, 2018). While Future Forward had a small but significant impact on reading achievement (0.12 standard deviations), no significant impact was found on school attendance. However, since the family engagement component was being developed, and therefore was not fully implemented, the study did not test

the impact of the FE component as it was intended (Jones, 2018). The second study, also funded by i3, found positive and statistically significant impacts on literacy development and school attendance (Jones & Christian, 2021). Specifically, after two years of tutoring, participants' literacy assessment scores improved by 0.23 standard deviations. Further, Future Forward students were absent from school 4.5 fewer days than students receiving only business-as-usual (BAU) reading instruction from the school. Interestingly, the impact of Future Forward was mostly realized after just one year of participation. This study also reported that the impact of Future Forward was the greatest for students with the greatest need for literacy help. The second study also established implementation benchmarks . Across the two years of participation, students received an intense amount of tutoring (average of 122.5 tutoring sessions or 61 hours of tutoring) and family engagement (the average family was engaged 32 times).

2019-20 Study of Future Forward

The 2019-20 school year was the second full year of implementation for the EIR grant. The 2018-19 program was a pilot year when sites hired staff and learned program implementation (Jones et al., 2020, September). During this time, Future Forward leveraged partnerships with local Boys & Girls Clubs to staff each site's program and to facilitate access to schools and students. The 2019-20 program year was the first year of the Future Forward EIR grant that had a randomized study of its impact attached to it. This report presents the results of this study, examining evidence of the scalability and impact of one year of Future Forward on the reading achievement and school attendance of students in 14 schools across three states (Table 1): nine schools are in the state of Wisconsin, two are in Alabama, and the remaining three are in South Carolina. These 14 schools partnered with six local Boys & Girls Clubs to deliver Future Forward. Seven schools are within large, urban districts. The remaining seven

schools are in small, rural communities. Participating schools had a history of overall literacy performance that placed them in the lowest 20% of schools in their state or had a history of large reading achievement gaps between races or economic groups. Eight of the study schools served a large number of Black students. The great majority of students in all but one school were eligible for free or reduced lunch.

Research Questions

We explore the implementation of Future Forward to address the following question:

How well was Future Forward implementation scaled up to 14 schools across three states?

In the Spring of 2020 schools were shut down nation-wide because of the COVID-19 pandemic and instruction moved online. Thus, no spring testing occurred in study schools. This limited the study to only answering the following question about the impact of Future Forward on school attendance:

What is the impact of one year of Future Forward participation on regular-school-day attendance compared to students receiving business-as-usual literacy instruction?

And the following exploratory research question:

Did Future Forward have a differential impact on the regular-school-day attendance of student subgroups?

Evaluation Methods

This evaluation study utilized an RCT design, with students randomly assigned to receive Future Forward literacy or only BAU literacy instruction provided by their school.

Study Eligibility

Eligible students were kindergarten, first, and second graders without an Individualized Education Plan (IEP) and who were not English Learners. The specific numbers of students who were ineligible is not known because schools were instructed to not distribute consent forms to students who did not meet eligibility criteria.

Random Assignment

In the fall of 2019, 587 families consented for their student to participate in the study. Schools decided who to distribute consents to, so it is not clear how many families received consents. After the completion of consenting, two hundred ninety-three were randomly assigned to the Future Forward group and 294 to BAU reading instruction. Students assigned to Future Forward received Future Forward programming plus the typical reading instruction provided by their school. Assignments were made within blocks, defined as grade levels within schools (a grade level within a school is one block). Considering three participating grade levels, 14 schools involved in the study, and that two schools did not serve kindergarten students, the study included a total of 40 assignment blocks ($3 \text{ grade levels} * 12 \text{ schools} + 2 \text{ grade levels} * 2 \text{ schools} = 40$). The number of study participants in each block was twice the capacity of the program to serve. Of these, half were randomly assigned to Future Forward and the other to BAU reading instruction within each block. The number of study participants per block ranged from 6 to 33, with an average of 14 per block. Assuming a fixed program effect, and 40% of the variance in outcomes explained by covariates, the current study, prior to attrition, had an 80% likelihood of detecting an impact of 0.184 standardized units.

Instruments

Future Forward collected and shared program implementation data. Participating school districts provided all other data directly to the research team.

School Attendance. School attendance was measured twice, during the program (from December to March) and prior to the start of the program (from September to December). Attendance rates were computed by dividing the attended days by the total days of school during that time.

Reading/Literacy Assessments. Reading achievement assessments administered at baseline included the Phonological Awareness Literacy Screening (*PALS*), the MAP reading assessment for primary grade (*MPG*), the Dynamic Indicators of Basic Early Literacy Skills (*DIBELS*), and the Formative Assessment System for Teachers (FAST) - *FastBridge* reading assessments. Assessments were intended to be administered again at the end of the school year, but COVID-19 forced schools nationwide to be closed in March of 2020.

The *PALS*, used by seven of 14 schools, is a criterion-referenced, teacher-administered assessment of foundational literacy (Invernizzi et al., 2003). The assessment's internal reliabilities range from 0.76 to 0.83, inter-rater reliabilities are 0.92, and test-retest reliabilities are between 0.92 and .96 (Invernizzi et al., 2015). The assessment also has strong evidence of predictive validity (Invernizzi et al., 2004). The *MPG* was used by three schools. *MPG* is a norm-referenced assessment of reading achievement and its measures of reliability and validity of the MAP test are high (NWEA, 2009). The reliability ranges from 0.70 to 0.90 and the predictive validity lies between 0.65 and 0.85. The *DIBELS*, used by two schools, refers to five measures that assess the reading skills of K-8 students (Center on Teaching and Learning, 2018). The one-minute short measures have been "thoroughly researched and demonstrated to be

reliable and valid indicators” (DIBELS, 2021). Three measures have excellent alternate form reliability of 0.90+, and two measures have good reliability of 0.80+ (Center on Teaching and Learning, 2018). The composite score, which was used in the current study, combines the results from the individual assessments (University of Oregon, 2020). Composite score test-retest reliability is high, ranging from 0.70 to 0.93 depending on the grade level and form used. It also has high concurrent and predictive validity with the Iowa Test of Basic Skills (University of Oregon, 2018-2020). The *FastBridge* reading assessment, used by two schools, is norm-referenced and has strong validity and reliability (Christ & Colleagues, 2015, p.20).

Modeling Strategy

General linear models, with fixed block effects, were used to estimate the impact of Future Forward on regular-school-day attendance rates. Attendance rates were selected as the outcome rather than absences to account for different program durations between different sites. Attendance rates were modeled using the following linear regression equation -

$$Y_{ij} = \beta_0 + \beta_1(FF_{ij}) + \beta_2(A_{ij}) + \beta_3(P_{ij}) + \sum_{m=1}^M \beta_{4.m}X_{mij} + \sum_{j=1}^{J-1} \beta_{5.j}Block_j + \varepsilon_{ij} \quad 1)$$

Where Y_{ij} is the outcome (attendance rate) for the i^{th} student in the j^{th} block; β_0 is the intercept; β_1 is the impact of Future Forward; FF_{ij} is a binary indicator for Future Forward participation; A_{ij} is baseline attendance rate (measured prior to the start of the program from September to December, depending on site); P_{ij} is the standardized baseline achievement score. Baseline achievement was standardized within grade levels separately for each reading assessment and then combined; X_{mij} is the m^{th} of M additional covariates representing demographic characteristics (e.g. gender, free/reduced lunch, and race); $Block_j$ is the fixed effect of assignment block (grade level within school); Within each block, all Future Forward and BAU

students received the same literacy assessment; and ε_{ij} is the error term. In addition to including the fixed block effects, error terms were clustered by assignment block (Athey & Imbens, 2017). For a robustness check, we stripped out all model effects except block fixed effects and Future Forward participation. We also conducted a treat-on-treated model to measure the impact of Future Forward who received the full expected amount of tutoring and family engagement.¹ Differential effects of Future Forward on student subgroups (race, gender, F/R lunch eligibility, grade levels, baseline attendance, and baseline achievement) were explored by separately including interaction terms for each characteristic with Future Forward in the simple model. The differential impacts of Future Forward on subgroups with significant interaction terms were then explored by running the simple model separately for each subgroup.

Sample Characteristics and Attrition

Overall, 58.7% of the study participants were Black and 84.3% were eligible for free or reduced lunch (Table 2). Students assigned to Future Forward and BAU were similar across demographic backgrounds and had nearly identical baseline attendance (Table 3) and baseline achievement (Table 4). Twenty students ($20/587 = 3.4\%$) exited the study. These included five students who left the program, 14 students who changed schools, and one who left for unknown reasons. Eight BAU ($8/294 = 2.7\%$) and twelve Future Forward ($12/293 = 4.1\%$) students attrited. Students who dropped from the study were not replaced. The combination of overall and differential attrition is low, within conservative levels of acceptability as established by the What Works Clearinghouse (2020). After attrition, the characteristics of students in different assignment conditions did not significantly change (Table 2). The resulting analytic sample still included mostly low-income Black students (Table 2) and was balanced regarding both baseline

¹ https://ocw.mit.edu/courses/14-387-applied-econometrics-mostly-harmless-big-data-fall-2014/resources/mit14_387f14_causaleffects/

attendance (Table 3) and baseline achievement (Table 4). No students in the analytic sample were missing baseline data.

Implementation Results

Due to challenges obtaining informed consents many sites started working with students later than planned. In 11 schools, participation started in early December, two schools started serving students in early November, and one in late October. Given that programming stopped in early March, most students and families were engaged for a maximum of three calendar months in Future Forward. Time in the program was further reduced by winter recess and other holidays during program months. Accounting for days away from school, the typical participant was engaged just 2.5 months in Future Forward before schools closed because of COVID-19.

During the shortened program, tutoring implementation was strong, with the average Future Forward participant receiving 2.6 tutoring sessions each week (Table 5). Of the 281 Future Forward participants, 252 (89.7%) received at least two sessions each week, the minimum expected implementation intensity. Students in all 14 schools averaged at least two sessions each week. However, the shortened program period impacted the total amount of tutoring students were able to receive. The average student received 25.9 tutoring sessions before schools closed because of COVID-19, roughly one-quarter the tutoring students received across two years of participation in the i3 study (Jones & Christian, 2021). If schools had not closed, students were on pace to receive between 50-60 sessions, roughly what was expected for one year of participation in Future Forward. Students likely would have received more than the expected amount of tutoring had participation also started earlier in the school year.

There was more variability between schools regarding family engagement implementation (Table 5). While overall, the typical student's family was engaged a total of 4.1

times, or 1.8 times per month, family engagement implementation varied significantly between schools, ranging from 1.7 to 7.9 total contacts and 1.0 to 3.1 contacts each month. Considering families in the i3 study averaged 32 total contacts, the amount of family engagement was significantly less than what was observed in that study. If the program had not ended early, families were on pace to be contacted roughly eight times, less than one-fourth what was observed over the two years in the i3 study. Even if participation had started at the beginning of the school year, it is likely families would have been contacted fewer times than expected. Regarding specific family engagement activities, the shortened program period prevented Future Forward from conducting home visits and limited the number of family events held. Sites did send home monthly newsletters and books to support the development of home libraries.

After schools were shut down in early March, Future Forward continued to communicate with families and find ways to support them during the unsure first few months of the pandemic. Future Forward worked to help families gain access to computers and the internet. Future Forward then moved tutoring online in April. From April through the end of May, 161 students received some amount of online tutoring, averaging 1.8 sessions. The impact of these efforts goes beyond this evaluation and are not reflected in the limited impact analyses presented in this paper.

Impact Results

As previously stated, students were not tested in the spring of 2020 due to the pandemic, preventing the study from assessing the impact of Future Forward on reading achievement. However, measuring its impact on school attendance was still possible. Mean unadjusted attendance rates were higher for Future Forward compared to BAU students during the tutoring period by 1.4 percentage points (91.2% vs. 89.8%) (Table 3). The typical Future Forward

participant missed one fewer day of school during the program. This difference was statistically significant in both the full ($\beta = 1.39, p = 0.021$) and simple models ($\beta = 1.42, p = 0.013$) (Table 7), suggesting an impact of roughly 1.4 percentage points. The magnitude of this impact is consistent with the 4.5 days impact reported across two years of participation in the i3 study (Jones & Christian, 2021). Considering the high family engagement implementation variability between schools, we explored if the impact on attendance was driven by schools with greater family engagement implementation. However, no connection was found in a residual score analysis between school levels of implementation and the program's impact on school attendance. At the student level, higher amounts of Future Forward related with higher school attendance rates. Partialling out preprogram attendance rates, there was a significant positive correlation between the amount of tutoring received and school attendance rates during the program ($r = .402, p < .001$). Students were expected to receive at least two tutoring sessions each week. The compliance rate for tutoring was 89.7%. Dividing the average program effect by the compliance rate provides a slightly higher treat-on-treated estimate ($1.42 / .897$) of 1.58 percentage points.² There was no correlation between the number of family contacts and school attendance so we did not conduct a treat-on-treated estimate for this.

The overall impact of Future Forward was largely driven by its impact on underserved students (Table 6). Significant interaction terms with Future Forward participation suggest the impact of Future Forward was modified by participant race ($p = 0.018$) and baseline attendance rates ($p = 0.045$). The interaction terms of grade level, gender, F/R lunch participation, and baseline achievement were not significant. The magnitude of the impacts of Future Forward on Black students ($\beta = 2.41, p = 0.006$) and students who started the program with below median

² https://ocw.mit.edu/courses/14-387-applied-econometrics-mostly-harmless-big-data-fall-2014/resources/mit14_387f14_causaleffects/

school attendance ($\beta = 2.34, p = 0.035$) were considerably larger than the overall impact. Future Forward did not impact the attendance of White students ($\beta = -0.34, p = 0.750$) or students starting the study with above median attendance ($\beta = 0.63, p = 0.357$). The impact on Black students who started the program with low attendance was particularly large ($\beta = 3.57, p = 0.030$). For this subgroup's unadjusted attendance, Black Future Forward participants were absent from school 3.4 fewer days. Together, these results suggest the more the sample was similar to the sample from the i3 study (Jones & Christian, 2021), which included mostly Black struggling readers, the greater its impact on school attendance.

Conclusions and Discussion

The purpose of the EIR-funded RCT study of the 2019-20 Future Forward program was to examine the scalability and impact of one year of participation on school attendance and reading achievement. The pandemic interrupted our ability to do this. Students and families had limited engagement in Future Forward before schools shut down and schools did not administer end-of-year reading assessments. For most schools, programming occurred from early December through the end of February. As the pandemic unfolded and Future Forward staff worked to support families, the study became an afterthought. What mattered was that students were safe and families had resources to support their student's education and health. Future Forward put aside its programmatic goals and did its best to support families during this unsure time.

Before schools shut down, Future Forward was on pace for meeting tutoring implementation targets. Students across all 14 schools were receiving an intense amount of tutoring, consistent with the intensity observed in the i3 study of Future Forward. It is less clear that family engagement met implementation targets. Families were contacted significantly less

than observed in the i3 study. There was considerable variability between sites though regarding the extent families were engaged.

Future Forward was found to have a statistically significant positive impact (1.4 percentage points) on school attendance during the limited time students were in the program. While the magnitude of the impact was only about one school day, considering the short length of participation during the 2019-20 program, this was consistent with the size of the impact on school attendance measured in the i3 study (Jones & Christian, 2021). It is interesting that only tutoring participation was predictive of regular-school-day attendance. The reasons for family engagement not also predicting school attendance are not entirely clear. One possible explanation is that it was their student's participation in Future Forward that motivated families to have students attend school more regularly. Participation in Future Forward was viewed by families as a great opportunity for students. It is possible that families were more conscientious regarding school participation knowing that their student might miss out on some of this opportunity. The processes for why students in Future Forward attend school more frequently will be examined qualitatively in future research.

Through its systems (Bronfenbrenner, 1979) and partnership approach (Epstein, 2001) to supporting students and families, Future Forward is designed to have a lasting impact on students. In a five-year follow-up study of participants from the i3 study, two years of Future Forward was found to have sustained impacts on reading achievement, school attendance, and on the likelihood that students would receive specialized services (Jones et al., 2023). The limited intervention students received during the 2019-20 school year makes it unlikely that its impact on attendance, or its unmeasured impact on reading achievement, would be sustained past their participation. Even what little potential remained for the 19-20 program to have a lasting impact

on students was likely eliminated as COVID-19 continued to impact schools during the 2020-21 school year (Kuhfeld et al., 2020).

It is important to spotlight that Future Forward's impact on school attendance was greater with Black students. How and why participation in Future Forward was particularly impactful to Black students is unclear and will be a focus of future research. Future Forward was developed in Milwaukee, with a clear understanding that schools underserve Black students. The implicit bias of teachers negatively affects Black students as early as prekindergarten (Gilliam, 2005). Teachers expect less success and more trouble from Black students (Gershenson & Papageorge, 2018). White teachers have lower expectations of Black students than Black teachers (Gershenson et al., 2016). Witnessing a student's success in Future Forward may help correct this tendency and help teachers see the potential in Black students. Future Forward may also help teachers see the potential in Black families (Lawrence-Lightfoot, 2004). Many Black families have histories of negative school interactions (Koonce & Harper, 2005). Through its partnership approach, the positive exchanges facilitated by Future Forward with families may work to increase trust between the school and families (Graham-Clay, 2005). Parents should feel respected by teachers (Lindle, 1989) and Future Forward may create space for that to develop. All of this might translate into improved school attendance and achievement for Future Forward participants.

Despite the continued disruption to schools caused by COVID-19, the EIR-funded Future Forward project continued during 2020-21 school year. Future Forward was motivated to help mitigate some of the difficulties families and schools continued to face. Like so much of schooling, Future Forward moved online by modifying its program to be virtual. Future Forward made this decision, understanding that any research about the impact of the virtual iteration of

Future Forward would not directly inform our understanding of the impact of Future Forward, as designed in the i3 study. They also understood that the EIR Mid-phase grant would therefore end without a true assessment of Future Forward's implementation and impact. Future Forward made the commendable step of putting the needs of communities above its programming and organizational needs. Even without true test of the impact of Future Forward during the EIR Mid-phase grant, in 2021, Future Forward was awarded an EIR expansion grant. This grant will provide additional opportunities to study the implementation and impact of Future Forward at scale.

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Figure 1: Future Forward systems framework for sustained literacy development

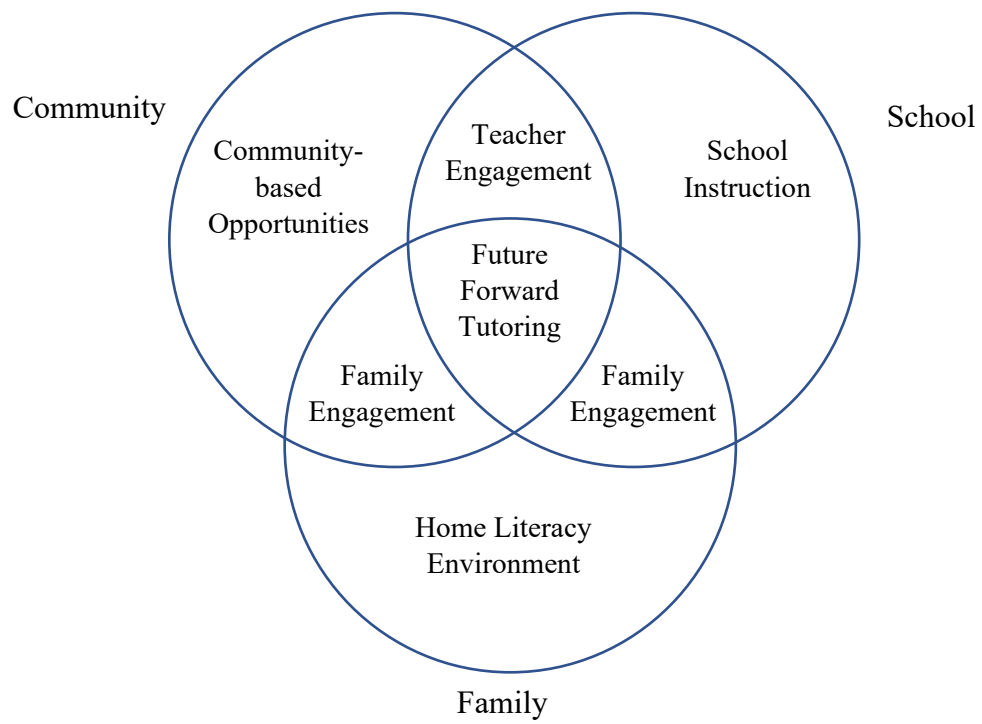


Table 1: Participating schools

	State	Community Type	Percent Black Students	Percent White Students	Free/Reduced Lunch Eligibility
School 1	WI	Urban	97.4%	0.0%	89.5%
School 2	WI	Urban	89.7%	7.7%	84.6%
School 3	WI	Rural	0.0%	86.7%	63.3%
School 4	WI	Rural	6.9%	82.8%	86.2%
School 5	AL	Urban	61.5%	23.1%	71.8%
School 6	SC	Rural	54.1%	40.5%	100%
School 7	WI	Rural	4.2%	91.7%	72.9%
School 8	AL	Urban	31.6%	50.0%	39.5%
School 9	WI	Rural	2.2%	88.9%	71.1%
School 10	WI	Urban	97.5%	0.0%	92.5%
School 11	WI	Urban	97.3%	0.0%	97.3%
School 12	WI	Urban	97.5%	0.0%	100%
School 13	SC	Rural	94.7%	5.3%	100%
School 14	SC	Rural	72.5%	26.1%	100%

Table 2: Participant characteristics

		Study Sample		Analytic Sample	
		BAU	FF	BAU	FF
Grade Level	KG	82 (27.9%)	81 (27.6%)	81 (28.3%)	77 (27.4%)
	1 st	108 (36.7%)	108 (36.9%)	105 (36.7%)	104 (37%)
	2 nd	104 (35.4%)	104 (35.5%)	100 (35.0%)	100 (35.6%)
School	School 1	20 (6.8%)	20 (6.8%)	20 (7.0%)	18 (6.4%)
	School 2	20 (6.8%)	20 (6.8%)	19 (6.6%)	20 (7.1%)
	School 3	15 (5.1%)	15 (5.1%)	15 (5.2%)	15 (5.3%)
	School 4	15 (5.1%)	15 (5.1%)	15 (5.2%)	14 (5.0%)
	School 5	21 (7.1%)	20 (6.8%)	21 (7.3%)	18 (6.4%)
	School 6	20 (6.8%)	20 (6.8%)	19 (6.6%)	18 (6.4%)
	School 7	25 (8.5%)	25 (8.5%)	25 (8.7%)	23 (8.2%)
	School 8	20 (6.8%)	20 (6.8%)	19 (6.6%)	19 (6.8%)
	School 9	23 (7.8%)	23 (7.8%)	23 (8.0%)	22 (7.8%)
	School 10	20 (6.8%)	20 (6.8%)	20 (7.0%)	20 (7.1%)
	School 11	20 (6.8%)	20 (6.8%)	18 (6.3%)	19 (6.8%)
	School 12	20 (6.8%)	20 (6.8%)	20 (7.0%)	20 (7.1%)
	School 13	20 (6.8%)	20 (6.8%)	18 (6.3%)	20 (7.1%)
	School 14	35 (11.9%)	35 (11.9%)	34 (11.9%)	35 (12.5%)
Race/ Ethnicity	Black	169 (57.5%)	173 (59.%)	164 (57.3%)	169 (60.1%)
	White	108 (36.7%)	101 (34.5%)	105 (36.7%)	95 (33.8%)
	Other	17 (5.8%)	19 (6.5%)	17 (5.9%)	17 (6.0%)
Gender	Female	156 (53.1%)	155 (52.9%)	153 (53.5%)	148 (52.7%)
	Male	138 (46.9%)	138 (47.1%)	133 (46.5%)	133 (47.3%)
F/R Lunch	No	45 (15.3%)	48 (16.4%)	44 (15.4%)	45 (16%)
	Yes	249 (84.7%)	245 (83.6%)	242 (84.6%)	236 (84%)
Total		294	293	286	281

Table 3: School attendance

Baseline attendance (Before FF)									Attendance during FF						
		Attendance Rate		Attendance Days		Absence Days			Attendance Rate		Attendance Days		Absence Days		
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Study Sample	BAU	93.8%	6.9%	55.5	12.8	3.8	4.4	288							
	FF	93.8%	7.0%	56.0	13.0	3.7	4.1	292							
	Total	93.8%	6.9%	55.8	12.9	3.8	4.2	580							
Analytic Sample	BAU	93.8%	6.9%	55.5	12.8	3.8	4.4	286	89.8%	11.4%	60.3	13.8	6.7	7.2	286
	FF	93.8%	7.0%	56.2	12.9	3.7	4.2	281	91.2%	8.4%	61.0	12.8	5.7	5.4	281
	Total	93.8%	6.9%	55.9	12.8	3.8	4.3	567	90.5%	10.0%	60.7	13.3	6.2	6.4	567

Table 4: Standardized baseline achievement (before Future Forward)

		<i>M</i>	<i>SD</i>	<i>n</i>
Study Sample	BAU	-0.02	1.01	294
	FF	0.02	1.00	293
	Total	0.00	1.00	587
Analytic Sample	BAU	-0.03	1.01	286
	FF	0.02	1.00	281
	Total	0.00	1.00	567

Table 5: Implementation

	Average tutoring sessions per student (<i>SD</i>)	Average tutoring sessions per week (<i>SD</i>)	Students receiving 2+ tutoring sessions per week	Average family contacts per student (<i>SD</i>)	Average family contacts per month (<i>SD</i>)	Families contacted 1+ times each month	Families contacted 2+ times each month	Students
School 1	21.3 (3.9)	2.3 (0.5)	14 (77.8%)	2.11 (1.5)	0.99 (0.7)	8 (44.4%)	3 (16.7%)	18
School 2	20.9 (5.0)	2.3 (0.6)	16 (80.0%)	3.10 (2.2)	1.41 (1.0)	13 (65.0%)	6 (30.0%)	20
School 3	19.5 (2.8)	2.5 (0.4)	14 (93.3%)	2.00 (1.4)	0.92 (0.6)	7 (46.7%)	0 (0.0%)	15
School 4	22.0 (3.6)	2.6 (0.4)	14 (100%)	7.86 (6.9)	3.06 (2.7)	12 (85.7%)	7 (50.0%)	14
School 5	33.2 (3.3)	2.5 (0.2)	17 (94.4%)	5.67 (4.7)	1.82 (1.6)	12 (66.7%)	7 (38.9%)	18
School 6	27.0 (6.5)	2.8 (0.6)	15 (83.3%)	1.74 (1.4)	0.75 (0.6)	3 (15.8%)	1 (5.3%)	18
School 7	40.1 (4.0)	2.7 (0.2)	23 (100%)	4.17 (2.7)	1.19 (0.8)	14 (60.9%)	2 (8.7%)	23
School 8	39.1 (2.0)	2.9 (0.2)	19 (100%)	6.79 (3.6)	2.14 (1.1)	16 (84.2%)	10 (52.6%)	19
School 9	25.8 (3.8)	2.7 (0.4)	22 (100%)	5.14 (2.2)	2.25 (1.0)	19 (86.4%)	14 (63.6%)	22
School 10	24.1 (2.3)	2.7 (0.2)	20 (100%)	4.50 (1.9)	2.05 (0.9)	18 (90.0%)	8 (40.0%)	20
School 11	20.2 (4.9)	2.2 (0.5)	12 (63.2%)	4.74 (3.0)	1.98 (1.2)	15 (78.9%)	8 (42.1%)	19
School 12	19.8 (3.7)	2.4 (0.5)	15 (75.0%)	3.35 (1.8)	1.82 (1.0)	20 (100%)	8 (40.0%)	20
School 13	25.8 (2.7)	2.6 (0.3)	19 (95.0%)	2.35 (0.9)	1.09 (0.4)	12 (60.0%)	0 (0.0%)	20
School 14	22.5 (4.3)	2.8 (0.6)	32 (91.4%)	4.43 (0.7)	2.57 (0.5)	35 (100%)	34 (97.1%)	35
Overall	25.9 (7.7)	2.6 (0.5)	252 (89.7%)	4.12 (3.1)	1.75 (1.2)	204 (72.3%)	108 (38.3%)	281

Table 6: Impact of Future Forward on school attendance

	Modeling Results				Unadjusted attendance (<i>SD</i>)	
	<i>Robust</i>				Future Forward	BAU
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>n</i>		
Full model*	1.39	0.58	0.021	567	91.2% (8.4%)	89.8% (11.4%)
Simple model*	1.42	0.54	0.013	567	91.2% (8.4%)	89.8% (11.4%)
Black students*	2.41	0.83	0.006	333	90.8% (9.3%)	87.9% (13.8%)
White students	-0.34	1.04	0.750	200	92.1% (6.7%)	92.5% (5.7%)
Students w/ low attendance*	2.34	1.07	0.035	284	87.6% (9.7%)	85.7% (13.9%)
Students w/ high attendance	0.63	0.67	0.357	283	94.5% (5.0%)	94.2% (5.1%)
Black students w/ low attendance*	3.57	1.57	0.030	181	87.1% (10.8%)	83.7% (16.0%)
Black students w/ high attendance	0.93	1.30	0.477	152	94.4% (5.5%)	94.0% (6.0%)

* $p < .05$

The 2020–21 Future Forward Literacy Program: Implementation and Impact During the COVID-19 Pandemic

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Abstract

Future Forward is an early elementary literacy program which, through a family–school–community partnership approach, integrates one-on-one tutoring and family engagement to support literacy development at school and at home. In the 2020–21 school year, as part of an Education Innovation and Research (EIR) Mid-Phase grant, the impact of a modified Future Forward on reading achievement was tested with a randomized control study of students in nine schools. In the context of COVID-19, implementation was modified to support virtual tutoring. Although consistent in magnitude with other studies, the modified Future Forward program was not found to have a statistically significant impact on student achievement. Sample size limitations and implementation challenges, both resulting from COVID-19, hindered our ability to measure an impact. Even considering these challenges, we still found evidence that Future Forward had a positive impact on the reading achievement of Black students (0.34 standard deviations, $p = .095$) and, even more so, Black male students (0.54 standard deviation, $p = .052$).

Key Words: tutoring, literacy, experimental research, Future Forward, family–school–community partnerships, COVID-19, implementation, impacts

Introduction

Future Forward is an early elementary literacy program that combines one-on-one tutoring with family engagement to promote student literacy development both at school and at home. In 2011 Future Forward was funded by a federal i3 grant to develop the program and test its impact in Milwaukee, Wisconsin. Two randomized control trial (RCT) studies found the program had positive impacts on literacy, reading achievement, and school attendance (Jones, 2018; Jones & Christian, 2021). In 2017, Future Forward received an Education Innovation and Research (EIR) Mid-Phase grant from the U.S. Department of Education to expand and test its impact on students in 14 schools across three states. As was the case across the entire education system, in the spring of 2020, Future Forward was shut down in response to COVID-19. To continue supporting students and families during the 2020–21 school year, Future Forward had to modify its program to allow for virtual instruction. This article presents the implementation and impact results of these efforts.

Tutoring Programs

There are a limited number of early primary literacy tutoring programs that have proven effective under rigorous scrutiny. The Evidence for Every Student Succeeds Act (ESSA) website (<https://www.evidenceforessa.org/>) lists only 13 tutoring programs that have, one of which is Future Forward. Tutoring programs generally focus on developing literacy skills in students behind in their literacy acquisition. Of the 13 validated programs included on the Evidence for ESSA website, seven use paraprofessionals or volunteers as tutors. Even using minimally trained college students serving as tutors has proven impactful on literacy (Lindo et al., 2018). There are some conditions of tutoring programs that are necessary for them to be effective, though. In their review of tutoring programs, Wasik (1998) concluded that successful volunteer tutoring programs are highly structured, have quality materials, and provide strong professional development and supervision to tutors. Future Forward meets these conditions and goes further. It is the only validated tutoring program included on the Evidence for ESSA website that supports literacy development at home as well as school.

The Future Forward Approach

Future Forward has a family–school–community partnership approach (Epstein, 2001) to promote student literacy development. An instructional coordinator, a family engagement coordinator, and tutors staff each Future Forward site. The instructional coordinator is typically a certified teacher who

manages one-on-one tutoring provided by paraprofessionals or volunteers. The instructional coordinator works with the school and tutors to develop a tutoring schedule. This involves identifying times students can be pulled out of class to receive tutoring and finding tutors who can work during those times. Students are tutored by the same tutor throughout their time in Future Forward. The instructional coordinator provides ongoing support, development, and supervision to the tutors. Each Future Forward student is scheduled for 90 minutes of one-on-one tutoring each week for one school year. Each tutoring session includes several phonics-based activities, such as Word Play (Wasik & Jacobi-Vessels, 2016) and Making Words (Cunningham et al., 1998). Students use graphic organizers to build comprehension skills and write sentences connected to a Word Play activity. They may also use Elkonin boxes, which involve segmenting words into individual sounds/boxes (Keesey et al., 2014).

The family engagement coordinator, who is typically a community member or parent from the school, leads family outreach and communication efforts. Although family engagement can take many forms to meet diverse family needs, there are some structured activities within Future Forward. Sites send home a monthly newsletter, hold monthly family events, send books home to help build a home library and conduct home visits. Communications that surround these activities are consistent and frequent, validating literacy development activities already occurring at home (Nieto, 2012; González et al., 2005) and updating families about the progress of their student's literacy development. Future Forward works to reduce the unequal power relationship between the school, Future Forward, and the family that is assumed by families and teachers at the start of their participation. It creates opportunities for overcoming barriers to family engagement that result from mismatches between school and home regarding language, schedules, and expectations (Lopez & Stoelting, 2010). During COVID-19, tutoring was modified to be more flexible, as further described below.

Previous Future Forward Research/Evaluations

The current impact study is the fifth of Future Forward. The i3 grant awarded in 2009 produced two. The first was a pilot evaluation as the program was developed in six Milwaukee Public Schools (MPS) during the 2011–12 and 2012–13 school years. While Future Forward had a small but significant impact on reading, it did not impact school attendance. Almost all Future Forward students received a high or moderate amount of tutoring, whereas the family engagement component was still in development (Jones, 2018). The second i3-funded RCT study tested the impact of the full Future Forward program on low-income students of color in seven MPS campuses during the 2013–14

and 2014–15 school years. Implementation was strong, with 96% and 98% of students receiving the intended amount of tutoring and family engagement, respectively. This study found positive and statistically significant impacts on literacy development and school attendance (Jones & Christian, 2021). While no significant impact on reading achievement was found after two years of tutoring, the impact after one year, with a much larger sample, was statistically significant and positive. Further, in a five-year follow-up study, Future Forward was found to have significant, sustained impacts on school attendance and reading achievement, equal to approximately one-half year of academic growth (Jones et al., in press). Further, former Future Forward participants were less likely (.30 the odds) to be receiving special education services than students assigned to business-as-usual (BAU) literacy instruction.

The EIR grant has also produced two research studies. The first of these occurred during the EIR-funded program's pilot year as it was expanded to 14 schools during the first full year of the grant in the 2018–19 school year (Jones et al., 2023). Although a regression discontinuity study did not find a statistically significant positive impact on reading achievement or school attendance, low statistical power and inconsistent implementation during the pilot year limited the study's ability to measure an impact. The second EIR study used a RCT to examine Future Forward's impact on reading and school attendance during the 2019–20 school year (Jones & Li, 2023). The nationwide shutdown of schools in spring of 2020 because of the COVID-19 pandemic limited the study to only testing its impact on school attendance. Future Forward was found to have a statistically significant, positive impact on school attendance. Overall, Future Forward participants demonstrated statistically significant improved attendance (1.4 percentage points), with greater impacts on Black students (2.4 percentage points), students with lower school attendance (2.3 percentage points), and Black students with lower school attendance (3.6 percentage points).

Current Study of Future Forward

During 2020–21, in response to school interruptions caused by COVID-19, tutoring was modified to be more flexible to the unique needs of families and schools. Sites had the option of tutoring students online or in person. Sites that chose the virtual option changed their scheduling to accommodate some of the challenges of virtual tutoring. Historically, each Future Forward tutoring session was scheduled for 30 minutes. However, virtual tutoring proved more time-consuming to facilitate. As such, sites using virtual tutoring scheduled two 45-minute sessions each week instead of three 30-minute sessions. Regardless of format, all students were provided access to the MyON online reading

platform provided by Renaissance Learning. MyON provided sites and families additional flexibility for engaging students in reading during COVID-19.

The decision to allow sites the option of providing online instruction was not made lightly. The 2019–20 and 2020–21 programs were to serve as the impact studies for the Future Forward EIR grant. Considering COVID-19 interrupted the 2019–20 program, modifying implementation during 2020–21 meant that the EIR study would end without any formal impact evaluation of the Future Forward program as it was designed. Future Forward was given the option of waiting until the 2021–22 school year in the hope that in-person tutoring and family engagement would be more acceptable to schools then. Future Forward chose to continue to work with students, though, to help mitigate (as best they could) the continued negative effects of COVID-19 on students, schools, and communities. Considering the school–family–community approach of Future Forward, program leaders felt they could not ethically put their programmatic needs above the needs of their partners.

In the current evaluation, we examine the implementation and impact of the modified Future Forward program on students in nine schools. While all nine participating schools reopened and offered in-person instruction, the implementation of Future Forward was modified to accommodate a variety of restrictions put in place by schools because of COVID-19. So while we originally planned to test the implementation and impact of Future Forward, the changes to the Future Forward model of delivery caused us to reframe our evaluation to be exploratory about the impact of a modified version of Future Forward.

Research Questions

- How was Future Forward implemented in schools during COVID-19?
- What was the impact of Future Forward participation on reading achievement?
- Did Future Forward have a differential impact on student subgroups?

Evaluation Methods

This evaluation study utilized an RCT design, with kindergarten, first grade, second grade, and third grade (K–3) students randomly assigned to receive Future Forward or only BAU literacy instruction during the 2020–21 school year.

Study Eligibility

Eligible participants were kindergarten, first, second, or third grade students without an Individualized Education Plan (IEP) and who were not English Learners. The specific number of students who were eligible is not

known because schools were instructed not to distribute consent forms to students who did not meet eligibility criteria. Those later referred for specialized services after assignment were excluded from analyses.

Informed consent was obtained from families for their students to participate in the study in the fall of 2020. A total of 464 students were consented for the study. Only students who participated in a fall reading assessment were eligible. This last eligibility criteria represented a significant barrier for students participating in the study. Of the 464 consented students, 297 completed a fall reading assessment and were enrolled in the study.

Random Assignment

In the fall of 2020, 153 of the 297 students were randomly assigned to Future Forward and 144 to the BAU reading instruction. Assignment was done within blocks, defined as grade levels within schools (each grade within a school was a block). Three schools included kindergarten through second grade students in the study, two included kindergarten through third grade students, two schools served first through third grade students, one school served first and second grade students, and one school only included two first grade students who had been attending Boys and Girls Club afterschool activities, resulting in 26 assignment blocks. The number of study participants per block ranged from 7 to 22, with an average of 11. The number of study participants within each block was twice the capacity of the program to serve, with half randomly assigned to Future Forward and the other half to BAU literacy instruction.

Participating Schools and Students

Nine schools participated in the study (see Table 1): four in Wisconsin, three in Alabama (one Alabama school included only two students who were Boys and Girls Club members), and two in South Carolina. These schools partnered with five local Boys and Girls Clubs. The three Alabama schools were located in an urban district, while the other six were in rural districts. Participating schools had a history of overall literacy performance that placed them in the lowest 20% of schools in their state or had a history of large reading achievement gaps between races or economic groups. Five schools that had previously participated in the EIR grant study were unable to participate in the current study because obtaining parent consent in these schools proved extremely difficult. The limited number of students consented was not enough to include these schools in the study. Table 2 presents characteristics of study participants. The backgrounds of the BAU and Future Forward assignment groups were similar. Among all the participants, most were economically disadvantaged (67%) and White (58%) or Black (32%).

Table 1. Participating Schools

	State	Community Type	Grades of Participating Students (26 Grades/Blocks)
School 1	WI	Rural	Grades KG–2
School 2	WI	Rural	Grades KG–2
School 3	SC	Rural	Grades 1–3
School 4	AL	Urban	Grades KG–3
School 5	WI	Rural	Grades 1–2
School 6	WI	Rural	Grades KG–2
School 7	AL	Urban	Grades KG–3
School 8	SC	Rural	Grades 1–3
School 9	AL	Urban	Grade 1

Table 2. Characteristics of Study Participants

		BAU	FF	Total
Grade Level	KG	26 (18.1%)	26 (17.0%)	52 (17.5%)
	1st	54 (37.5%)	58 (37.9%)	112 (37.7%)
	2nd	42 (29.2%)	46 (30.1%)	88 (29.6%)
	3rd	22 (15.3%)	23 (15.0%)	45 (15.2%)
School	School 1	11 (7.6%)	14 (9.2%)	25 (8.4%)
	School 2	19 (13.2%)	16 (10.5%)	35 (11.8%)
	School 3	13 (9.0%)	16 (10.5%)	29 (9.8%)
	School 4	21 (14.6%)	21 (13.7%)	42 (14.1%)
	School 5	21 (14.6%)	20 (13.1%)	41 (13.8%)
	School 6	21 (14.6%)	21 (13.7%)	42 (14.1%)
	School 7	24 (16.7%)	25 (16.3%)	49 (16.5%)
	School 8	11 (7.6%)	17 (11.1%)	28 (9.4%)
	School 9	3 (2.1%)	3 (2.0%)	6 (2.0%)
Race/ Ethnicity	Black	43 (29.9%)	52 (34.0%)	95 (32.0%)
	White	85 (29.9%)	87 (34.0%)	172 (57.9%)
	Other	16 (11.1%)	14 (9.2%)	30 (10.1%)
Gender	Female	72 (50%)	90 (58.8%)	162 (54.5%)
	Male	72 (50%)	63 (41.2%)	135 (45.5%)
Total		144	153	297
F/R Lunch	No	49 (34.3%)	49 (32.2%)	98 (33.2%)
	Yes	94 (65.7%)	103 (67.8%)	197 (66.8%)
Total		143	152	295*

Note. *F/R lunch data were missing for two students.

Instruments

Seven schools used Star Reading, a norm-referenced assessment for early literacy. Star is a short, online adaptive assessment with high internal reliability (0.95) and concurrent validity with other reading assessments such as AIMSweb, the Iowa Test of Basic Skills, and state reading tests more generally (Renaissance Learning, 2021). Two used the Formative Assessment System for Teachers (FAST) – FastBridge. The FastBridge reading assessment is also a norm-referenced assessment with strong evidence of validity and reliability (Christ, 2015). All nine schools administered assessments to students before Future Forward began serving students and again at the end of the school year.

Modeling Strategy

We used generalized linear models (GLM), which uses maximum likelihood estimation, with linear error terms and an identity link function to estimate the impact of Future Forward on reading achievement. Star Reading and FastBridge scores were standardized locally, separately within grade levels, and combined for analysis. Both measures are similar in how they assess student reading development and are nationally norm-referenced, so combining measures is justified. Combining the measures is further justified by the inclusion of block-fixed effects in the model below. What is important is that all students within a block were assessed with the same instrument. The IBM SPSS 26.0 statistical software package was used to conduct analyses.

Spring reading achievement was modeled using the following linear regression equation (1)

$$Y_{ij} = \beta_0 + \beta_1(FF_{ij}) + \beta_2(Reading_{ij}) + \sum_{m=1}^M \beta_{3,m}X_{mij} + \sum_{j=1}^{J-1} \beta_{4,j}Block_j + \varepsilon_{ij}$$

Where Y_{ij} is the spring reading score for the i^{th} student in the j^{th} block; β_0 is the intercept; β_1 is the impact of Future Forward; FF_{ij} is a binary indicator for Future Forward participation; $Reading_{ij}$ is the baseline reading score for either the Star or FastBridge assessment; X_{mij} is the m^{th} of M additional covariates representing demographic characteristics (e.g., gender, free/reduced lunch, and race); $Block_j$ is the fixed assignment block effect (grade by school); all Future Forward and BAU students within a block received the same literacy assessment (Star or Fastbridge); and ε_{ij} is the error term for student i in block j .

We used robust standard errors and fixed block effects (blocks are defined by grade levels within schools). We used fixed block effects rather than random effects to control for any unobserved block-specific factors. We also conducted

a robustness check of the results. For this, we stripped out all model parameters except block fixed effects and participation in Future Forward. Assuming a fixed program effect and 70% of the variance in outcomes explained by covariates, the current study, prior to attrition, had an 80% likelihood of detecting an impact of 0.187 standardized units. To test differential effects, we limited the sample of students included in equation 1 to students according to each gender, race, grade, free/reduced price lunch eligibility group, and baseline reading proficiency group. Although we typically only flag impacts that have a significance level less than .05, in the current study we flag differential effects with significant levels less than .10. This was done considering the exploratory nature of these analyses and the small numbers of students included in each analysis.

Attrition and Characteristics of Students Included in the Final Analysis

Of the 297 study participants, 267 remained at the end of the study. Nine students were referred for specialized services (five BAU and four Future Forward students) and excluded from the study. Of the remaining 288 students, 21 attrited (7.3%). These included three students who did not complete the spring assessment, and 18 who moved and changed schools. In total, seven BAU ($7/139 = 5.0\%$) and 14 Future Forward ($14/149 = 9.4\%$) students attrited. The combination of overall (7.3%) and differential attrition (4.4%) is within the conservative levels of acceptability as established by the What Works Clearinghouse (2020).

Table 3 presents characteristics of students included in the final analysis (after attrition). Differences in the demographic composition of the BAU and Future Forward groups were equivalent regarding gender ($Ch^2 = .817, p = 0.366$), race ($Ch^2 = .023, p = 0.989$), and Free/Reduced price lunch eligibility ($Ch^2 = .016, p = .898$). However, nine students (one Future Forward and eight BAU) received Tier 2 intervention during the academic year. Although schools were instructed to provide any intervention services regardless of assignment, one school treated Future Forward as a Tier 2 intervention and focused their intervention resources more on BAU students. This may have affected our ability to measure an impact in that school.

Table 3. Characteristics of Students Included in Final Analysis After Attrition

		BAU	FF	Total
Grade Level	KG	25 (18.9%)	26 (19.3%)	51 (19.1%)
	1st	50 (37.9%)	50 (37.0%)	100 (37.5%)
	2nd	40 (30.3%)	38 (28.1%)	78 (29.2%)
	3rd	17 (12.9%)	21 (15.6%)	38 (14.2%)
School	School 1	11 (8.3%)	14 (10.4%)	25 (9.4%)
	School 2	19 (14.4%)	16 (11.9%)	35 (13.1%)
	School 3	11 (8.3%)	12 (8.9%)	23 (8.6%)
	School 4	19 (14.4%)	19 (14.1%)	38 (14.2%)
	School 5	20 (15.2%)	16 (11.9%)	36 (13.5%)
	School 6	19 (14.4%)	20 (14.8%)	39 (14.6%)
	School 7	19 (14.4%)	23 (17.0%)	42 (15.7%)
	School 8	11 (8.3%)	13 (9.6%)	24 (9.0%)
	School 9	3 (2.3%)	2 (1.5%)	5 (1.9%)
Race/Ethnicity	Black	39 (29.5%)	41 (30.4%)	80 (30.0%)
	White	80 (60.6%)	81 (60.0%)	161 (60.3%)
	Other	13 (9.8%)	13 (9.6%)	26 (9.7%)
Gender	Female	69 (52.3%)	78 (57.8%)	147 (55.1%)
	Male	63 (47.7%)	57 (42.2%)	120 (44.9%)
F/R Lunch	No	44 (33.3%)	46 (34.1%)	90 (33.7%)
	Yes	88 (66.7%)	89 (65.9%)	177 (66.3%)
Total		132	135	267

Future Forward Implementation Results

To what extent was tutoring implemented as intended in spite of the disruption caused by COVID-19?

Future Forward expected to support students from October to May. As mentioned before, though, difficulties in consenting and assessing students in the milieu of COVID pushed the start date for sites further into the school year. Ultimately, two sites started working with students in November, three in December, and four in January. Five sites provided tutoring in person and four virtually. The delay represents a significant amount of tutoring not delivered during the fall of 2020 (see Figure 1).

A Future Forward participant who starts receiving tutoring in early October and continues until late May should receive at least 1,680 minutes (60 minutes

per week for 28 weeks) of tutoring. Students in sites that started in November missed approximately 240 minutes of that, which represents 14% less exposure to Future Forward. Students who started in December missed approximately 460 minutes of tutoring, representing 27% less tutoring, and students who didn't start until January missed 648 minutes, representing 39% less tutoring. As shown in Figure 2, the implementation delay resulted in very few students receiving the expected amount of tutoring (> 1,680 minutes).

Figure 1. Total Minutes of Future Forward Tutoring Provided Each Month

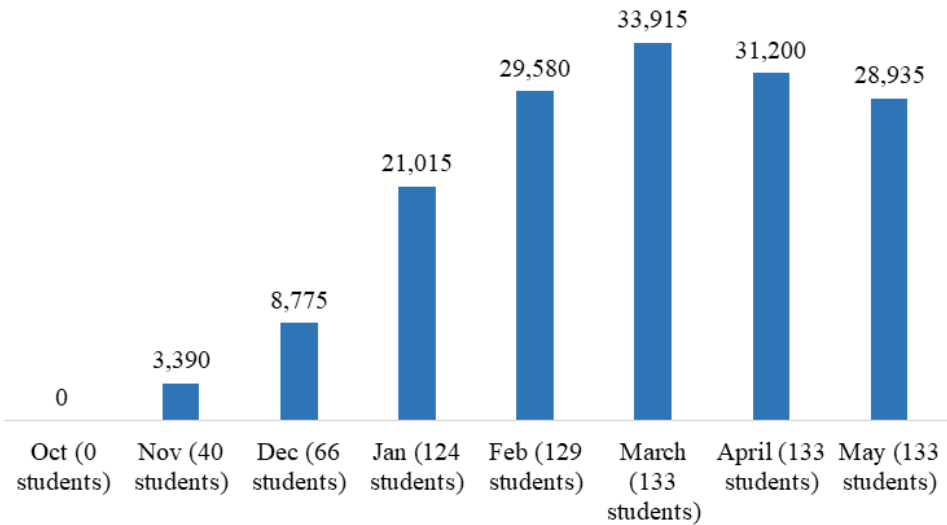
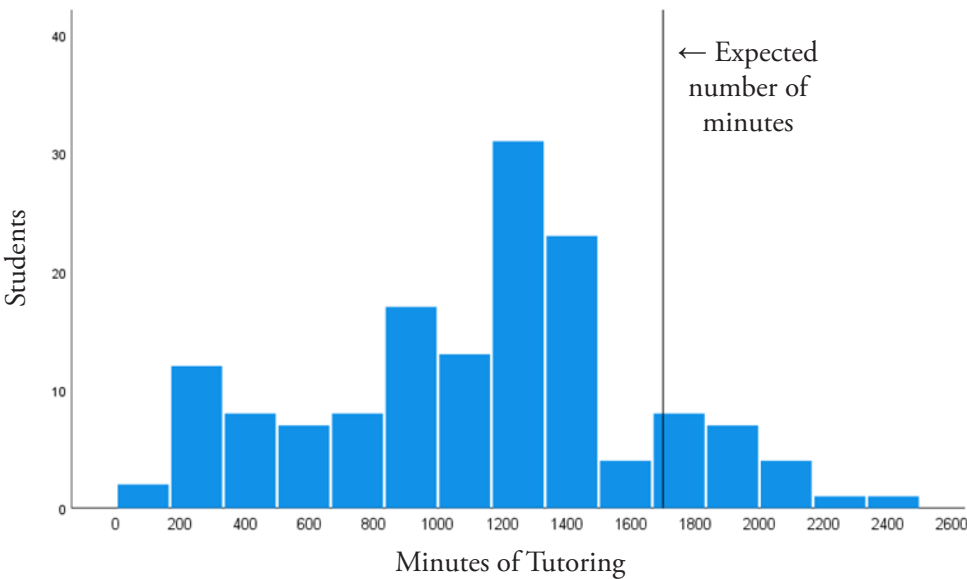


Figure 2. Total Minutes of Tutoring Received by Future Forward Participants



Once tutoring began, many students did receive the expected intensity of tutoring. Students at four sites received tutoring in person and were scheduled for three tutoring sessions per week (30 minutes per session). Students in the other five received virtual tutoring and were scheduled for two sessions per week (45 minutes per session). While historically, Future Forward provided most of its students with at least 60 minutes of tutoring each week, because of COVID-related challenges, it was not clear to what extent sites would be able to continue at this level of intensity. Ultimately, however, more than half (62%) of Future Forward students received at least 60 minutes of tutoring per week. Further, the average Future Forward participant received 64.3 minutes of tutoring per week (Table 4).

To what extent was family engagement implemented as intended in spite of the disruption caused by COVID-19?

Similar to tutoring, sites experienced a significant delay in their efforts to engage families, with very few family contacts occurring prior to January 2021 (see Figure 3). Family engagement was further inhibited by the lack of Future Forward staff presence in schools. Families of Future Forward participants are typically contacted at least two times each month. This adds up to 16 contacts during the typical program period of October to May. Again, mostly because of the delay in starting Future Forward and its virtual format, few student families were engaged at least that many times (see Figure 4). Once the program was ramped up in January, though, families interacted an average of twice per month, and 48% were contacted at least two times each month (see Table 4).

Figure 3. Total Successful Family Contacts Each Month

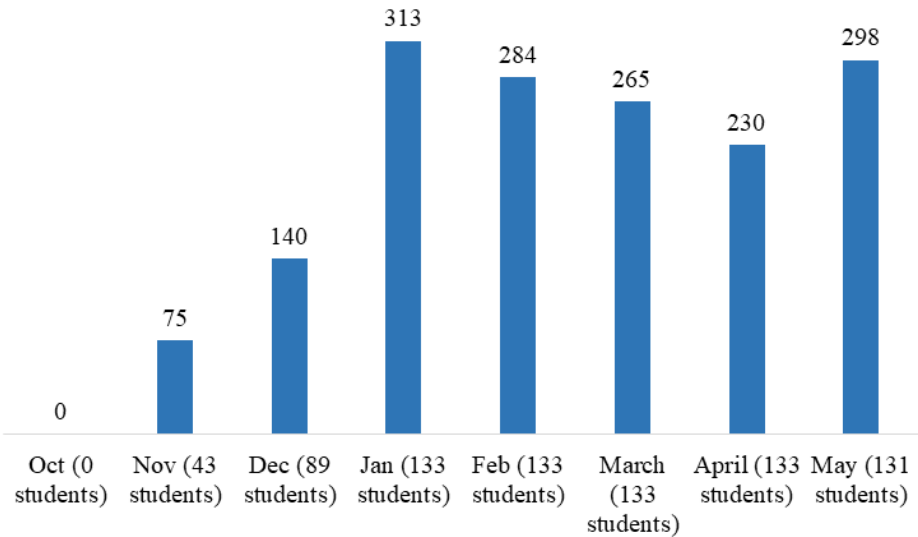
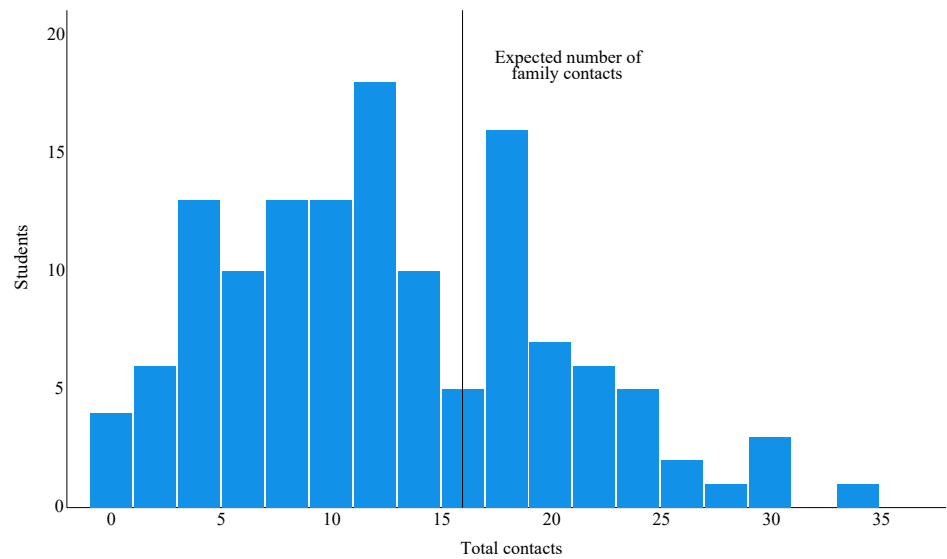


Table 4. Implementation

			Tutoring				Family Engagement	
	First Month	FF Students	Online or In-Person	Minutes Per Session	Total Sessions (SD)	Minutes of Tutoring* (SD)	Contacts Per Family (SD)	Contacts Per Month Per Family (SD)
School 1	Jan	13	Online	45	19.5 (4.4)	76.5 (17.2)	10.2 (7.0)	2.0 (1.4)
School 2	Jan	15	Online	45	18.1 (3.7)	71.0 (14.6)	5.1 (4.2)	1.0 (0.8)
School 3	Dec	12	In-person	30	32.4 (3.7)	63.1 (8.2)	23.0 (3.9)	3.8 (0.7)
School 4	Jan	19	Online	45	9.2 (4.9)	26.6 (14.1)	7.8 (5.9)	1.3 (1.0)
School 5	Jan	16	In-person	30	34.4 (3.6)	91.3 (9.5)	14.4 (8.4)	2.9 (1.7)
School 6	Nov	20	In-person	30	48.1 (7.0)	77.5 (11.4)	13.6 (6.7)	1.9 (1.0)
School 7	Nov	23	Online	45	25.6 (7.1)	61.3 (17.0)	11.7 (6.4)	1.7 (0.9)
School 8	Dec	13	In-person	30	23.0 (3.5)	44.5 (6.8)	12.9 (3.7)	2.2 (0.6)
School 9	Dec	2	Online	45	39.5 (3.5)	113.9 (10.2)	13.5 (4.9)	2.3 (0.8)
Overall		133			26.8 (12.9)	64.3 (24.1)	12.0 (7.4)	2.0 (1.3)

*Per Student Per Five School Days

Figure 4. Total Successful Family Contacts Per Future Forward Participant



Impact Results

What was the impact of Future Forward participation on reading achievement?

Table 5 presents the unadjusted baseline (before participation) and follow-up (after) reading assessment results and benchmark information for students retained in the study. The reading achievement of Future Forward and BAU students was equivalent at baseline ($\beta = -0.02$, $SE = 0.11$, $p = .836$). At follow-up however, the reading achievement of Future Forward students had improved by 0.16 standard deviations in comparison to BAU students. This change did not correspond to a differential improvement in the reading benchmark status of students in Future Forward.

Statistical modeling was used to make a more precise comparison of spring reading achievement scores between Future Forward and BAU students. After adjusting spring achievement by student characteristics, baseline achievement, and assignment block effects, Future Forward did not have a statistically significant impact ($\beta = 0.09$, $SE = 0.10$, $p = .378$; see Table 6). A simple model (Robustness model), only adjusting for fixed block effects, measured a 0.10 standardized impact ($\beta = 0.10$, $p = .401$), which was also not statistically significant (see Table 6).

Table 5. Reading Achievement – Students Included in the Final Analysis

	At Baseline (Fall)				
	Standardized Reading		Reading Benchmark		
	<i>M</i>	<i>SD</i>	Above Benchmark	Below Benchmark	Students
BAU	0.01	1.00	48 (36.4%)	84 (63.6%)	132
FF	-0.01	0.98	50 (37.0%)	85 (63.0%)	135
Total	0.00	0.99	98 (36.7%)	169 (63.3%)	267
	At Follow-Up (Spring)				
	Standardized Reading		Reading Benchmark		
	<i>M</i>	<i>SD</i>	Above Benchmark	Below Benchmark	Students
BAU	-0.07	1.01	50 (37.9%)	82 (62.1%)	132
FF	0.07	0.96	52 (38.5%)	83 (61.5%)	135
Total	0.00	0.99	102 (38.2%)	165 (61.8%)	267

Table 6. Full GLM Model Testing the Impact of Future Forward on Reading Achievement

Coefficient	β	Std. Error	Wald Chi-Sq.	<i>df</i>	<i>p</i> value
(Intercept)	0.302	0.537	0.316	1	0.574
Group (BAU)	-0.089	0.101	0.778	1	0.378
Gender (Male)	-0.189	0.098	3.732	1	0.053
Race/ethnicity (Black)	-0.669	0.173	15.009	1	0.000
Race/ethnicity (Neither Black nor White)	0.138	0.162	0.730	1	0.393
Free or reduced lunch status (No)	0.205	0.124	2.762	1	0.097
Standardized baseline reading	0.423	0.063	45.335	1	0.000
Overall Model Effects					
	Type III Wald Chi-Square		<i>df</i>	<i>p</i> value	
(Intercept)	2.729		1	0.099	
Group (FF vs. BAU)	0.778		1	0.378	
Gender	3.732		1	0.053	
Race/ethnicity	17.817		2	0.000	
Free or reduced lunch status	2.762		1	0.097	
Standardized baseline reading	45.335		1	0.000	
Grade by school fixed effect	77.561		25	0.000	

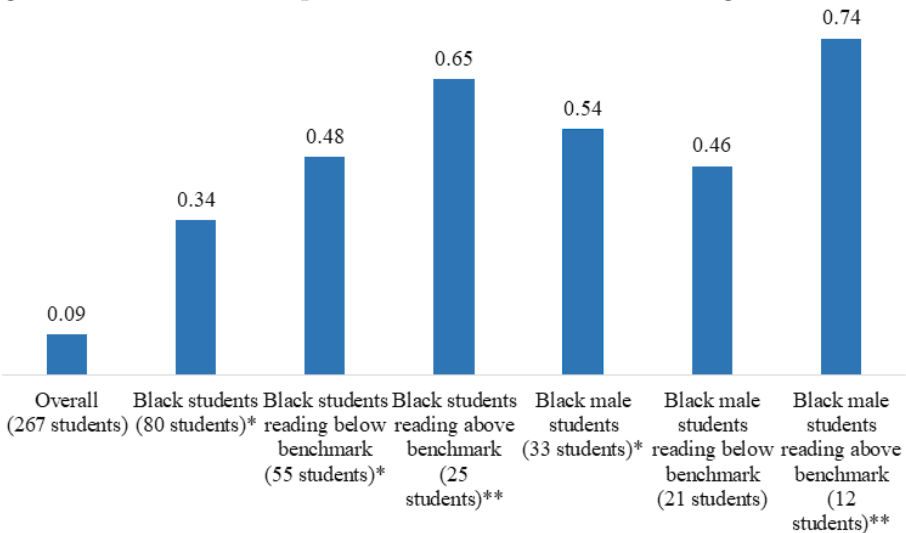
The overall results are qualified by the low level of implementation due to COVID-19. Many students received less than the amount of tutoring a Future Forward participant would typically receive. To adjust for this, we used

Treat-on-Treated modeling. This approach allows us to answer the hypothetical question about what the impact would have been if students had received the expected amount of tutoring. In the context of this study, this is strictly a formative analysis. To conduct a Treat-on-Treated analysis, first, one models the amount of tutoring students assigned to Future Forward or BAU would be expected to receive. One then uses this expected value to estimate the impact of Future Forward on reading achievement. The Treat-on-Treated model results suggest a possible larger but still not statistically significant impact ($\beta = 0.13$, $p = .364$; see Table 7).

Did Future Forward have a differential impact on student subgroups?

Among the tested differential effects, only Black students were found to differentially benefit from their participation; Future Forward had three times the impact on Black students ($\beta = 0.34$, $p = .095$) than was found overall (see Table 7). Future Forward has roughly five times the impact on Black students with reading below benchmark at baseline (0.48 standard deviations, $p = .062$) and seven times the impact on Black students with reading above benchmark ($\beta = 0.65$ standard deviations, $p < .001$) than it did across all students. Future Forward had roughly five times the impact on Black male students (0.54 standard deviations, $p = .052$). Even considering the small number of students ($n = 12$), the impact of Future Forward on Black students with reading above the benchmark was statistically significant. The impact was eight times larger than the overall impact (0.74 standard deviations, $p < .001$). Together, these results suggest Future Forward likely had a positive impact on underserved students facing more challenges in learning to read (see Figure 5).

Figure 5. Standardized Impact of Future Forward on Reading Achievement



Notes. *Impact approaches statistical significance ($p < .10$). **Impact is statistically significant ($p < .05$).

Table 7. Results of Models Testing the Impact of Future Forward on Reading Achievement

	Impact (β)	SE	p	n
Full model with fixed block effects	0.09	0.10	0.378	267
Robustness model – simple model	0.10	0.11	0.401	267
Full participation effect (Treat-on-Treated model)	0.13	0.16	0.364	267
Differential effects				
Black students*	0.34	0.20	0.095	80
White students	-0.04	0.13	0.762	161
Female students	-0.01	0.14	0.963	147
Male students	0.09	0.13	0.474	120
Kindergarten students	-0.00	0.18	0.998	51
First grade students	0.14	0.17	0.425	100
Second grade students	-0.05	0.19	0.804	78
Third grade students	0.43	0.33	0.191	38
Students reading below benchmark	0.08	0.14	0.543	169
Students reading above benchmark	0.12	0.15	0.396	98
Black male students*	0.54	0.28	0.052	33
Black students reading below benchmark*	0.48	0.26	0.062	55
Black students reading above benchmark**	0.65	0.14	<.001	25
Male students reading below benchmark	-0.06	0.18	0.719	79
Male students reading above benchmark	0.15	0.17	0.376	41
Black male students reading below benchmark	0.46	0.40	0.248	21
Black male students reading above benchmark**	0.74	0.21	<.001	12

* $p < .10$, ** $p < .001$

Conclusions and Discussion

The current EIR-funded study of Future Forward adds to the growing body of evidence of the effectiveness of the Future Forward program and its partnership approach to supporting student literacy development. This was a challenging year to implement any education program, let alone one attached to a multisite RCT. Future Forward decided to continue supporting students, even considering the difficulties, motivated by an awareness that COVID-19 was causing many students to fall behind in their reading development. Future Forward's goal was to provide as much tutoring to students and support to families as

possible. Although the disruption to schools caused by COVID-19 prevented many students from receiving the full tutoring and family engagement experience, the reduced amount of Future Forward students received seems to have still been beneficial to participating underserved students and families.

Even considering the implementation challenges and associated reduced power of the study, we found evidence that Future Forward had a positive impact on Black students. Future Forward had roughly three times the impact on Black students and five times the impact on Black male students than was found overall. These results echo what we found in our 2019–20 evaluation in which Future Forward had a large positive impact on the school attendance of Black students (Jones & Li, 2023). Interestingly, the impact of Future Forward on Black students was driven by its impact on the Black students meeting the reading benchmark at the start of the year. Even though only 25 Black participants (14 Future Forward, 11 BAU) met the reading benchmark at the start of the year, the impact of Future Forward on this group was large and significant ($\beta = 0.65$, $p < .001$).

The current study's findings are also consistent with the results of a follow-up study of the i3 Future Forward grant, which was comprised primarily of students of color (Jones & Christian, 2021). In that study, students who started Future Forward with above average literacy skills continued to benefit from their participation five years after finishing the program. Students with below average literacy skills did not. However, students with above average literacy, regardless of whether they participated in Future Forward, still tended to fall further behind in their reading development over time as they progressed through their schooling (Jones et al., in press). Students in Future Forward did not fall as far behind, however.

The results of the current study, the 2019–20 evaluation, and the follow-up i3 study suggest Future Forward can be part of a solution for helping Black students develop and retain their literacy skills. However, Future Forward is not enough to overcome inequitable school quality (Hanselman & Fiel, 2017; Merolla & Jackson, 2019), the impact of a pandemic (Pier et al., 2021), and a structurally racist and biased education system (Levine, 2020). Even considering the large impact on Black students meeting the reading benchmark at the start of the year, only seven of the 14 Future Forward participants remained above benchmark at the end of the year.

Investigating how and why participation in Future Forward was particularly impactful to Black students will be part of future research. Work on how schools underserve Black students informs programs like Future Forward's approach to school–family–community partnerships. Existing research demonstrates how the implicit bias of teachers negatively affects Black students as early as prekin-

dergarten (Gilliam, 2005; Zinsser et al., 2022). Teachers expect less success and more trouble from Black students (Gershenson & Papageorge, 2018). Non-Black teachers hold lower expectations for their Black students when compared to their Black colleagues (Gershenson et al., 2016). Witnessing a student's success in Future Forward may help overcome this tendency by helping teachers in their journey to humanize all students and families in ways often antithetical to modern-day race relations (Lawrence-Lightfoot, 2004; Legette et al., 2022).

The focus of Future Forward on engaging families has the potential to mitigate barriers to their participation in their student's school often experienced by Black parents. Black parents may have histories of negative school interactions, microaggressions, stereotypes, and methods of exclusion and intimidation from school staff (Koonce & Harper, 2005; Piper et al., 2022; Posey-Maddox et al., 2021). The school and community-centered exchanges facilitated by Future Forward with families potentially counter these ongoing barriers through contextual adaptation to authentic parent engagement and facilitating collective decision-making in a student's educational experience (Huguley et al., 2021). Ultimately, all parents want to be treated with respect by teachers (Lindle, 1989), and the Future Forward partnership approach may create space for that to occur. Future research on Future Forward will explore how the school–community–family partnership approach changes the ecology around students and may provide more clarity to the results of this and other studies of Future Forward.

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The Impact of One Semester of Future Forward on Reading Achievement and School
Attendance

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Abstract

Future Forward is an early primary literacy program that pairs one-on-one tutoring with family engagement. As part of an Education Intervention and Research Mid-phase grant, the evaluation of the 2021-22 Future Forward program included 127 students in three schools, with 65 randomly assigned to receive Future Forward in the fall of 2021 and the other 62 randomly assigned to business-as-usual reading instruction. To serve more students in the wake of COVID-19 school disruptions, program participation was changed from one school year to one semester. All but two students received the intended amount of tutoring of at least two sessions per week. Regarding family engagement, 64.5% were contacted at least once per month. School attendance, Star Early Literacy, and DIBELS 8th Edition outcomes were modeled adjusting for the fixed effect of assignment block, student demographics, baseline reading and baseline attendance. Future Forward had statistically significant positive impacts on both Star Early Literacy and DIBELS, with a differential positive impact on students of color. Future Forward did not impact school attendance.

The Impact of One Semester of Future Forward on Reading Achievement and School Attendance

The importance of developing literacy skills at a young age cannot be overstated. The successful development of literacy in elementary school is a strong predictor of future academic success (Rabiner et al., 2016). Further, dropping out of school is predicted with 70% accuracy by the 3rd grade based on reading ability and prior retention (Hernandez, 2012). Outside of the classroom, literacy also predicts long-term economic and health outcomes (Berkman et al., 2011; DeWalt et al., 2004). The racial/ethnic and economic disparities in reading achievement among children are reflected in health outcome disparities among adults (Sudano & Baker, 2006) and children (Mehta et al., 2013). Considering the well-understood effects of developing literacy, it is discouraging that, nationally, only 33% of fourth students are proficient in reading (U.S. Department of Education, 2022). While overall literacy rates are already low, they are even lower for children in low-income families (19%). The challenges we face teaching our students to read have been exasperated by the COVID-19 disruption to education. It is critical that new effective reading interventions and approaches are developed that can reach the increasing numbers of early elementary students behind in their literacy development.

Using one-on-one tutoring provided by a certified teacher has proven effective for programs like Reading Recovery (D'Agostino & Murphy, 2004; D'Agostino & Harmey, 2016). However, the staffing resources needed to use teachers to tutor all students who need literacy support make it difficult to implement in many schools. For districts that consistently face teacher shortages and have large numbers of students who need literacy support, one-on-one tutoring provided by volunteers or paraprofessionals may be a more viable option. While one-on-one tutoring provided by a volunteer may not be as effective as tutoring provided by a certified

teacher, it has proven to be effective (Inns et al., 2018). In fact, seven of the 11 reading tutoring programs with strong evidence of effectiveness included on the Evidence for ESSA website (<https://www.evidenceforessa.org/>) use paraprofessionals or volunteers as tutors. Further, a meta-analysis of 21 studies with randomized evaluation designs found that students tutored by volunteers realized greater oral fluency and writing development compared to controls (Ritter et al., 2009). Even “minimally trained” college students from non-education majors serving as tutors, can have a significant impact on student literacy (Lindo et al., 2017). In her review of effective volunteer or paraprofessional tutoring programs, Wasik (1998) identified several conditions that define successful tutoring programs that do not involve teachers. Effective programs are highly structured, have quality materials, provide strong professional development and supervision to tutors, provide an intensive student experience of at least 90 minutes per week, are well coordinated with classroom instruction, and use ongoing, regular assessments to track student progress. With these conditions in place, a literacy program not using teachers as tutors can still help students. The current study tests the impact of one such program, Future Forward, which could help reduce the societal gap between the literacy development needs of students and the supports available to them.

Future Forward is an early elementary literacy program that combines one-on-one tutoring with family engagement to support student literacy development. In 2017 Education Analytics was awarded an Education Innovation and Research (EIR) Mid-Phase grant to expand and test the impact of Future Forward on students in 14 schools across three states. The planned evaluation included an impact study covering the 2019-20 and 2020-21 school years. Disruptions to schools and Future Forward due to COVID-19 also disrupted the planned evaluation. As schools opened back up Future Forward was given an extension to continue working with

students in three of the 14 schools during the 2021-22 school year. The three schools represented sites with a history of strong implementation of Future Forward. Although with a much-reduced sample, we still conducted a random study of Future Forward's implementation and impact on students during the fall 2021 semester. In this paper we answer the following implementation and impact questions about Future Forward:

- *How much Future Forward did students receive in the fall of 2021?*
- *What was the impact of one semester of Future Forward on regular-school-day attendance?*
- *What was the impact of one semester of Future Forward on reading development?*
- *What student groups differentially benefited from their participation in Future Forward?*

Future Forward Theory of Action

To implement Future Forward, Education Analytics partners with local Boys & Girls Clubs. Clubs employ a local Future Forward team, consisting of an instructional coordinator, tutors, and a family engagement coordinator. Education Analytics provides training, support, and materials to local Clubs implementing Future Forward. Local Clubs tutor students, support families, and work with the school to implement the program and coordinate literacy supports with school teachers. The development of Future Forward was informed by an understanding that more students need literacy support than a school has the capacity to provide. An instructional coordinator oversees a group of four to six paid tutors, with each tutor working with four to six students at a time. Thus, Future Forward can tutor as many as 25 students in a school at the same time.

Future Forward approaches literacy by developing skills while also strengthening systems that can support student literacy development both during and past a student's participation. The

approach of Future Forward is informed by both systems theory (Bronfenbrenner, 1979) and a school-family-community partnership approach (Epstein, 2001). With its school-family-community partnership approach, schools are not solely responsible for developing student literacy. Instead of viewing families and communities as barriers that need to be overcome, they are viewed as having untapped potential for contributing to student literacy development (Nieto, 2012). Through the collaborative work between teachers, Future Forward staff, and families described below, Future Forward develops a learning team that helps motivate students to read, and gain confidence as readers (McGowen et al., 2015), while also promoting greater participation of families in their student's reading development. Research has shown that engaging families in the development of a student's reading can increase student motivation to read (Baker, 2003), which then results in increased development of reading skills (Vaknin-Nusbaum et al. 2017). Through these processes, Future Forward is designed to improve school attendance and reading development (Figure 1).

Tutoring

Students are pulled out of non-core classes during the school day for 30 minutes of one-on-one tutoring, three times per week. Tutoring occurs in a "Future Forward Room", a dedicated print-rich environment. Each 30-minute tutoring session includes several phonics-based activities such as *Word Play* (Wasik & Jacobi-Vessels, 2016) and *Making Words* (Cunningham et al., 1998). Students use graphic organizers to build comprehension skills and write sentences connected to the *Word Play* activity. They may also use *Elkonin boxes*, which involves segmenting words into individual sounds/boxes (Keesey et al., 2014). Each session also includes a short tutor read-aloud. If possible, the same tutor works with a student for the entirety of their participation in Future Forward.

Tutoring is managed by an instructional coordinator, typically a certified teacher, who oversees a group of five to seven tutors in a school. Instructional coordinators participate in a series of all-program trainings at the start of a site's participation in Future Forward. Trainings focus on the implementation of the specific literacy strategies, how to develop a lesson plan, training and supporting tutors, administering and using literacy assessments, such as Star Early Literacy, setting up the Future Forward room, organizing literacy materials, and conducting and documenting observations of tutoring. The instructional coordinator also organizes opportunities to collaborate with school staff, organizing systems of communication with teachers about the progress of students in the program.

Tutors are from a variety of backgrounds including parents of students in the school, local college students, or former teachers. Tutors receive online training around implementing literacy strategies, lesson planning, and literacy assessments. Most of the training provided to tutors is on-the-job. Tutors are often informally observed by the instructional coordinator and supported while they provide tutoring. Tutors are also formally observed by the instructional coordinator, using a structured observation instrument, at least once monthly and receive feedback following these observations. During a formal observation, instructional coordinators document which instructional strategies were used, how much time each took, how prepared tutors were, and the engagement of students in the lesson.

Family

Engaging families in tutoring programs improves student academic knowledge, skills, and confidence (Bryan, 2005; Little, 2009) and has an even greater benefit for low-income children and children with less-educated parents (Dearing et al., 2006; Lin, 2003). Further, family and community partnership practices can decrease chronic absenteeism (Sheldon &

Epstein, 2004). The process of realizing the great potential of family engagement can be difficult. Future Forward must overcome the historical expectations of parents being superficially engaged in their student's education (Epstein, 2001; Li, 2010). The efforts to do so are intentional and culturally responsive.

Each site has a family engagement coordinator who leads engagement efforts with participating students' families. Family engagement coordinators are often community members and parents of children attending the school. Their work is designed to bridge the divide between school and home by translating literacy concepts, educating families about a variety of literacy activities, and validating the literacy practices already happening in the home. Family engagement coordinators listen and affirm the practices of families and work to build upon them (Nieto, 2012; Gonzalez et al., 2005). Future Forward works to reduce the unequal power relationship between the school, Future Forward, and the family that is assumed by families and teachers at the start of their participation. It creates opportunities for overcoming barriers to family engagement that result from mismatches between school and home regarding language, schedules, and expectations (Lopez & Stoelting, 2010).

Family engagement coordinators receive a variable amount of training, depending on their experience, but all receive training about Future Forward tutoring, how to document communications, using scripts to facilitate effective communications, how to conduct an engaging family event, how to conduct a safe home visit, how to build trust, and cultural differences in communicating with families. Although family engagement can take many forms to meet diverse family needs, there are some structured activities that occur with all Future Forward sites. Sites send home a monthly newsletter that updates families about the program and about future family events. Monthly family events are an opportunity to build connections

between school, home, and the program. Teachers and school administrators often attend to connect with families and talk about the student's progress in school. Family events also include tutors working with families and sharing with them their student's progress in Future Forward and providing families guidance and materials for doing literacy activities at home. In addition to organizing family events, family engagement coordinators send books home to help families build a home library and conduct home visits. Home visits typically focus on further supporting family efforts to promote literacy but can involve problem solving in any number of areas, depending on the needs of the family. Communications that surround family events and home visits are consistent and frequent.

Previous Future Forward Research/Evaluation

In 2011, Future Forward was funded by an Investing in Innovations (i3) grant to develop the program and test its impact in seven Milwaukee schools. Two randomized control trial (RCT) studies found that two years of Future Forward had positive impacts on literacy, reading achievement, and school attendance (Jones, 2018; Jones & Christian, 2021). In a follow-up study, three years after the i3 study ended, Future Forward was found to have a significant sustained impact, equal to approximately one-half year of academic growth on reading achievement (Jones, et al., 2023). Former Future Forward participants were also less likely to be receiving special education services than students assigned to Business-as-Usual (BAU) literacy instruction.

In 2017 Future Forward received an EIR Mid-phase grant to expand to 14 schools across three states. Because the overall impact of Future Forward during the i3 study was realized after just one year of participation (standardized impact on Phonological Awareness Literacy Screener (PALS) of 0.34 after one year compared to 0.23 standard deviations after two years) (Jones &

Christian, 2021) and to make the program more scalable and cost effective, Future Forward participation was changed from two school years to one. The implementation plan and corresponding evaluation involved piloting the program during the 2018-19 school year and then testing its impact on reading development and school attendance with a randomized control trial during the 2019-20 and 2020-21 school years. As with everything else, these plans were severely impacted by the COVID-19 pandemic. These resulting implementation efforts and evaluations had to be adapted to the realities of the education system. Ultimately the 2018-19, 2019-20, and 2020-21 evaluations had to be treated as separate studies. (Table 1).

In 2018-2019, the grant started as expected, with Boys & Girls Clubs hiring and training staff, organizing their program, and working with students and families in all 14 schools (Jones et al., 2023). The evaluation tested the impact of the pilot through a regression discontinuity study, showing encouraging, but not statistically significant, results. The 2019-20 program had to be stopped midyear when schools shut down due to COVID-19, which meant the evaluation was only able to measure the impact of a partial Future Forward program on school attendance (Jones & Li, 2023). The results of the partial program were positive, with a statistically significant positive overall impact, and differential positive impacts on Black students, students who started the program with low attendance, and Black students who started the program with low attendance (Table 1). In 2020-21, Future Forward was not able to work in-person with students since schools mostly remained closed to outside programs and individuals. To continue supporting students and families during the pandemic, Future Forward changed to virtual tutoring and family engagement. This decision meant that Future Forward's EIR grant would end without a true assessment of its implementation and impact. Even considering the modified program, a random study of its impact on the reading achievement of 133 students across nine

schools was still implemented (Jones et al., 2023). Although, overall, Future Forward did not have a significant impact on reading achievement, it may have had a differential positive impact on Black students ($\beta = 0.34, p = 0.095$) and Black male students ($\beta = 0.54, p = 0.052$).

Ultimately, EIR did allow Future Forward to carry over unspent funds to offer an additional year of programming in a limited number of schools during the 2021-22 school year.

****Insert Table 1 About here****

Current Study

Setting

The 2021-22 Future Forward study was limited to three of the 14 schools originally included in the EIR-funded study. These included one Wisconsin and two Alabama schools (Table 2). Future Forward partnered with two local Boys & Girls Clubs to implement Future Forward in these schools. The two Alabama schools are located in an urban community. Both schools are relatively high performing, with 51% and 57% reading proficiency, and do not receive Title I funding. They do not provide students with Tier II intervention services. Both schools mostly served White students and families before a 2015 consent order of United States District Court for the Northern District of Alabama, Northeastern Division changed their attendance areas to include students living in a segregated Black community. Staff at both schools shared that they have struggled to support these new students. The Wisconsin school is in a small town/rural community. The school is lower performing, with 32% reading proficiency and receives Title I funding. It serves mostly White (73%), low-income (67%) students. Students do receive Tier II interventions as part of its Response to Intervention process.

****Insert Table 2 About here****

Research Design

We used a RCT design, with students assigned to conditions within regular-school-day classroom blocks, to assess the impact of one semester of Future Forward on school attendance and reading achievement. Students were randomly assigned to either Future Forward or BAU reading instruction within classrooms in the fall. Students assigned to Future Forward received the same reading instruction from the school as students assigned to BAU. Students who received BAU reading instruction in the fall would be offered the opportunity to receive Future Forward during the spring semester. The delayed intervention design provided the opportunity to measure the impact of Future Forward, while still providing literacy supports to all students and families who consented to be in the study.

Measures

School attendance was calculated twice, covering the school year prior to the start of the program and then covering the time when students were participating. Attendance rates were computed by dividing the total attended days by the total days of school from before Future Forward started and dividing the total attended days by the total days of schools during the time Future Forward was active. Attendance rates during the program were checked for skewness and found to be within acceptable levels (-1.2).

Student *motivation to read* was measured by surveys of classroom teachers. Teachers were asked to report at the start and end of the program how often each student showed an interest in reading books, *frequently*, *occasionally*, or *never/rarely*.

Star Early Literacy is a short, online, adaptive assessment, administered to all students by Future Forward staff in the fall and at the end of participation in January. Former teachers serving as Future Forward staff organized the assessments. Star Early Literacy measures several aspects of reading development including Phonological Awareness, Phonemic Awareness,

Fluency, and Reading Comprehension. The results across these areas are combined for a composite score that has high internal reliability (0.95) and concurrent validity with other reading assessments (Renaissance Learning, 2021). Star Early Literacy composite scale scores were standardized separately within grade levels for each administration.

Local Reading/Literacy Assessments included the PALS in Wisconsin and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) 8th Edition in Alabama. Wisconsin schools administer the PALS in the fall and spring. Alabama schools administer the DIBELS in the fall, winter, and spring. Thus, DIBELS scores can serve as a covariate and impact variable for the current study, while the PALS can only serve as a covariate. Both the PALS and DIBELS are administered locally by classroom teachers as part of their school's standard assessment process and independent of the Future Forward program.

PALS is a criterion-referenced, teacher-administered assessment of foundational literacy that includes measures of Phonological Awareness, Alphabet Awareness, Letter Sound Knowledge, Spelling, Concept of Word, Word Recognition, and Oral Passage Reading (Invernizzi et al., 2003). Specific assessed content varies between grades. The results are combined to make a composite score, with internal reliabilities ranging from 0.76 to 0.83, inter-rater reliabilities of 0.92, and test-retest reliabilities between 0.92 and .96 (Invernizzi et al., 2015). The assessment also has strong evidence of predictive validity for student academic performance (Invernizzi et al., 2004). PALS composite scale scores were standardized within grade levels.

DIBELS 8th edition is a teacher-administered assessment of reading skills (University of Oregon, 2018). The composite score, which was used in the current study, combines the results of different measures of reading development such as Phonemic Awareness, Word Recognition,

Fluency, and Reading Comprehension. Composite score test-retest reliability is high, ranging from 0.70 to 0.93 depending on the grade level and form used. It also has high concurrent and predictive validity with the Iowa Test of Basic Skills (University of Oregon, 2018-2020).

DIBELS composite scores were standardized within grade levels for each administration separately.

Random Assignment

One hundred twenty-seven families consented to be in the study. Consenting occurred in the month of September in the two Alabama schools and in September and October in the Wisconsin school. After consenting was complete, students took the Star Early Literacy assessment. After all consented students completed Star Early Literacy, assignments were made within 36 regular-school-day classroom blocks. Sixty-five students were randomly assigned to receive Future Forward in the fall. The other 62 were assigned to receive BAU instruction. Star Early Literacy scores were used to balance assignment groups. Rerandomization within a school was done according to processes specified by Morgan and Rubin (2012) when the standardized difference between students assigned to Future Forward and BAU was greater than 0.10 standard deviations. Within each block (classroom) students had a 50% chance of being assigned to receive Future Forward in the fall. No replacements were made for students who dropped out of the program during the fall semester. Block (classrooms) ranged from 1 to 8 students with 33 out of 36 having between two and five students.

Study Participants

Eligible students included kindergarten, first, second, or third grade students without an Individualized Education Plan (IEP) and who were not English learners. Previous Future Forward participants were eligible for the program. Twenty-one of 127 study participants had

received Future Forward previously, 12 of which were assigned to Future Forward in the fall semester. Most of the 127 students were eligible for free or reduced lunch (88%), roughly one-third were Black, and half were White (Table 2). Although students assigned to Future Forward started the study with slightly better school attendance (Table 3), modeling this difference, accounting for block fixed effects, suggested the difference was not statistically significant ($\beta = 0.0015, p = .340$). Assignment groups were roughly equivalent at baseline on Star Early Literacy. The magnitude of the local assessment result difference between assignment groups was large (*Hedges' g* = 0.46), but again, modeling this difference, accounting for block fixed effects, suggests the difference was not statistically significant ($\beta = 0.336, p = .107$). While local reading assessments were completed by the school district before assignment, the results were not available to the research team until after assignments had been completed.

Attrition, and Students Included in the Final Analysis

Only five students attrited (3.9%), three assigned to BAU (4.8%) and two to Future Forward (3.1%). All five students transferred out of their school. Four of 83 Alabama students (4.8%) and one of 44 Wisconsin students (2.3%) left the study. Differential attrition in Alabama (4.7%) and Wisconsin (4.2%) were small. The overall (3.9%) and differential attrition (1.7%) rates are within the conservative levels of acceptability as established by the What Works Clearinghouse (2020). The final analytic sample after attrition included 59 students assigned to BAU reading and 63 to Future Forward. After attrition, Future Forward and BAU students continued to demonstrate better baseline local reading assessment results (Table 3).

Insert table 2 about here

Insert table 3 about here

Analytic Strategy

We used general linear models (GLM) with fixed block effects to estimate the impact of Future Forward using equation 1:

$$Y_{ij} = \beta_0 + \beta_1(FF_{ij}) + \beta_2(A_{ij}) + \beta_3(Star_{ij}) + \beta_4(Local_{ij}) + \sum_{m=1}^M \beta_{5,m}X_{mij} + \sum_{j=1}^{J-1} \beta_{6,j}Block_j + \varepsilon_{ij}$$

Where Y_{ij} is the regular-school-day attendance rate during participation in Future Forward, standardized winter Star Early Literacy score, or standardized winter DIBELS score for the i^{th} student in the j^{th} block; FF_{ij} is an indicator of assignment to Future Forward; β_1 is the impact of Future Forward; A_{ij} is the school attendance rate in the months before the study started; $Star_{ij}$ is the baseline standardized Star Early Literacy score; $Local_{ij}$ is the standardized baseline local assessment result (DIBELS or PALS standardized separately by grade level and assessment); X_{mij} is the m^{th} of M additional covariates representing demographic characteristics (e.g. gender and race); $Block_j$ is the fixed effect of assignment block (classrooms); within each block, all Future Forward and BAU students received the same literacy assessments; and ε_{ij} is the error term.

In addition to including the fixed block effects, error terms were clustered by assignment block (Athey & Imbens, 2017). No baseline data were missing for students in the analytic sample. For a robustness check, we ran a baseline model where we stripped out all model effects except block fixed effects and group assignment.

Differential effects of Future Forward on student subgroups (race, gender, F/R lunch eligibility, grade levels, baseline attendance, and baseline reading) were explored by separately including interaction terms for each characteristic with Future Forward assignment. The differential impacts of Future Forward on subgroups with significant interaction terms were then modeled separately.

Results

Implementation

Future forward ran from Oct 18th through Feb 4th in the Wisconsin school and September 28th through February 1st in the two Alabama schools. All tutoring was done in person. Sixteen tutors supported Future Forward (Table 4). All were female and all but one was White. The number of students each tutor worked with ranged from one to six. Tutoring implementation was intensive. The average student received a total of 25.5 sessions and 2.6 sessions per week during their one semester of participation (Table 5). This amount was close to what would be expected considering the 120 sessions students averaged across four semesters of participation during the i3 study of Future Forward (Jones & Christian, 2021). All but two students received the targeted intensity of tutoring (at least two sessions each week).

Family engagement implementation was more variable between sites and families. The average student's family was engaged a total of 6.2 times or 1.5 times per month. All three sites used a combination of phone calls, text messages, emails, family events, and home visits to engage families. In person communications, through home visits, family events, or online conference, was the most common way the FEC was able to connect with parents. FECs were able to have at least one face-to-face conversation with all but 11 families. Altogether, twenty-four (37%) families were engaged at least twice per month while 43 (66%) were engaged at least once per month (Table 4). Even considering that much of the Alabama family engagement remained virtual, it was more intensive in the two Alabama schools, which averaged over seven contacts per participating family, compared to the Wisconsin school, which averaged only four.

Insert Table 4 about here

Insert table 5 about here

Impact

Unadjusted, there was very little change from fall to winter in the difference in school attendance between students assigned to Future Forward or BAU (Table 3). After adjusting for baseline attendance and reading, block effects, and student demographics (equation 1), Future Forward did not have a statistically significant impact on school attendance (Table 6). Regarding Star Early Literacy, unadjusted, Future Forward participants demonstrated greater growth than BAU students from the fall (0.08 standard deviations) to the winter assessment (0.29 standard deviations). After adjusting winter Star Early Literacy scores with equation 1, Future Forward was found to have had a statistically significant positive impact on Star Early Literacy ($\beta = 0.30$, $p = 0.003$). The impact estimate was consistent in the baseline model as well ($\beta = 0.40$, $p = 0.007$). We also examined the impact of Future Forward on local reading assessments (DIBELS) in the two Alabama schools. Consistent with Star Early Literacy results, Future Forward had a statistically significant impact on DIBELS according to both equation 1 ($\beta = 0.31$, $p = 0.002$) and the baseline model ($\beta = 0.45$, $p = 0.007$) (Table 6).

Insert Table 6 about here

To test for differential effects on Star Early Literacy, we first tested the significance of several interaction terms with Future Forward assignment. Tested interaction terms included grade level, gender, race (White or students of color)¹, free/reduced price lunch eligibility, baseline Star Early Literacy scores, baseline local assessment scores, and location (Alabama or Wisconsin). We tested the same interaction terms (except for location) as predictors for DIBELS scores in the two Alabama schools. The interaction of location with Future Forward assignment was a significant predictor of Star Early Literacy ($p = 0.002$). The interaction of race with Future

¹ We would normally test the impact of specific racial groups and not group all diverse students into one group. The decision to group racial groups was necessary because of sample size limitations.

Forward assignment was a significant predictor of both Star Early Literacy ($p = 0.008$) and DIBELS ($p = 0.006$). These results suggest the impact of Future Forward depended on the race of the participant and whether they were served by Future Forward in Alabama or Wisconsin. We then examined the differential impact of location and race by conducting four separate statistical models predicting Star Early Literacy scores, each including only White students, students of color (Black, Latinx, Asian), Wisconsin students, or Alabama students. The results of these models suggest much larger impacts of Future Forward on the Star Early Literacy results of students of color ($\beta = 0.60, p < 0.001$) and Alabama students ($\beta = 0.48, p = 0.001$) (Table 7). The results also suggest a much larger impact of the Alabama Future Forward program on the DIBELS scores of students of color ($\beta = 0.59, p < 0.001$). Conversely, the results suggest null effects on White students and students in Wisconsin.

Insert Table 7 about here

Future Forward motivating students to read

A mediating factor for Future Forward's impact is that it motivates students to read. A student's attitude toward reading should improve as reading is more supported at home (Wiescholek et al., 2018) and they gain new skills at school (McGeown et al., 2015). Figure 2 presents the number of students who *frequently* showed an interest in reading books. In the fall, before Future Forward, the same number of students assigned to Future Forward and BAU frequently showed an interest in reading books (32). In the winter, teachers reported that more Future Forward students (32) frequently showed an interest in reading books than BAU students (22) (Figure 2). Fewer students who had not participated in Future Forward retained their interest in reading books. Consistent with the differential effects on Star Early Literacy scores, the reduction in the interest in reading books was only apparent in Alabama. While these differences

were not statistically significant ($Exp(B) = 1.73, p = 0.536$), they do suggest a possible focus for future research.

Insert Figure 2 here

Summary and Discussion

Considering the limited study sample it is not surprising that Future Forward was not found to impact school attendance. However, even considering the small sample, Future Forward had statistically significant, positive impacts on Star Early Literacy ($\beta = 0.30$) and DIBELS ($\beta = 0.31$). These results are particularly impressive given the shortened participation period of one semester.

A significant limitation of the current study is that it is only measuring the impact of Future Forward on students in three schools, which were chosen because they were viewed as strong implementers of the program. It is not clear to what extent the results measured in this study would generalize to other schools. While certainly this concern is worth considering, it is noteworthy that the impacts on students measured in the current study were only found in the two Alabama schools (Star Early Literacy $\beta = 0.64$) and on students of color in Alabama (DIBELS $\beta = 0.59$). Considering this, it seems less likely that the results found in the current study are inflated. Still, it is certainly possible that the impact of students of color in the two Alabama schools was greater than you would expect on students of color in a randomly selected school.

The finding that Future Forward was especially impactful on Black students adds to a growing body of evidence from the EIR grant (Jones & Li, 2023; Jones, Reeves, & Li, 2023) and the i3 grant (Jones & Christian, 2021). Why Future Forward is consistently more impactful for Black students may be the result of Future Forward's school-family-community partnership

approach. Implicit bias of teachers negatively affects Black students, even in early primary grades (Gilliam, 2005). As a result, White teachers often hold lower expectations for their Black students (Gershenson et al., 2016) and may expect Black students to be more trouble (Gershenson & Papageorge, 2018). Witnessing Black students succeeding in Future Forward may help teachers see the potential in Black students. Future Forward may also help teachers and Black families see the potential in each other (Lawrence-Lightfoot, 2004; Koonce & Harper, 2005). The Future Forward partnership approach may create space for mutual trust and respect to develop (Graham-Clay, 2005; Lindle, 1989).

The change in the amount of time students participated reduced the local cost per student (tutor, family engagement coordinator, and instructional coordinator pay and benefits) from approximately \$4,000 to \$2,000. While this still represents a significant investment for schools, this cost is lower than most other reading programs that provide one-on-one tutoring (Shretha et al. 2022). Even with the reduced cost, Future Forward demonstrated a large, positive impact on the reading development of students of color that was much greater than what was measured after two years of participation in the i3 study (Jones & Christian, 2021). The measured 0.6 standard deviation impact on students of color suggests students of color in Future Forward demonstrated over twice as much growth from fall to winter on Star Early Literacy and DIBELS than students in BAU reading. This, and previous study results, suggests that Future Forward is a cost-effective reading intervention for students of color.

The implications of the finding that Future Forward participants seemed to be more likely to maintain their interest in reading is interesting but somewhat unclear. It is worth noting that in the previously mentioned study by Vaknin-Nusbaum et al. (2017), students who had lower reading achievement demonstrated lower reading motivation at the end of the year than they did

at the beginning. Possibly, students start the year highly motivated to read but lose interest as they struggle to learn (McGeown et al., 2015). Success in Future Forward may help students maintain that motivation. Future research could clarify this.

Future Research

In 2021, Education Analytics was awarded an EIR Scale-up grant. To continue to allow Future Forward to support more students and reduce costs, participation will continue to be limited to one semester. A one semester model also provides more flexibility to schools implementing Future Forward. Looking past the EIR grant, with an understanding of how much benefit students receive from one semester of participation a school can decide how much Future Forward a student should receive. Students who need more support can participate for the whole school year or even two years, as was the case in the i3 study (Jones & Christian, 2021).

While the current study suggests that one semester of participation in Future Forward can significantly impact students of color, it is unclear how the shortened period of participation affects whether impacts will be sustained over time. A recent follow-up study of the i3 Future Forward program found that three years past participation, the program was still positively impacting reading achievement and school attendance of students of color who started the program with greater reading skills (Jones et al., 2023). The study also found that former Future Forward students with greater reading skills were less likely to receive specialized services. However, a student's participation in the i3 study spanned two years. It seems less likely that one semester of participation would have such a strong sustained impact on students. Again though, by understanding the compounding impact of one semester of Future Forward, the program can be more flexible to the needs of students, families, and schools.

Future research of Future Forward should also explore the program conditions that make the program unique among tutoring programs and particularly impactful for students of color. To what extent does the school-community-family partnership interrupt teacher implicit bias and mistrust between school and home? What changes occur in the relationships between teachers and families as students and families are engaged in Future Forward? How does participation change how teachers and families view each other? More in depth examination of the processes that result in positive impacts for students of color and their families will contextualize program impacts and provide schools with direction for how to replicate these impacts in other settings.

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Figure 1: Future Forward theory of action

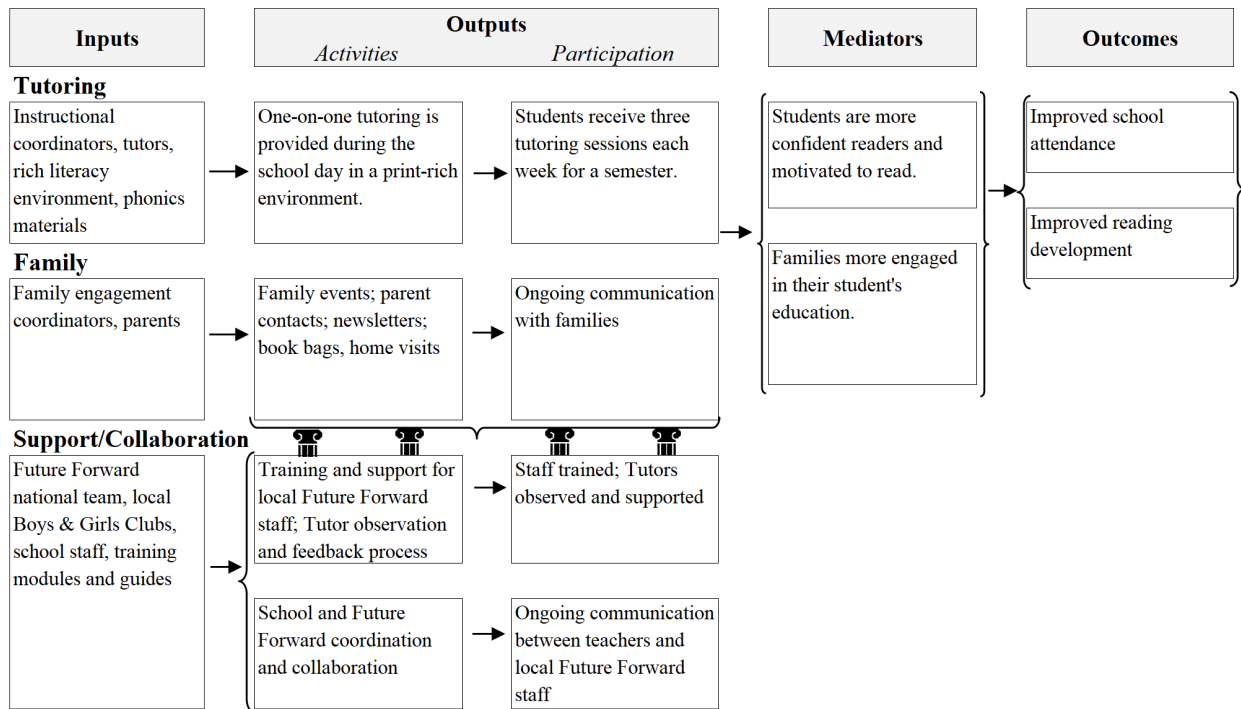


Table 1: Future Forward studies conducted as part of the EIR Mid-Phase grant

Year	Study design	Schools	Outcomes measured	Overall impact estimates	Differential impacts	Reference
2018-19	Pilot regression discontinuity impact study	14	Local measures of reading development	No significant impact ($\beta = 0.264$ standard deviations, $p = 0.103$).	None tested.	Jones et al., 2023
2019-20	Randomized control trial study interrupted by COVID-19; Only able to measure a partial program impact on school attendance	14	School attendance	Statistically significant positive overall impact ($\beta = 1.4\%$, $p = 0.021$).	Black students ($\beta = 2.4\%$, $p = 0.035$), students who started the program with low attendance ($\beta = 2.3\%$, $p = 0.006$), and Black students who started the program with low attendance ($\beta = 3.6\%$, $p = 0.030$).	Jones & Li, submitted for publication
2020-21	Randomized control trial study of a modified online version of Future Forward	9	Star Early Literacy	No significant impact ($\beta = 0.09$ standard deviations, $p = 0.378$).	Black male students reading above benchmark at baseline ($\beta = 0.65$ standard deviations, $p < .001$)	Jones, et al., 2023

Table 2: Study schools

School	Community Type	Reading Proficiency	Percent White	Percent Low-income	Grades of Participating Students
AL school 1	Urban	51%	43%	43%	Grades KG-3
AL school 2	Urban	57%	54%	28%	Grades KG-3
WI school 1	Rural	32%	73%	67%	Grades KG-2

Table 3: Characteristics of study participants

		Assignment Sample			Analytic Sample		
Demographic group		BAU	Future Forward	Total	BAU	Future Forward	Total
Grade Level	KG	20 (32%)	23 (35%)	43 (34%)	20 (34%)	21 (33%)	41 (34%)
	1st	16 (26%)	16 (25%)	32 (25%)	15 (25%)	16 (25%)	31 (25%)
	2nd	19 (31%)	21 (32%)	40 (32%)	17 (29%)	21 (33%)	38(31%)
	3rd	7 (11%)	5 (8%)	12 (9%)	7 (12%)	5 (8%)	12 (10%)
School	AL school 1	20 (32%)	20 (31%)	40 (32%)	19 (32%)	20 (32%)	39 (32%)
	AL school 2	22 (36%)	21 (32%)	43 (34%)	20 (34%)	20 (32%)	40 (33%)
	WI school 1	20 (32%)	24 (37%)	44 (35%)	20 (34%)	23 (37%)	43 (35%)
Race/ Ethnicity	Black	22 (36%)	26 (40%)	48 (38%)	20 (34%)	25 (40%)	45 (37%)
	White	37 (60%)	30 (46%)	67 (53%)	36 (61%)	30 (48%)	66 (54%)
	Other*	3 (5%)	9 (14%)	12 (9%)	3 (5%)	8 (13%)	11 (9%)
Gender	Female	32 (52%)	36 (55%)	68 (54%)	31 (53%)	35 (56%)	66 (54%)
	Male	30 (48%)	29 (45%)	59 (47%)	28 (48%)	28 (44%)	56 (46%)
F/R Lunch	No	8 (13%)	7 (11%)	15 (12%)	8 (14%)	7 (11%)	15 (12%)
	Yes	54 (87%)	58 (89%)	112 (88%)	51 (86%)	56 (89%)	107 (88%)
Total		62	65	127	59	63	122

*Other race/ethnicities included Asian, Latinx, and “other”

Table 4: Unadjusted attendance rates and standardized reading assessment results

Assignment sample					Analytic sample					
Fall (before assignment)					Fall (before assignment)			Winter		
Future					Future			Future		
Measures		BAU	Forward	Total	BAU	Forward	Total	BAU	Forward	Total
Attendance rate	<i>Mean</i>	91.6%	92.8%	92.3%	91.6%	93.0%	92.3%	91.8%	92.8%	92.3%
	<i>SD</i>	9.9%	9.0%	9.4%	10.0%	9.0%	9.5%	6.6%	9.0%	7.3%
	<i>n</i>	61	64	125	59	63	122	59	63	122
Local reading assessments (DIBELS and PALS)	<i>Mean</i>	-0.17	0.17	0.00	-0.16	0.21	0.03			
	<i>SD</i>	0.83	1.07	0.97	0.83	1.08	0.98			
	<i>n</i>	59	64	123	59	63	122			
*DIBELS in Alabama	<i>Mean</i>				-0.19	0.19	0.01	-0.22	0.21	0.00
	<i>SD</i>				0.82	1.10	1.00	0.90	1.05	1.00
	<i>n</i>				38	40	78	38	40	78
Star Early Literacy	<i>Mean</i>	-0.01	0.06	0.02	-0.01	0.08	0.04	-0.15	0.14	0.00
	<i>SD</i>	0.83	1.08	0.98	0.95	1.03	0.99	0.96	1.02	1.00
	<i>n</i>	62	65	127	59	63	122	59	62	121

Notes:

DIBELS, PALS and Star results were standardized within grade levels for each administration;

* DIBELS is the winter local reading assessment that was only available as an outcome in the two Alabama schools;

Table 5: Future Forward tutor characteristics

School	Tutors	Other			College Graduate	Has Teaching Experience	Students
		White	Race	Female			Served per Tutor
AL school 1	4	4	0	4	2	0	5
AL school 2	4	4	0	4	4	3	4-6
WI school 1	8	7	1	8	6	4	1-5

Table 6: Future Forward implementation

Tutoring				Family Engagement				
School	Average Total Sessions (<i>SD</i>)	Average Sessions Per Week (<i>SD</i>)	Students Receiving 2+ Sessions Per Week (%)	Average total contacts (<i>SD</i>)	Average contacts per month (<i>SD</i>)	Families contacted 2+ times each month (%)	Families contacted 1+ times each month (%)	
AL school 1	20.3 (5.1)	2.2 (0.6)	18 (90.0%)	7.4 (6.5)	1.9 (1.6)	9 (45%)	12 (60%)	20
AL school 2	22.9 (1.5)	2.5 (0.2)	20 (100%)	7.6 (4.3)	1.9 (1.1)	9 (45%)	17 (85%)	20
WI school 1	32.3 (3.6)	3.0 (0.3)	23 (100%)	4.1 (2.9)	1.0 (0.7)	4 (17%)	12 (52%)	23
Overall	25.5 (6.4)	2.6 (0.5)	61 (96.8%)	6.2 (4.9)	1.6 (1.2)	22 (35%)	41 (65%)	63

Table 7: Impact estimates of Future Forward

Measures	<i>Robust</i>			
	β	<i>SE</i>	<i>p</i>	<i>n</i>
School attendance rate	0.23	1.06	0.845	121
School attendance rate – Baseline model	0.68	1.28	0.596	121
Star Early Literacy	0.30	0.10	0.003	120
Star Early Literacy – Baseline model	0.40	0.15	0.007	120
DIBELS*	0.31	0.10	0.002	78
DIBELS* – Baseline model	0.45	0.17	0.007	78

Notes:

DIBELS and Star impacts are standardized; Attendance metric is attendance rate percentage presented as a whole number (attendance rate * 100);

* DIBELS is the winter local reading assessment that was only available as an outcome in the two Alabama schools;

Table 8: Differential impact estimates of Future Forward on...

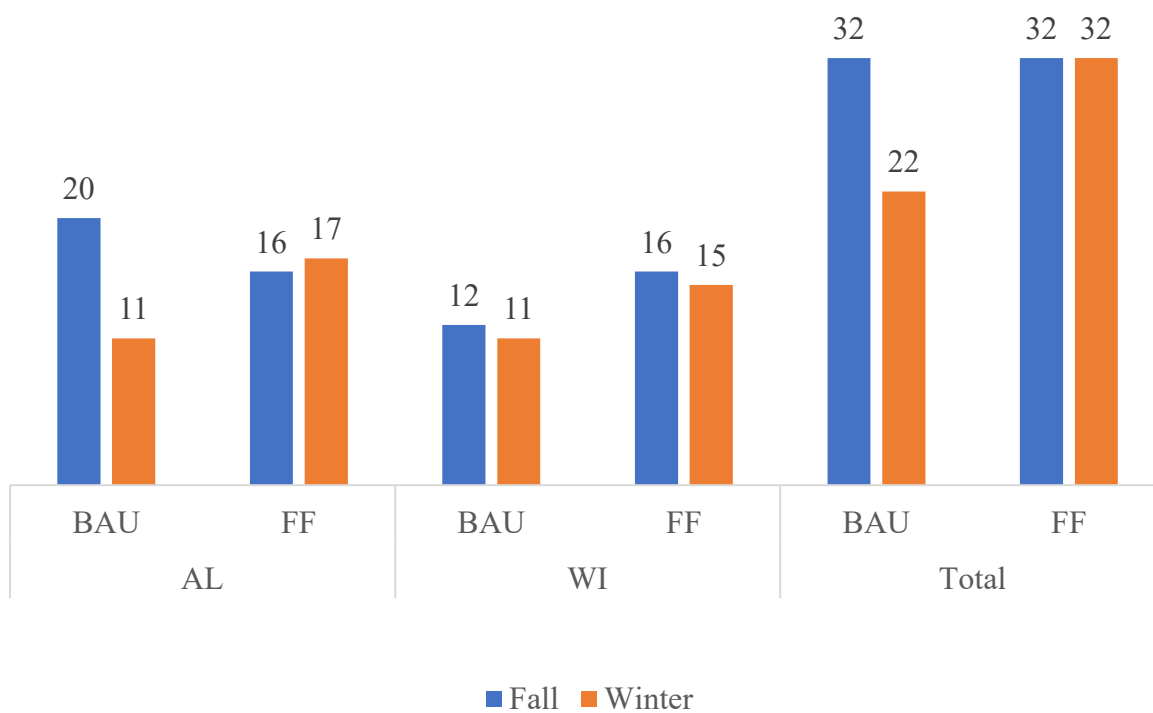
Measures of reading	β	<i>Robust SE</i>	<i>p</i>	<i>n</i>
Star Early Literacy				
White students	0.05	0.17	0.773	65
White students – Baseline model	0.05	0.16	0.756	65
Students of color	0.60	0.14	< 0.001	55
Students of color – Baseline model	0.83	0.21	< 0.001	55
WI students	-0.21	0.12	0.086	43
WI students – Baseline model	-0.10	0.15	0.516	43
AL Students	0.48	0.12	< 0.001	77
AL Students – Baseline model	0.64	0.19	0.001	77
DIBELS*				
White students	-0.06	0.16	0.712	28
White students – Baseline model	0.17	0.17	0.318	28
Students of color	0.59	0.17	0.001	50
Students of color – Baseline model	0.82	0.24	0.001	50

Notes:

DIBELS and Star results are standardized; Attendance impact is in attendance rate;

* DIBELS is the winter local reading assessment that was only available as an outcome in the two Alabama schools;

Figure 2: Number of students *frequently* showing an interest in reading books by state.



Appendix A

Figure 1: Scatterplot of pre and post Star Early Literacy scores

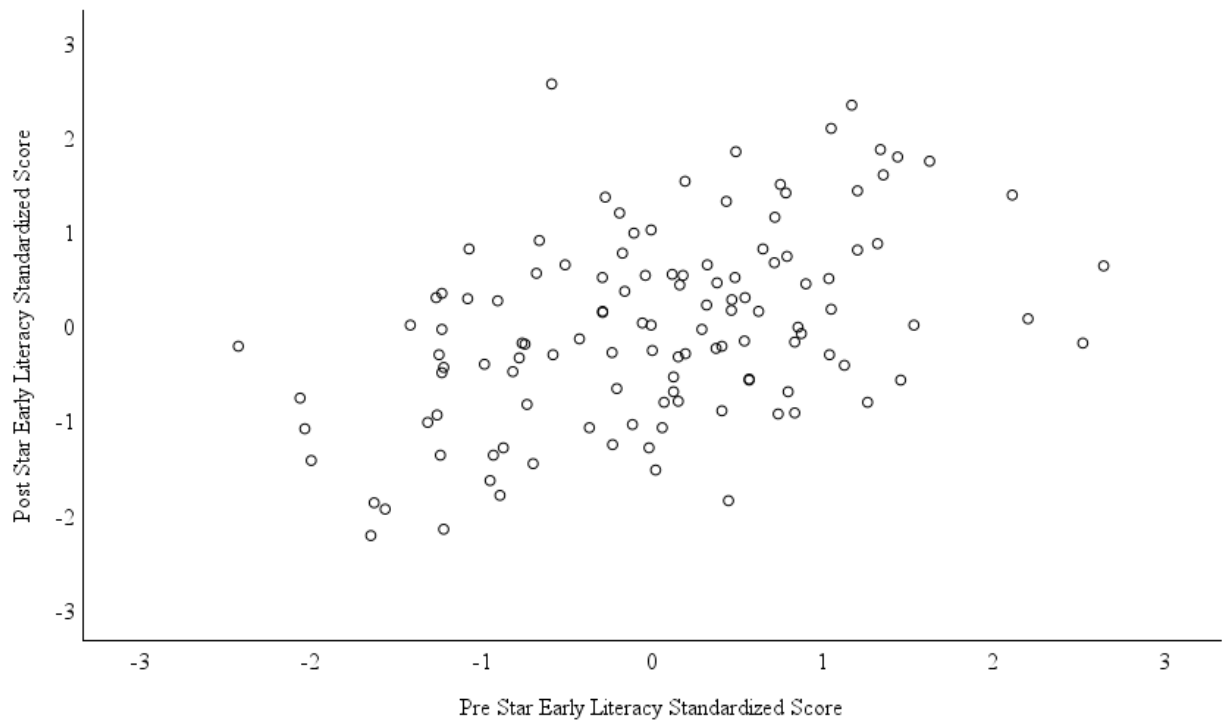


Figure 2: Scatterplot of pre and post DIBELS scores

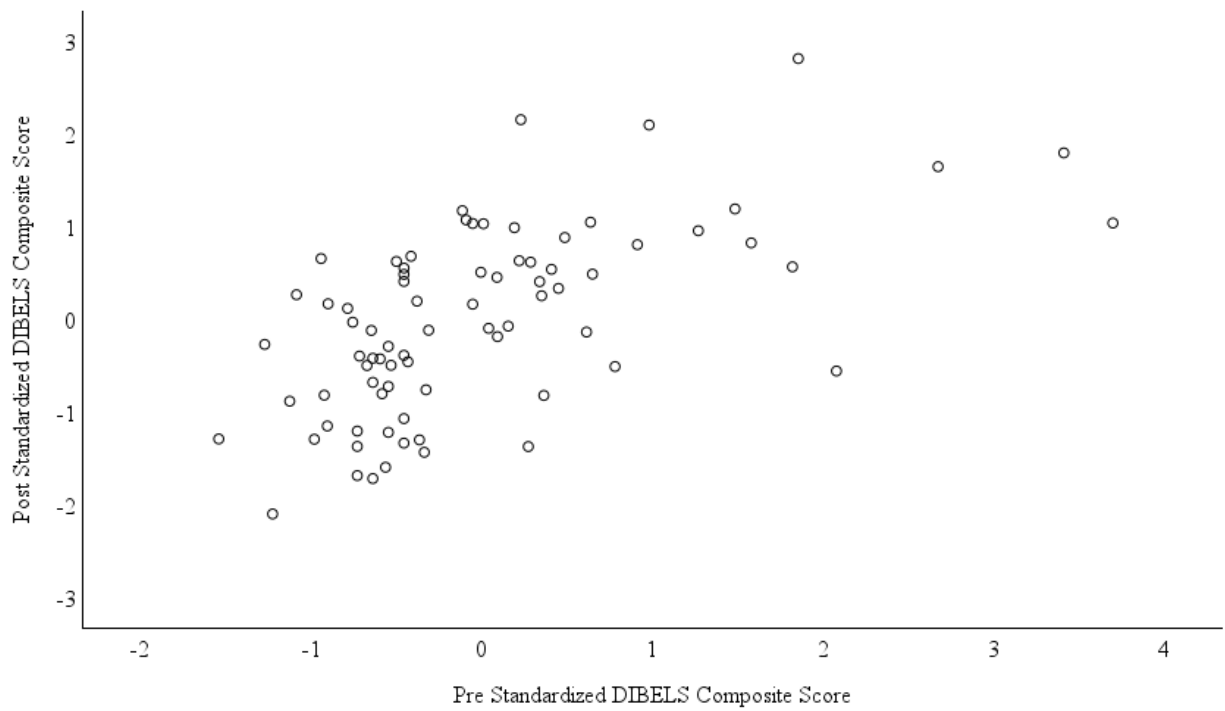
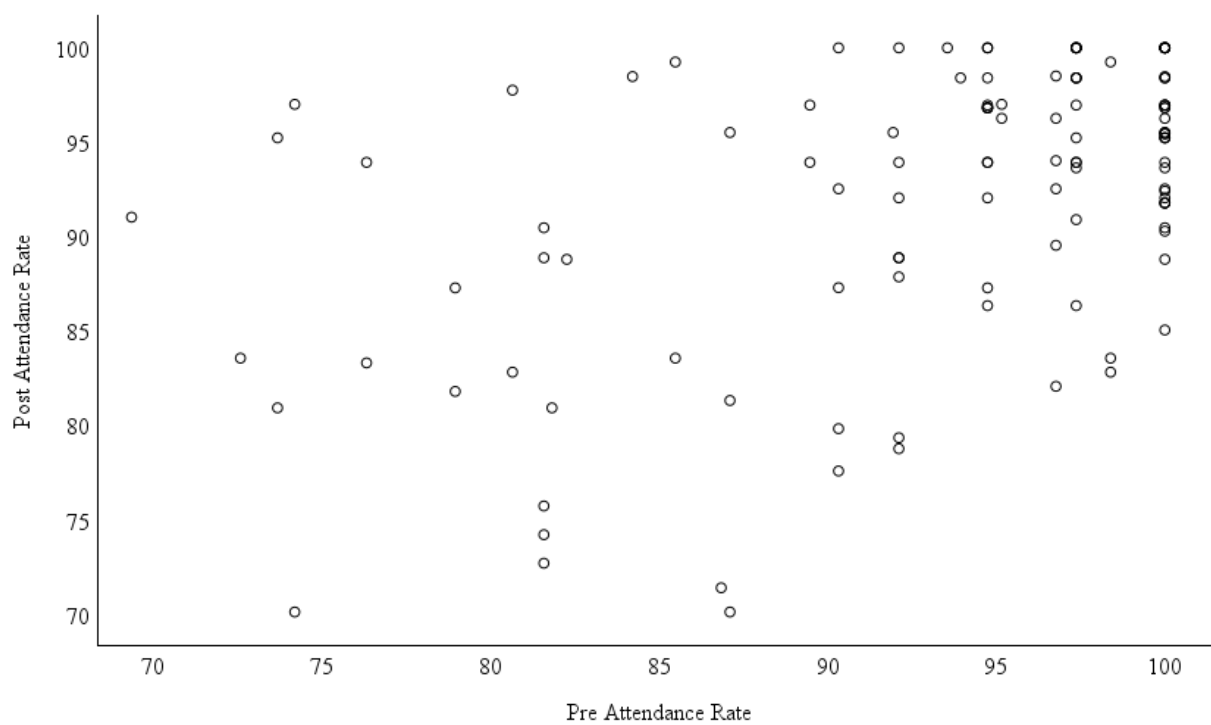


Figure 3: Scatterplot of pre and post assignment school attendance rates



Appendix B

Table 1: Full model results predicting school attendance rates and reading outcomes

	β	<i>Robust</i> <i>SE</i>	<i>Z</i>	<i>p</i>
Attendance				
Future Forward Participant	0.23	1.06	0.22	0.845
Female students	1.03	1.45	0.71	0.475
Black students	-3.30	1.68	-1.96	0.050
White students	1.67	1.54	1.09	0.277
Eligible for free/reduced lunch	-1.87	2.53	-0.74	0.460
Baseline attendance rate	0.47	0.11	4.45	<.001
Baseline Star Early Literacy	0.64	0.93	0.69	0.507
Baseline local reading assessment (PALS/DIBELS)	0.21	0.66	0.34	0.490
Star Early Literacy				
Future Forward Participant	0.30	0.10	2.91	0.004
Female students	-0.39	0.12	-3.24	0.001
Black students	-0.24	0.15	-1.59	0.111
White students	-0.06	0.16	-0.40	0.692
Eligible for free/reduced lunch	0.32	0.20	1.56	0.120
Baseline attendance rate	0.00	0.01	0.40	0.686
Baseline Star Early Literacy	0.27	0.08	3.44	0.001
Baseline local reading assessment (PALS/DIBELS)	0.14	0.08	1.93	0.054
DIBELS				
Future Forward Participant	0.31	0.10	3.07	0.002
Female students	-0.14	0.14	-1.06	0.287
Black students	-0.32	0.33	-0.98	0.328
White students	-0.21	0.31	-0.67	0.502
Baseline attendance rate	0.00	0.01	0.25	0.806
Baseline Star Early Literacy	0.07	0.11	0.71	0.480
Baseline DIBELS	0.33	0.11	3.10	0.002

Star and local reading assessment (PALS/DIBELS) scores are standardized within grade level and administration; Free/reduced price lunch eligibility omitted from DIBELS model because all Alabama students were eligible.

Table 2: Differential effects model results predicting Star Early Literacy

	<i>Robust</i>			
	β	<i>SE</i>	<i>Z</i>	<i>p</i>
Student of color				
Future Forward participant	0.60	0.14	4.29	<.001
Female students	-0.55	0.22	-2.52	0.012
Eligible for free/reduced lunch	-0.92	0.20	-4.56	<.001
Baseline attendance rate	0.01	0.01	1.01	0.315
Baseline Star Early Literacy	0.10	0.08	1.34	0.180
Baseline local reading assessment (PALS/DIBELS)	0.23	0.10	2.28	0.023
White students				
Future Forward participant	0.05	0.17	0.29	0.773
Female students	-0.19	0.16	-1.21	0.226
Eligible for free/reduced lunch	0.33	0.20	1.61	0.107
Baseline attendance rate	0.02	0.01	1.58	0.115
Baseline Star Early Literacy	0.28	0.11	2.71	0.007
Baseline local reading assessment (PALS/DIBELS)	0.06	0.13	0.47	0.639
Students in Alabama				
Future Forward participant	0.48	0.12	4.04	<.001
Female students	-0.36	0.18	-2.00	0.045
Black students	-0.12	0.18	-0.68	0.494
White students	-0.03	0.23	-0.13	0.899
Baseline attendance rate	0.01	0.01	1.47	0.141
Baseline Star Early Literacy	0.24	0.10	2.36	0.018
Baseline DIBELS	0.24	0.08	3.03	0.002
Students in Wisconsin				
Future Forward participant	-0.21	0.12	-1.72	0.086
Female students	-0.11	0.19	-0.57	0.569
Black students	-0.13	0.28	-0.46	0.646
White students	0.11	0.12	0.87	0.383
Eligible for free/reduced lunch	0.35	0.18	1.93	0.054
Baseline attendance rate	0.03	0.01	3.16	0.002
Baseline Star Early Literacy	0.23	0.08	2.94	0.003
Baseline PALS	0.05	0.1	0.51	0.608

Star and local reading assessment (PALS/DIBELS) scores are standardized within grade level and administration; Free/reduced price lunch eligibility omitted from Alabama model because all Alabama students were eligible.

Table 3: Differential effects model results predicting DIBELS in Alabama

	<i>Robust</i>			
	β	<i>SE</i>	<i>Z</i>	<i>p</i>
Students of color				
Future Forward	0.59	0.17	3.43	0.001
Female students	-0.07	0.35	-0.21	0.831
Baseline attendance rate	0.01	0.02	0.50	0.617
Baseline Star score	0.05	0.21	0.23	0.820
Baseline DIBELS	0.45	0.14	3.10	0.002
White students				
Future Forward	-0.06	0.16	-0.35	0.712
Female students	0.24	0.29	0.82	0.413
Baseline attendance rate	0.02	0.01	1.79	0.073
Baseline Star score	0.05	0.19	0.27	0.784
Baseline DIBELS	0.99	0.09	11.30	< .001

Star and DIBELS scores are standardized within grade level and administration; Free/reduced price lunch eligibility omitted from models because all Alabama students were eligible.