

# What is the Sustained Impact of Future Forward on Reading Achievement, Attendance, and Special Education Placement Five Years after Participation?

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April 2021



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# Socially Responsible Evaluation in Education

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## Acknowledgements

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There are a number of people who deserve credit for this report. First, we would like to thank Patricia Marcus for her partnership during and after the i3-funded evaluation. Much of the success of the program and evaluation is attributable to her vision, leadership, and organization. We also thank her for being a strong advocate for the evaluation. Within the Future Forward team, we would like to thank Kate Bauer-Jones, Kris Bischoff, and Tia Hatchett.

We thank Deborah Kuether, whose leadership within MPS helped make the study possible. We also thank former and current members of the research and evaluation team in the Milwaukee Public Schools. We especially appreciate the support and help provided by Janessa Doucette, Deborah Gurke, Deborah Lindsey, Andrew Muriuki, Grace Nicora, Marc Sanders, and Melanie Stewart.

Finally, we would like to thank Patricia Marcus, Melanie Stewart, and Jed Richardson, whose review and feedback improved the report.

# Contents

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What is the Sustained Impact of Future Forward on Reading Achievement, Attendance, and Special Education Placement Five Years after Participation? .....	1
The dissipating impact of tutoring programs.....	2
Follow-up study of Future Forward .....	4
Study questions.....	5
Methods .....	5
Instruments .....	5
Modeling strategies .....	6
How many participants remained in each follow-up analysis? .....	8
Results .....	10
Long-term changes in the reading achievement of Future Forward and BAU students.....	10
Students starting the program in the lower half of literacy among study participants .....	13
Students starting the program in the upper half of literacy among study participants .....	15
What was the sustained impact of Future Forward on reading achievement?.....	17
Long-term changes in the school attendance of Future Forward and BAU students .....	20
What was the sustained impact of Future Forward on attendance?.....	23
What was the long-term impact of Future Forward on special education placement?.....	25
Summary findings .....	27
Discussion .....	28
Future research on Future Forward .....	30
References .....	32
Appendix .....	35

# Table of Figures

---

Figure 1: Sample of students included in follow-up analyses.....	9
Figure 2: Attrition rates during and after the i3 study.....	10
Figure 3: Grade level equivalency for students receiving Future Forward or BAU reading instruction .....	11
Figure 4: The number of academic years Future Forward and BAU students are below reading grade level.....	12
Figure 5: Students who started with reading skills in the lower 50% of study participants: Grade level equivalency .....	13
Figure 6: Students who started with reading skills in the lower 50% of study participants: The number of academic years below reading grade level .....	14
Figure 7: Students who started with reading skills in the upper 50% of study participants: Reading grade level equivalency.....	15
Figure 8: Students who started with reading skills in the upper 50% of study participants: The number of academic years below reading grade level .....	16
Figure 9: Standardized impact of Future Forward on reading achievement five years after the program ended.....	19
Figure 10: The average number of school absences each year after Future Forward ended .....	20
Figure 11: Students who started with reading skills in the lower 50% of study participants: The average number of school absences each year after the Future Forward program ended.....	21
Figure 12: Students in the upper 50% in their literacy development among study participants: The average number of school absences each year after the Future Forward program ended.....	22
Figure 13: The impact of Future Forward on school absences five years after the program ended. ...	24
Figure 14: The percentage of students with an IEP five years after the Future Forward program ended. .....	26

# What is the Sustained Impact of Future Forward on Reading Achievement, Attendance, and Special Education Placement Five Years after Participation?

## Executive Summary

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Future Forward is an early primary program that leverages both one-on-one tutoring and parent engagement to develop the literacy skills of struggling readers. In 2010, Future Forward was awarded an i3 grant, under the name of SPARK, to develop and test its impact in seven Milwaukee Public Schools primarily serving low-income Black and Latinx students. The results of a randomized control trial evaluation found Future Forward had positive and statistically significant impacts on foundational literacy, reading achievement, and school attendance (Jones & Christian, 2020). Further, the students who started the study with the least developed reading skills benefited the most. In the current study, we follow the 576 study participants five years past the end of the study, from 2016 to 2020, to determine if the benefits gained were sustained.

The results show that former Future Forward participants continued to score higher on the school district's benchmark Star Reading assessment after the i3-funded study and program ended. The sustained impact of Future Forward was equivalent to approximately 1/3 year of reading development according to national norms, and 1/2 year according to local norms. Counter to the results of the original i3-funded study, we did not find that the students who started the study with the least developed reading skills received a differential benefit from their participation. Surprisingly, Future Forward had the strongest sustained impact on students who started the study with more developed reading skills. "More developed skills" is a relative term though. Within MPS, where only 10.6% of Black students and 19.2% of Latinx students are proficient in reading, these students still entered the study with significant needs for literacy supports.

Although former Future Forward participants demonstrated better school attendance every year past their participation, none of these effects were statistically significant. We also found that former Future Forward students were less likely to be placed into special education. In 2020, ten fewer students who received Future Forward supports were receiving specialized services compared to students who received business-as-usual reading instruction. Considering the added cost associated with providing specialized services to ten additional students, Future Forward could ultimately save MPS over one million dollars.

Together, these results provide strong evidence of a Future Forward sustained effect. This is unique among literacy programs. Typically, impacts dissipate quickly after participation

ends. After a program, students are subjected to the same in and out-of-school processes that resulted in their delayed literacy development (Shanahan & Barr, 1995; Jones, Reeves, & Rainey, 2020). Through a family-school-community partnership approach, Future Forward attempts to develop support systems around students that continue beyond their participation. These findings validate this approach.

Although the results of this study are positive, it is important to put the impact of Future Forward in the context of a school system that is failing students of color. Although Future Forward had a large sustained impact on reading achievement, former Future Forward participants were still reading several years below grade level by middle school. So while the impact of Future Forward is real, it must be a part of larger efforts in educational resource redistribution to earnestly provide what is owed to students and families (Ladson-Billings, 2006). While it can certainly be part of a solution for addressing that debt, it cannot be the primary method for doing so. As long as the schools serving students of color remain largely “organized to stagnate” with low educator retention (Jones, Reeves, & Rainey, 2021), ineffective instruction (Shanahan & Barr, 1995), and a weak professional culture (Jones, Reeves, & Rainey, 2020), the potential of Future Forward for impacting the lives of students will be remain marginal.



# What is the Sustained Impact of Future Forward on Reading Achievement, Attendance, and Special Education Placement Five Years after Participation?

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In 2010, Boys & Girls Clubs of Greater Milwaukee (BGCGM) was awarded an Investing in Innovations (i3) grant to develop and test the impact of Future Forward, which was then called SPARK, in seven Milwaukee Public Schools (MPS). MPS, a district serving over 80,000 students, faces a significant challenge to teach its students how to read and write. According to Wisconsin Forward Exam results, only 18.6% of MPS students were proficient in reading in 2019 compared to 40.8% statewide. The overall proficiency of MPS masks deep inequities between White, Black, and Latinx students. While 45.4% of White MPS students were proficient in reading, only 19.2% of Latinx and 10.6% of Black students were proficient.

Future Forward was developed to help address the needs of struggling readers in MPS. Future Forward leverages a school-community-family partnership approach (Epstein, Sanders, Simon, Salinas, Jansorn, & Van Voorhis, 2002) to address the literacy needs of students and families. One-on-one tutoring is provided by a paraprofessional or volunteer three times each week. Parent engagement involves ongoing communications home to update the family regarding their student's progress. Families are also provided development opportunities for supporting their student's literacy outside of school. These occur during home visits, monthly family events held at the school or a community center, and ongoing communications (phone calls, emails, texts, or in-person conversations). A more detailed description of the program and logic model has been published elsewhere (Jones & Christian, 2020) and is available upon request.

The i3 grant resulted in two randomized studies that measured the impact of Future Forward. The first study, conducted while Future Forward was still in development during the 2011-12 and 2012-13 school years, found a small, positive, and significant impact on reading achievement (Jones, 2018). Students who received Future Forward support for two years had slightly greater reading achievement scores than students receiving only business-as-usual (BAU) reading instruction. The second study tested the impact of the fully developed Future Forward program in the 2013-14 and 2014-15 school years. The results from this study indicated that Future Forward had significant, positive impacts on literacy development, reading achievement, and school attendance. Although students were provided Future Forward for two years, most of the benefit was realized after just one year. Further, Future Forward had a differential positive impact on students with the least developed literacy skills.

The current study follows the students who were assigned to receive Future Forward tutoring and those assigned to receive BAU reading instruction for five years after the conclusion of the study in the spring of 2015. Data provided by MPS allows for the unique opportunity to determine if Future Forward participants' reading and attendance gains were sustained through middle school. These data also allow for an analysis of Future Forward's impact on referrals to special education, expanding the potential benefits from individual students to the entire district. The average cost per pupil in MPS is \$14,897 (Lisowski, January 31, 2019). Annual costs for a Wisconsin student in special education are approximately double that of a student in regular education, approximately \$15,000 extra per year for MPS students (Wisconsin Policy Forum, 2019). The state only covers about 25% of the additional cost for educating a student in special education. Thus, \$11,250 of the added cost is paid from MPS general funds. A MPS student who begins receiving special education services in elementary school can cost this amount for ten years (or more) as they progress through middle and high school, ultimately costing \$112,500. If Future Forward prevents students from being referred to special education services, districts partnering with Future Forward stand to realize substantial financial benefits.

## The dissipating impact of tutoring programs

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Although a great deal of research exists “proving” the effectiveness of various tutoring programs, few programs have proven effective under rigorous evaluation scrutiny such as with a randomized control trial (RCT). Much of this research can be found summarized in websites like the What Works Clearinghouse (WWC) (<https://ies.ed.gov/ncee/wwc/>) and Evidence for ESSA (<https://www.evidenceforessa.org/>). These two websites help filter much of the noise about the effectiveness of the hundreds of tutoring programs a Google search will uncover. A search on the Evidence for ESSA website for early elementary literacy programs with “strong” evidence for effectiveness, i.e., with at least one positive effect in a RCT, whittles the number down to only 20 programs, one of which is the Future Forward program.

While applying rigorous evidence standards already thins the field of literacy programs, applying a standard that programs have strong evidence of a sustained effect after the program ends further reduces their numbers. It is difficult to conduct long-term follow-up studies. Students move and fewer can be tracked the further out the follow-up study reaches. The relatively small amount of follow-up research that has been attempted has shown program impacts quickly dissipate after students leave a program (D'Agostino, Lose, & Kelly, 2017; Jesson & Limbrick, 2014; Hurry & Sylva, 2007), with some exceptions.

Reading Recovery, which has successfully scaled up across the United States (Sirinides, Gray, & May, 2018), has mixed evidence of a sustained effect. A follow-up study of Reading Recovery in Michigan (D’Agostino, Lose, & Kelly, 2017), using propensity score matching, found the effect of first grade Reading Recovery was sustained through third grade, with a 0.16 effect size on the state reading assessment, but was gone by fourth grade. The study did report that the subset of students with the greatest need for support sustained an impact of 0.34 standard deviations on the state reading assessment. A follow-up study of its impact was also done as part of the i3 grant awarded to scale up Reading Recovery in 2010 (May, Sirinides, Gray, & Goldsworthy, 2016). The regression discontinuity study, which compared the follow-up achievement of first grade students who were eligible to receive Reading Recovery with the achievement of students who were ineligible, included 331 schools and over 5,000 students across the United States. At the end of the program, the overall impact was 0.68 standard deviations on the Observation Survey of Early Literacy (OS) (Clay, 2015). One semester after participation, the impact on the OS was reduced to 0.27 standard deviations. Two years later, at the end of third grade, no effect was measured on state reading assessments. However, attrition severely limited the study’s ability to measure an effect.

Success for All, which has also successfully scaled up across the United States (Quint, Zhu, Balu, Rappaport, & DeLaurentis, 2015), is a whole-school intervention developed in Baltimore with a rich history of rigorous research proving its effectiveness in a variety of contexts and with a variety of students groups (Cheung, Xie, Zhang, Neitzel, & Slavin, in press). Follow-up studies of its sustained effect are less common. A study by Borman and Hewes (2002) provides the most compelling evidence of its sustained effect. The authors report former Success for All students had higher reading achievement (equal to approximately 0.5 grade levels), were less likely to be in special education, and had faster grade progression than students in matched schools three years after leaving a Success for All school. If representative of the sustained impact of Success for All, these findings suggest the program’s impact may be sustained for several years after participation.

The current study's goal is to examine the sustained effect realized in the i3 study of Future Forward (Jones & Christian, 2020), five years after participation ended. By working to scaffold supports for literacy instruction around the larger social context of students, Future Forward is designed to promote a lasting solution to student literacy deficits. Future Forward does not treat literacy deficits as entirely attributable to a lack of effective literacy instruction. That a student in first grade is behind is their literacy development is due to a myriad of contextual factors in and outside the school. Programs that focus solely on skill development are not addressing all of the reasons why students lack foundational reading skills. After the program ends, the reasons why a student was behind in their reading remain and begin to pull the student back. Through a community-school-family partnership approach

(Epstein, 2001), Future Forward seeks to scaffold supports around students' lives by embedding supports in the home and community so that once the program ends, the various systems affecting students are better able to support their continued academic development.

## Follow-up study of Future Forward

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In the fall of 2013, 576 kindergarten, first, and second grade students across seven struggling, low-income elementary schools primarily serving students of color were assigned to receive two years of Future Forward literacy or BAU reading instruction. Two hundred eighty six students were randomly assigned to receive two years of Future Forward and 290 to receive BAU reading instruction. Assignment was done within grade levels within schools. With seven schools and three grade levels included in the study, there were 21 assignment blocks. Nearly all students were either Black or Latinx and eligible for free or reduced-priced lunch. A full description of the demographic characteristics of these groups is published elsewhere (Jones & Christian 2020). Of the seven schools, six served primarily Black students. The other school served mostly Latinx students. All schools included in the study had a Boys & Girls Club program attached. Only kindergarten, first, or second grade students, without an IEP, except one related to speech-language, and who were not English Learners (EL), were eligible to participate in the study.

As was mentioned previously, the results of the i3 study were positive, with positive impacts on literacy development, reading achievement, and school attendance (Jones & Christian, 2020). Implementation was strong, with 96% of participants receiving the full amount of intended tutoring (> 90 sessions) and 98% receiving the full amount of family engagement (> 12 successful home contacts). The current study follows the educational development of study participants, as assigned in the fall of 2013. Thus, this follow-up study applies an intent to treat (ITT) approach for testing the sustained impact of Future Forward, including all assigned participants regardless of the amount of programming they received. One-hundred ninety-eight participants were attrited before the end of the original i3 study. The great majority of attrition occurred during the summer between the first and second years. Attrition was due to students changing schools, moving away, or not taking outcome assessments. The hope was that some of the students who were lost to the study would have follow-up assessment results available. Adding the 198 students who were originally attrited back into the study helps strengthen our power to detect a follow-up effect. One concern with adding the attrited students back into the study is that the impact would be watered down by students who did not receive much intervention. However, most, if not all of the impact of Future Forward was realized during the first year of participation, which had very low attrition. No family purposefully dropped out of the study.

## Study questions

We follow the 286 Future Forward and 290 BAU participants for five years after participation ended in the spring of 2015, through the winter of 2020, to answer the following questions:

1. *To what extent did students who participated in Future Forward continue to demonstrate greater reading achievement for the five years after the program ended, compared to students who received business-as-usual reading instruction?*
2. *To what extent did students who participated in Future Forward continue to demonstrate greater regular-school-day attendance for the five years after the program ended, compared to students who received business-as-usual reading instruction?*
3. *Were fewer Future Forward participants referred for special education services, compared to students who received business-as-usual reading instruction?*
4. *Did students with greater literacy support needs continue to realize a differential benefit from participation in Future Forward?*

## Methods

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MPS provided 2013-14 and 2014-15 data during the original study covering school attendance, student demographics, Phonological Awareness Literacy Screening (PALS) scores, and Measures of Academic Progress (MAP) Reading and Math scores. MPS later provided follow-up 2015-16, 2016-17, 2017-18, 2018-19, and 2019-20 Star Reading assessment results. MPS provided school attendance data covering the 2016-17, 2017-18, 2018-19, and 2019-20 school years. MPS could not provide 2015-16 school attendance data because their electronic data systems do not track attendance data that far back. Finally, MPS provided demographic data, including special education status, for the 2019-20 school year.

### Instruments

***NWEA Measures of Academic Progress (MAP).*** MPS provided MAP Reading and Math scores covering the 2013-14 and 2014-15 school years. The MAP (Northwest Evaluation Association, 2009) is a norm-referenced, adaptive assessment of reading achievement. The technical reference manual reports an internal marginal reliability of .95. Test-retest reliabilities are reported as between .76 and .89. The MAP also is reported to have high concurrent validity with a variety of other reading assessments including the Iowa Test of Basic Skills and the Stanford 9 achievement test.

***Phonological Awareness Literacy Screening (PALS).*** MPS provided PALS scores covering the 2013-14 and 2014-15 school years. The PALS (Invernizzi, Swank, Juel, & Meier, 2003)

is a criterion-referenced, teacher-administered assessment of literacy. Although the PALS assesses foundational literacy across a number of areas including spelling, word recognition, fluency, and comprehension, only the overall literacy score was used in this study. The technical reference manuals report internal reliabilities of between .76 and .83, inter-rater reliabilities of .92, and test-retest reliabilities of between .92 and .96. It also is reported to have both concurrent and predictive validity with a variety of other reading assessments. MPS began administering the PALS to all kindergarten and first grade students in the 2013-14 school year. MPS began administering the PALS to second grade students in the 2014-2015 school year. Thus, baseline (2012-13) PALS results were not available for students who started in the study in second grade.

***Renaissance Star Reading.*** MPS switched from the MAP to the Star Reading (Renaissance Learning Inc, 2019) assessment in the 2015-16 school year. MPS provided Star Reading scores covering the spring of 2016, 2017, 2018, 2019, and the winter of 2020. MPS students did not take the spring 2020 Star Reading assessment because schools were closed due to COVID-19. Star Reading is a short, online adaptive assessment. It is reported to have 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. Star Reading scores are normed nationally and converted to grade levels.

***Regular-School-Day Attendance.*** MPS provided attendance data for the 2013-14 and 2014-15 school years during the original i3 study. Later, MPS provided attendance data covering the 2016-17 through 2019-20 school years. MPS was unable to provide attendance data covering 2015-16 because their electronic systems do not maintain attendance data that far back. Students with only partial attendance data for a school year were excluded from follow-up analysis for that year.

### **Modeling strategies**

General linear models (GLM) with robust standard errors were used to estimate the impact of assignment to Future Forward on spring 2016, spring 2017, spring 2018, spring 2019, and winter 2020 Star Reading scores, 2017 attendance, 2018 attendance, 2019 attendance, and 2020 attendance (shortened because of COVID-19). 2020 special education participation was predicted using logistic regression. School and grade level fixed effects are included instead of blocks because blocks largely lost their relevance over time as students transferred across schools and advanced in grade levels. We did not include the school attended at follow-up because, by 2020, students attended 59 different schools. Star Reading scores were standardized within grade levels so beta weights of the Future Forward impact would approximate effect sizes. Analyses were conducted using the IBM SPSS 26.0 statistical software package.

Star Reading scores and attendance (absences) were modeled using the following linear regression equation or a variant of it:

$$\begin{aligned}
 Y_i = & \beta_0 + \beta_1(FF_i) + \beta_2(PALS_i) + \beta_3(PALS\ Missing_i) + \beta_4(MAP\ Reading_i) \\
 & + \beta_5(MAP\ Math_i) + \beta_6(MAP\ Math\ Missing_i) + \sum_{m=1}^M \beta_{7,m}X_{mi} \\
 & + \sum_{m=1}^{M-1} \beta_{8,m}School_{mi} + \sum_{m=1}^{M-1} \beta_{9,m}grade_{mi} + \varepsilon_i
 \end{aligned}$$

where  $Y_{ij}$  is the *outcome* (*Star*, or *attendance*) for the  $i^{\text{th}}$  student;  $\beta_0$  is the intercept;  $\beta_1$  is the impact of Future Forward;  $FF_i$  is a binary indicator for Future Forward participation;  $\beta_2$  is the effect of baseline PALS score;  $PALS_i$  is baseline PALS score (from fall 2013) set to 0 if missing;  $\beta_3$  is the effect of not having a PALS baseline assessment score;  $PALS\ Missing_i$  is a binary indicator for not having a baseline PALS score;  $\beta_4$  is the impact of baseline MAP Reading score;  $MAP\ Reading_i$  is baseline MAP Reading score (from fall 2013). No students were missing a MAP Reading score;  $\beta_5$  is the impact of baseline MAP Math score;  $MAP\ Math_i$  is baseline MAP Math score (from fall 2013) set to 0 if missing;  $\beta_6$  is the effect of not have a MAP Math baseline assessment score;  $MAP\ Math\ Missing_i$  is a binary indicator for not having a baseline MAP Math score;  $\beta_{7,m}$  is the effects of student covariates.  $X_{mi}$  = the  $m^{\text{th}}$  of M additional covariates representing demographic characteristics (gender, race, IEP status, free/reduced lunch).  $\beta_{8,m}$  is the effect of school attended during the original study;  $\beta_{9,m}$  is the effect of grade level; and  $\varepsilon_i$  is the error term.

The logistic regression model presented below predicting  $\eta_i$  (the probability of a student  $i$  having an IEP in 2020), includes the same predictor variables.

$$Prob(IEP_i = 1/\beta) = (\phi_i)$$

$$\log\left[\frac{\phi_i}{1 - \phi_i}\right] = (\eta_i)$$

$$\eta_i = \beta_0 + \beta_1(FF_i) + \beta_2(PALS_i) + \beta_3(PALS\ Missing_i) + \beta_4(MAP\ Reading_i) \\ + \beta_5(MAP\ Math_i) + \beta_6(MAP\ Math\ Missing_i) + \sum_{m=1}^M \beta_{7,m}X_{mi} \\ + \sum_{m=1}^{M-1} \beta_{8,m}School_{mi} + \sum_{m=1}^{M-1} \beta_{9,m}grade_{mi} + \varepsilon_i$$

Note that  $PALS_i$  was not available for second grade students. MPS did not administer the PALS to second grade students in the fall of 2013. Dummy variable replacement was used for missing second grade PALS scores, and for any other missing predictor variables (Puma et al., 2009).

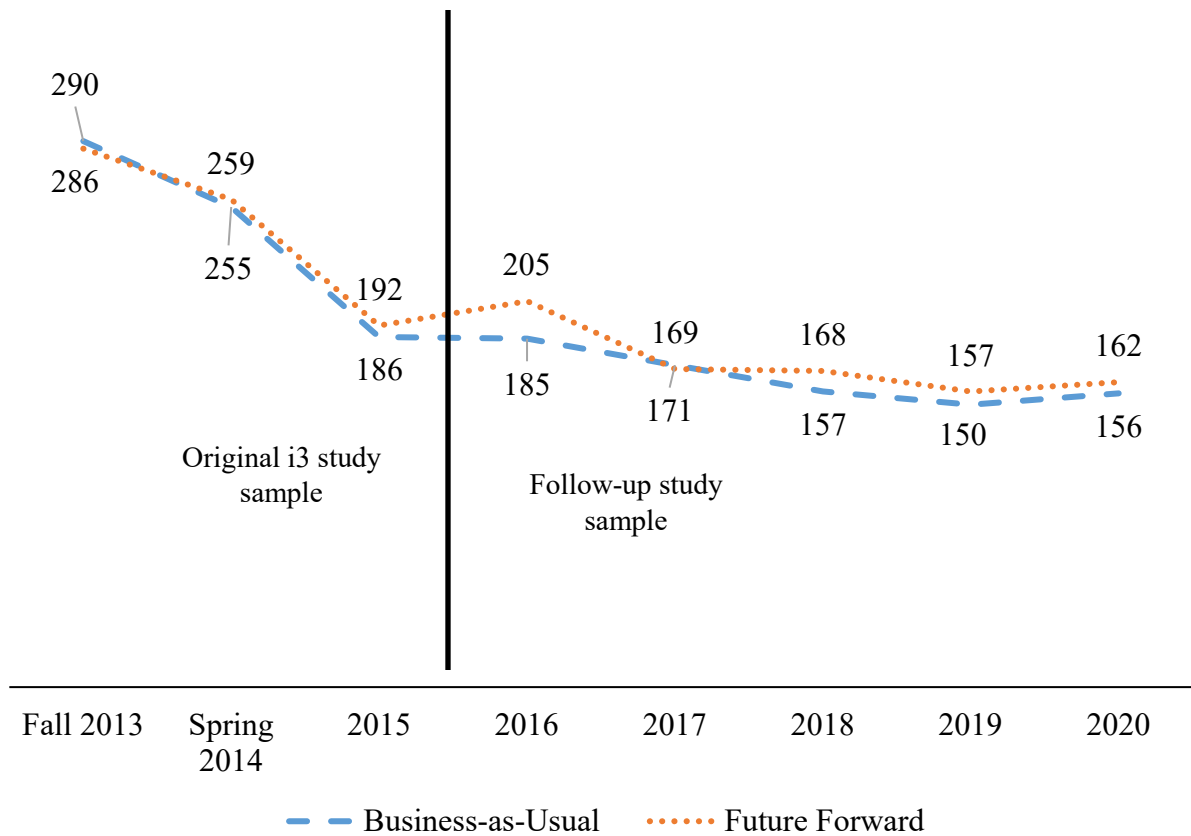
In the original study, Future Forward had a differential impact on students in the lower half of the PALS (for K and first grade) or MAP Reading (for second grade) baseline distribution (Jones & Christian, 2020). The current study tests the sustained impact of Future Forward on students in the upper and lower halves of the baseline literacy distribution by modeling its effect separately for each group. PALS scores were used to determine this for kindergarten and first grade students. MAP Reading was used for second grade students.

### **How many participants remained in each follow-up analysis?**

Follow-up analyses, after the program ended in the spring of 2015, included between 157 and 205 Future Forward participants and 150 and 185 BAU students (Figure 1). Regarding measuring the sustained impact on reading achievement, assuming 50% of the variance explained by covariates, the study has an 80% likelihood of detecting a standardized effect of between 0.20 and 0.22. Regarding attendance (absences), assuming 20% of the variance explained by covariates, the study has an 80% likelihood of detecting a standardized effect of between 0.26 and 0.28.

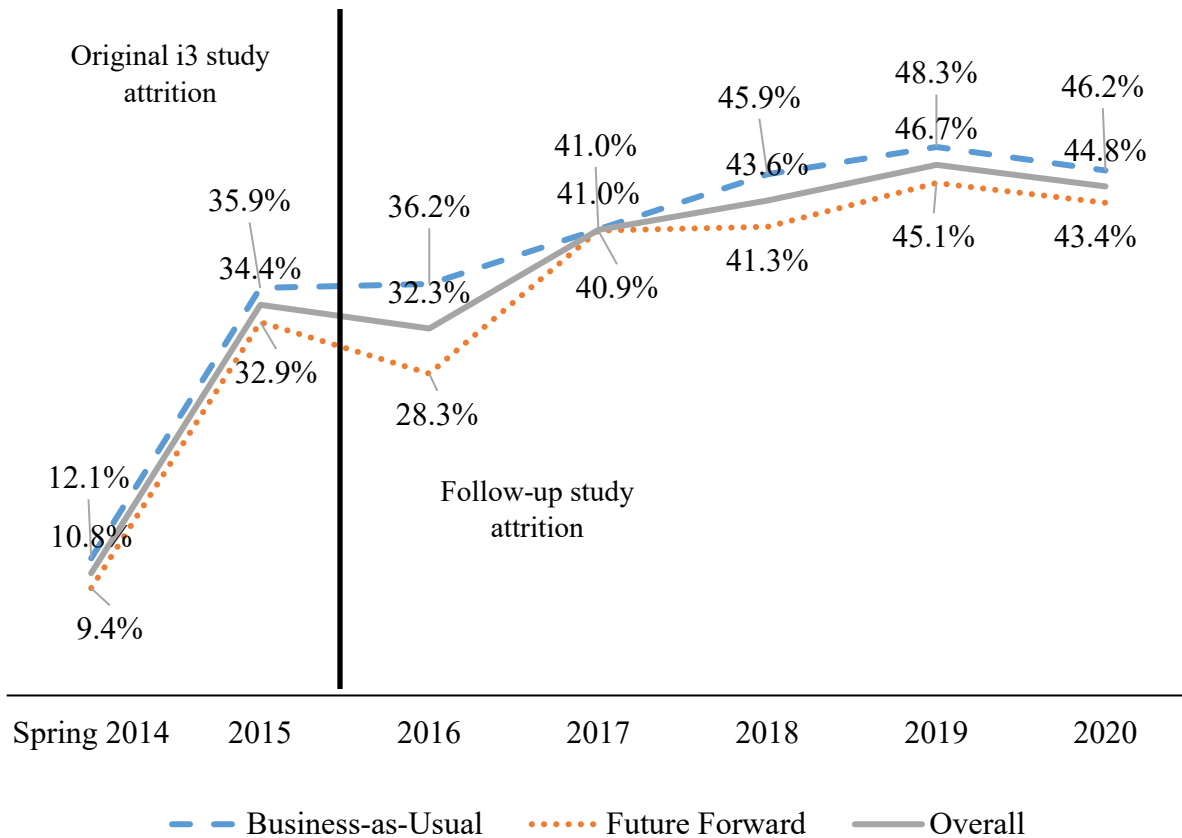


Figure 1: Sample of students included in follow-up analyses



Over the course of the five follow-up years from 2016 to 2020, overall attrition ranged from 32.3% to 46.7% (Figure 2). A student was considered attrited if their outcome data were not provided for a specific year. Because a small number of students did not participate in the Star Reading assessment each year, and because some students unenrolled from and reenrolled in MPS during the study, a student could be attrited one year and not attrited a later year. Differential attrition (Future Forward attrition – BAU attrition) ranged from -7.9% in 2016 to 0.1% in 2017. Although it is unclear that the WWC review standards apply to follow-up studies, the combination of overall and differential attrition meets WWC optimistic attrition standards in 2016, 2018, 2019, and 2020. It meets conservative standards in 2017 (What Works Clearinghouse, 2020).

Figure 2: Attrition rates during and after the i3 study



## Results

### Long-term changes in the reading achievement of Future Forward and BAU students

Star Reading assessment results show Future Forward participants consistently a quarter to a third of a year ahead of BAU students (Figure 3). However, the reading skills of both groups developed less than one year for each school year, suggesting the reading abilities of both groups fell further behind each year. There was a drop in grade level equivalence in 2020 for both groups. MPS students did not participate in the Star spring assessment that year because of the disruption to schooling caused by COVID-19. Thus, the 2020 assessment is the winter assessment, which is administered earlier in the year, and thus measures less than one year of reading growth.

Figure 3: Grade level equivalency for students receiving Future Forward or BAU reading instruction

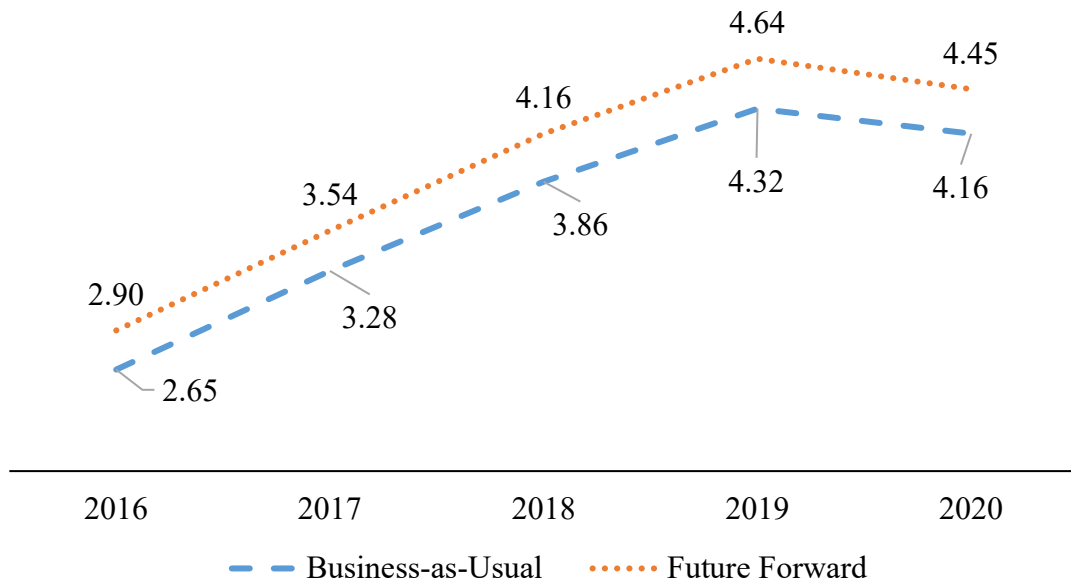
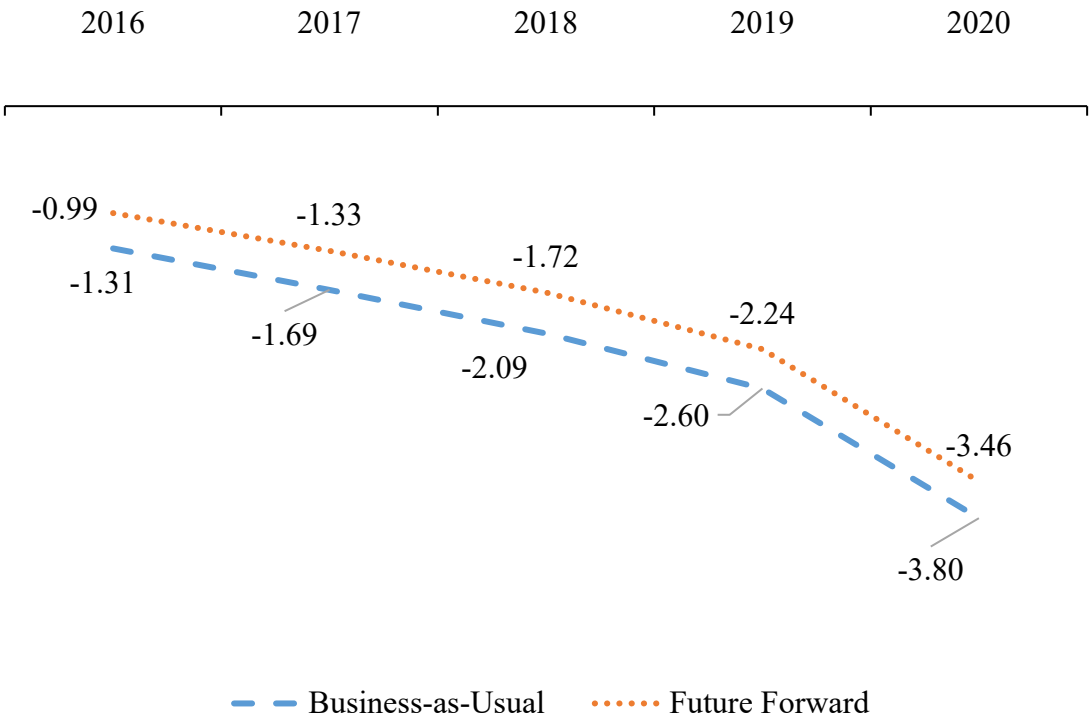


Figure 4 presents the years behind grade level students were each year after Future Forward. A year after the study ended, Future Forward students were nearly a full year below grade level (-0.99) while BAU students were nearly one and one-third years (-1.31) below grade level. This difference of about one-third of a school year was maintained across all five years. At the same time, all students still fell further behind. By 2020, the typical former Future Forward student was reading 3.46 years below grade level and the typical BAU students was behind 3.80 years.

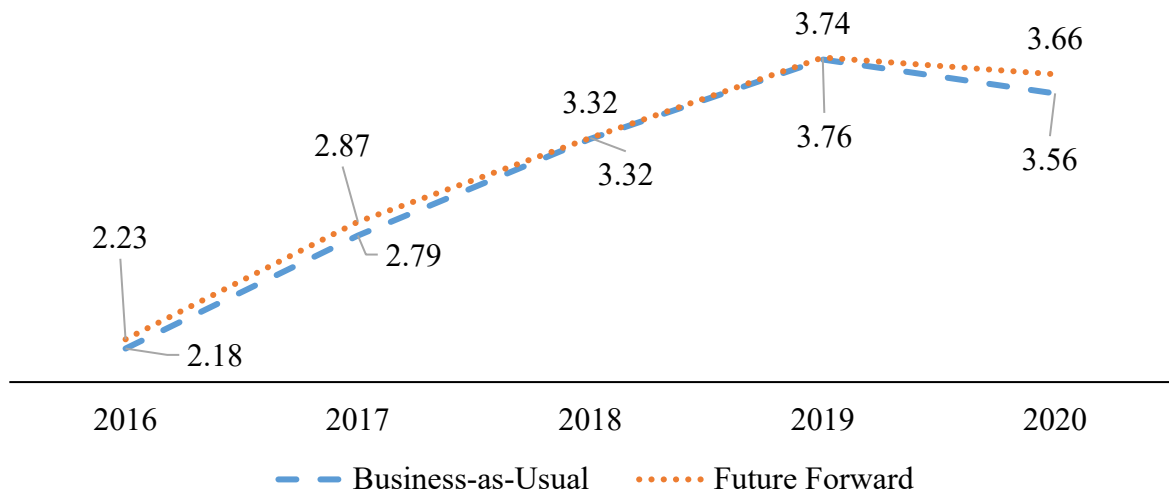
Figure 4: The number of academic years Future Forward and BAU students are below reading grade level



***Students starting the program in the lower half of literacy among study participants***

In the original study (Jones & Christian, 2020), Future Forward was found to have a greater effect on students who started the program in the lower 50% of the distribution of baseline literacy scores among study participants. Follow-up analyses past their participation in the program do not suggest Future Forward continued to have a differential positive effect on this group. There were no differences in the reading achievement between Future Forward and BAU students after Future Forward ended (Figure 5). By the time students were all in middle school in 2020, both groups were reading at between a third and fourth grade level.

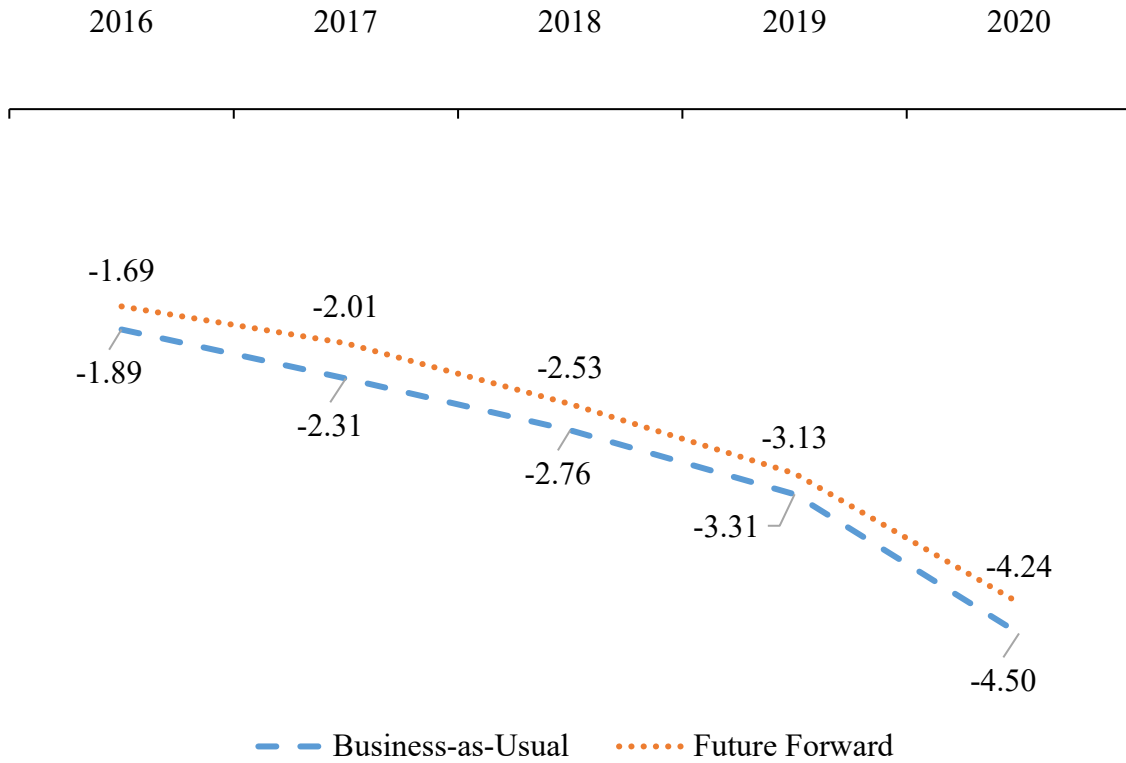
Figure 5: Students who started with reading skills in the lower 50% of study participants: Grade level equivalency



An imbalance in grade level representation between the Future Forward and BAU groups could cloud the interpretation of grade levels presented in Figure 5. Figure 6 accounts for this possibility by presenting the years behind grade level in reading students were each year. Students who started the study in the lower 50% of reading skills among study participants continued to fall further behind after the study ended. However, Future Forward participants did demonstrate higher (about one-fourth of a year) reading achievement each year compared

to BAU students. By 2020 the typical former Future Forward student who started the program in the lower 50% of literacy skills was behind 4.24 years and the typical BAU student was behind 4.50 years.

Figure 6: Students who started with reading skills in the lower 50% of study participants: The number of academic years below reading grade level



***Students starting the program in the upper half of literacy among study participants***

Regarding students in the upper 50% of literacy skills among study participants at the start of the study, Future Forward participants were consistently about one-third of a year ahead of BAU students (Figure 7). Again, the drop in grade level equivalence seen in the 2020 assessment for both groups was due to students not participating in the Star spring assessment because of the disruption to schooling caused by COVID-19.

Figure 7: Students who started with reading skills in the upper 50% of study participants: Reading grade level equivalency.

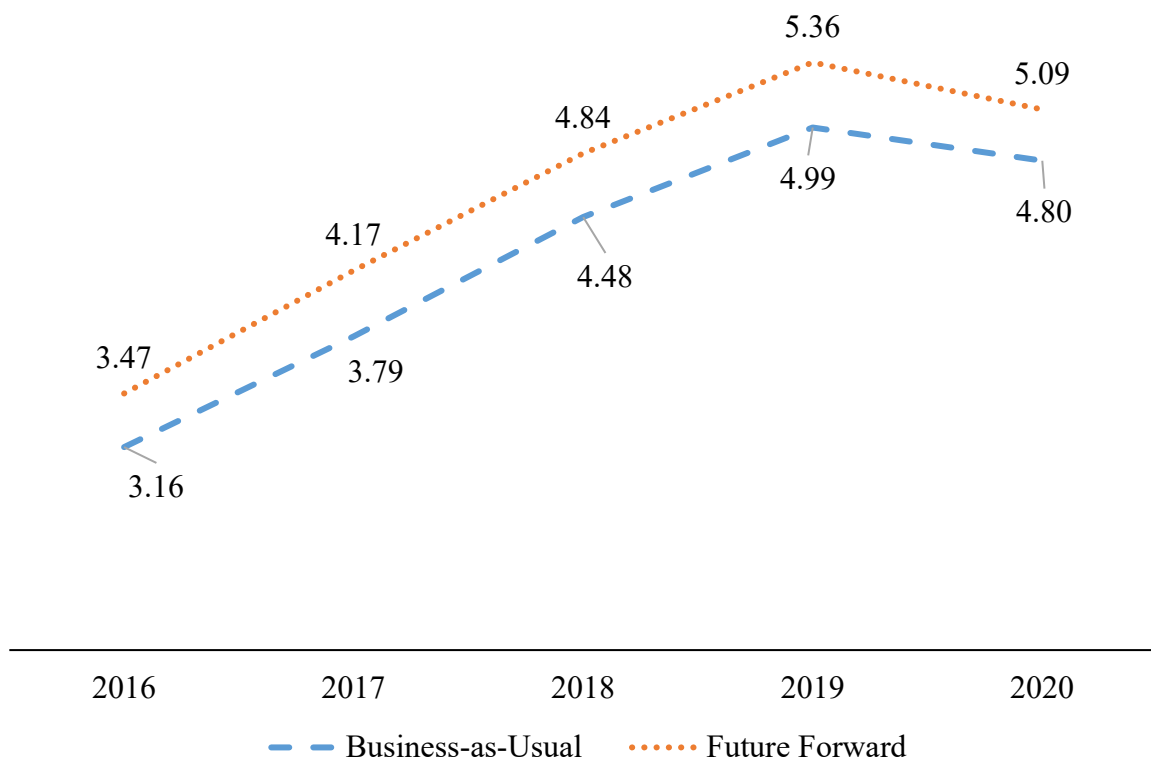
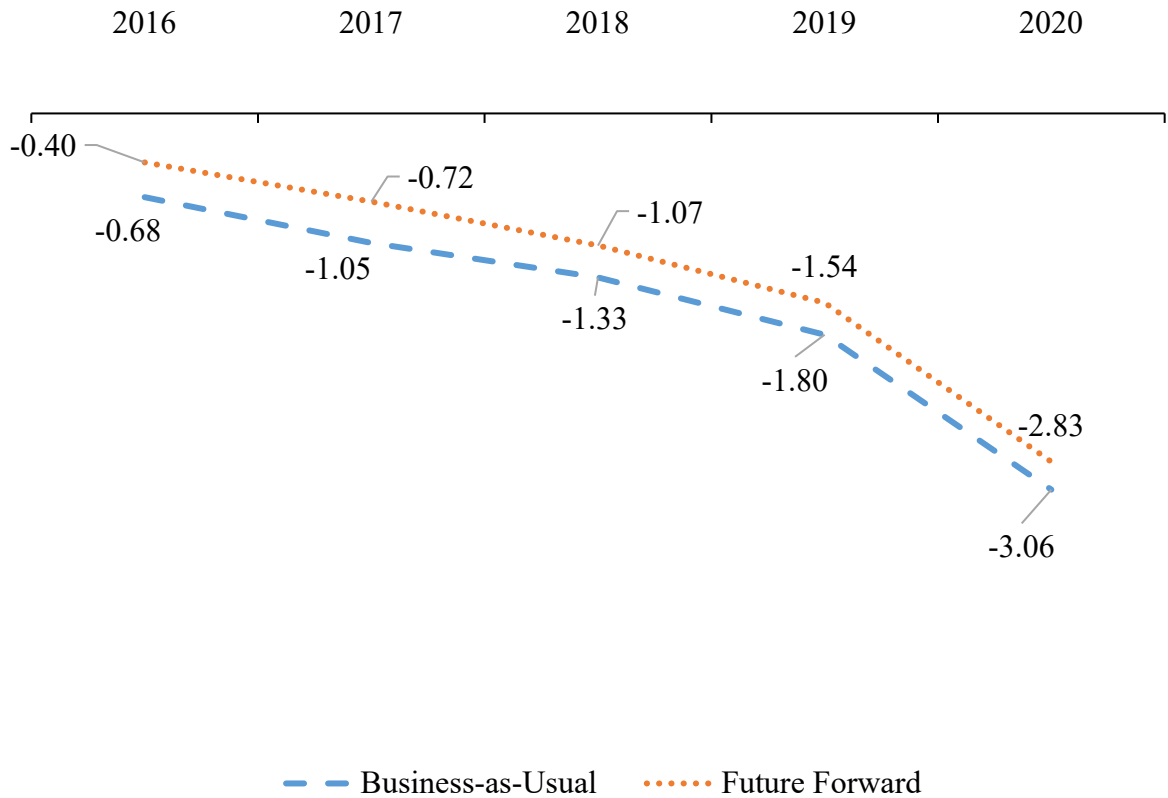


Figure 8 presents the years behind students were each year after the end of Future Forward. Over time, Future Forward students were typically about one-fourth to one-third of a year ahead of BAU students. A year after Future Forward ended, Future Forward students who were in the upper 50% of literacy abilities among study participants were 0.40 years below grade level, while BAU students were 0.68 years below grade level. Again, over time, students fell further and further behind. By 2020, the typical former Future Forward student was behind 2.83 years and the typical BAU students was behind 3.06 years.

Figure 8: Students who started with reading skills in the upper 50% of study participants: The number of academic years below reading grade level





***What was the sustained impact of Future Forward on reading achievement?***

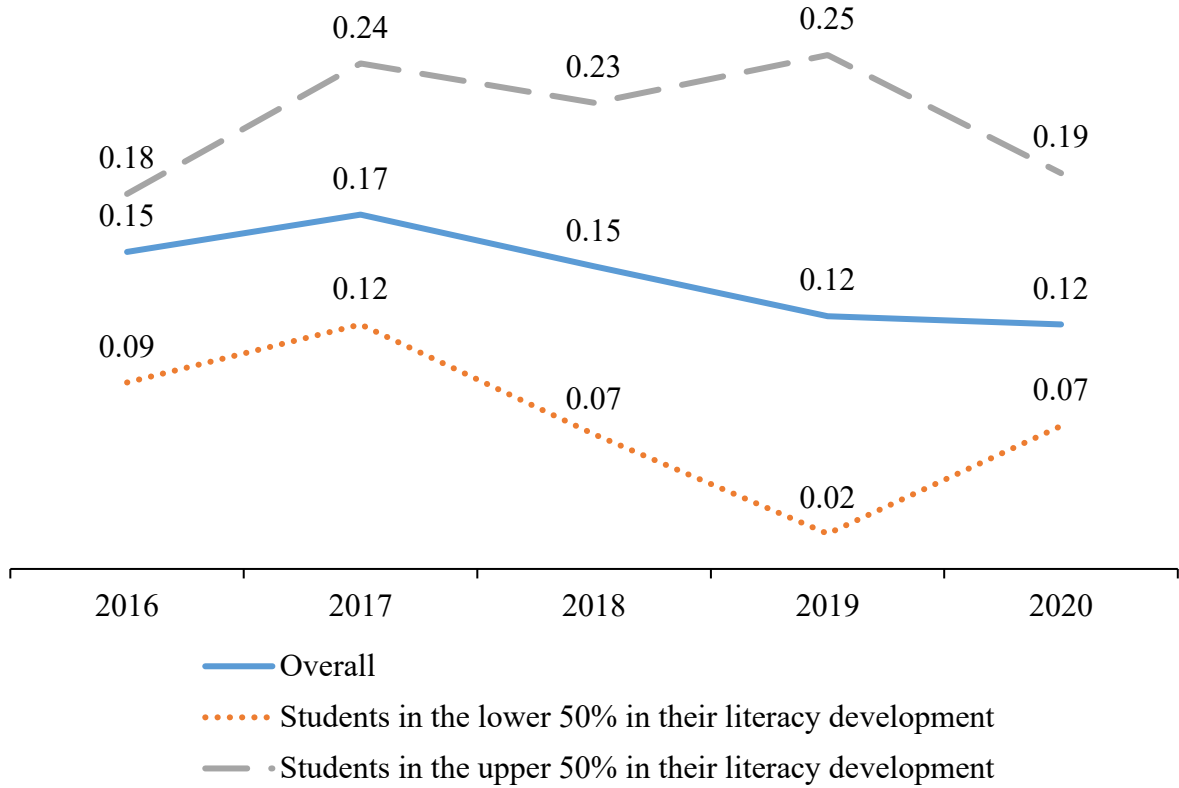
Table 1 (Appendix) presents unadjusted follow-up Star Reading scores. Correlations between baseline and follow-up achievement measures are presented in Table 2 (Appendix). These show strong correlations between all measures of student achievement. The results of statistical analyses of standardized Star Reading assessment results suggest Future Forward continued to impact the reading achievement of students well past their involvement in the program (Table 3). The effect ranged from 0.15 standard deviations in 2016 to 0.12 in 2020. Future Forward may have continued to have a small positive impact on students who started Future Forward in the lower 50% of literacy skills among study participants (Table 3). Although none of the impact estimates were statistically significant, the small sample size limits our ability to attribute these differences to participation in Future Forward. Surprisingly, the overall sustained impact was largely due to the differential sustained impact Future Forward had on students who started the study in the upper 50% of literacy skills (Table 3). The effect ranged from 0.18 standard deviations in 2016 to 0.19 standard deviations five years after the program ended. Figure 9 presents a summary of impact estimates for the overall sample, for students who started the study in the lower 50%, and for students who started in the upper 50%.

Table 3: Adjusted achievement impact estimates of Future Forward for each year after participation ended.

		Impact	<i>Robust</i> <i>SE</i>	<i>t</i>	<i>p</i>	Future Forward <i>n</i>	BAU <i>n</i>
Overall	2016*	0.15	0.06	2.39	0.018	205	185
	2017*	0.17	0.07	2.59	0.010	169	171
	2018*	0.15	0.06	2.27	0.024	168	157
	2019	0.12	0.07	1.64	0.103	157	150
	2020*	0.12	0.06	1.99	0.048	162	156
Students with less developed reading skills (in the lower 50% of study participants)	2016	0.09	0.09	1.14	0.301	93	96
	2017	0.12	0.09	1.26	0.210	80	87
	2018	0.07	0.09	0.74	0.459	74	84
	2019	0.02	0.11	0.15	0.883	69	80
	2020	0.07	0.09	0.79	0.433	72	80
Students with more developed reading skills (in the upper 50% of study participants)	2016	0.18	0.10	1.76	0.081	111	88
	2017*	0.24	0.11	2.29	0.024	88	84
	2018*	0.23	0.11	2.11	0.037	93	73
	2019	0.25	0.13	1.88	0.063	87	70
	2020*	0.19	0.10	2.02	0.045	89	76

\*Impact is statistically significant  $p < .05$

Figure 9: Standardized impact of Future Forward on reading achievement five years after the program ended



### Long-term changes in the school attendance of Future Forward and BAU students

Former Future Forward participants consistently were absent from school less than BAU students (Figure 10). This difference ranged from a high of 2.33 days in 2019 to a low of 0.53 days in 2018. Regarding students who started the study with reading skills in the lower 50% among study participants, there was no consistent difference in the number of absences between Future Forward or BAU students (Figure 11). In some years, BAU students even had fewer absences than Future Forward students. Former Future Forward participants who started the program in the upper 50% of reading skills consistently had fewer absences from school than BAU students (Figure 12).

Figure 10: The average number of school absences each year after Future Forward ended

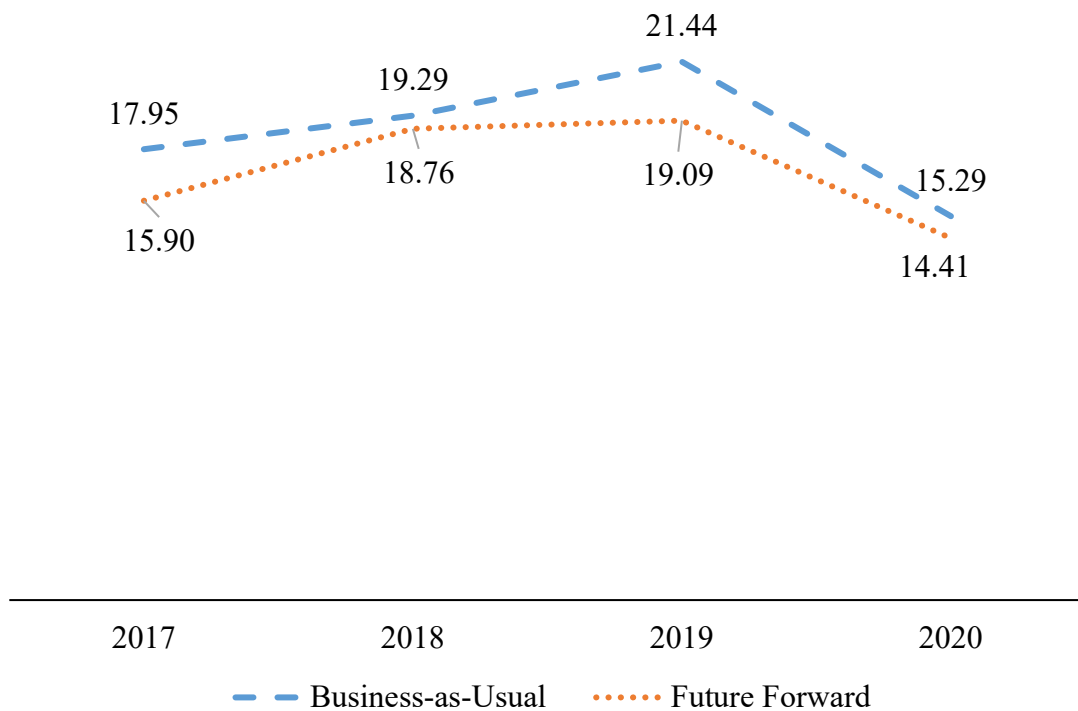


Figure 11: Students who started with reading skills in the lower 50% of study participants:  
The average number of school absences each year after the Future Forward program ended

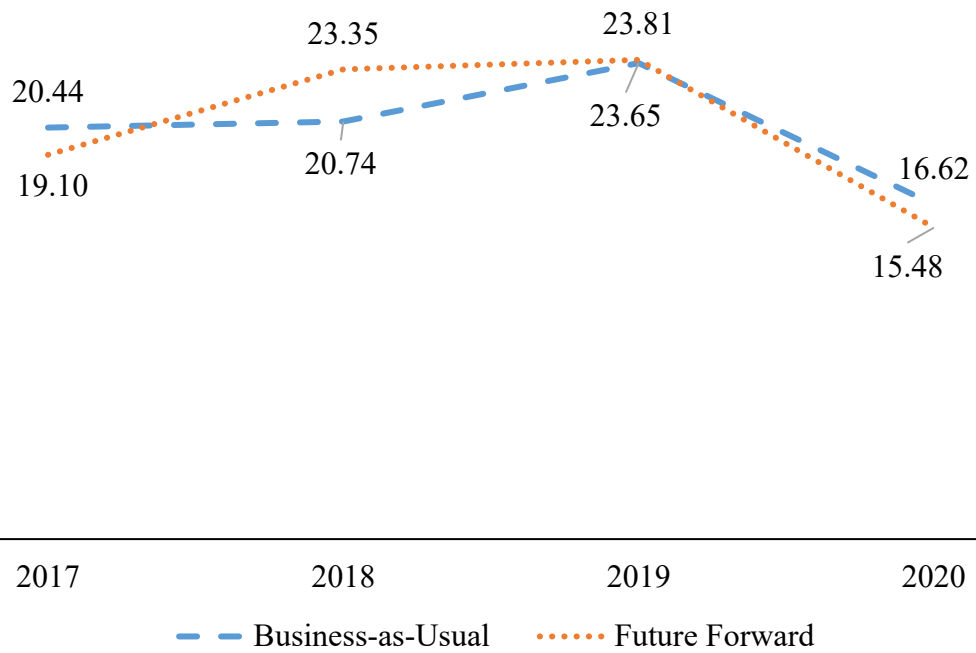
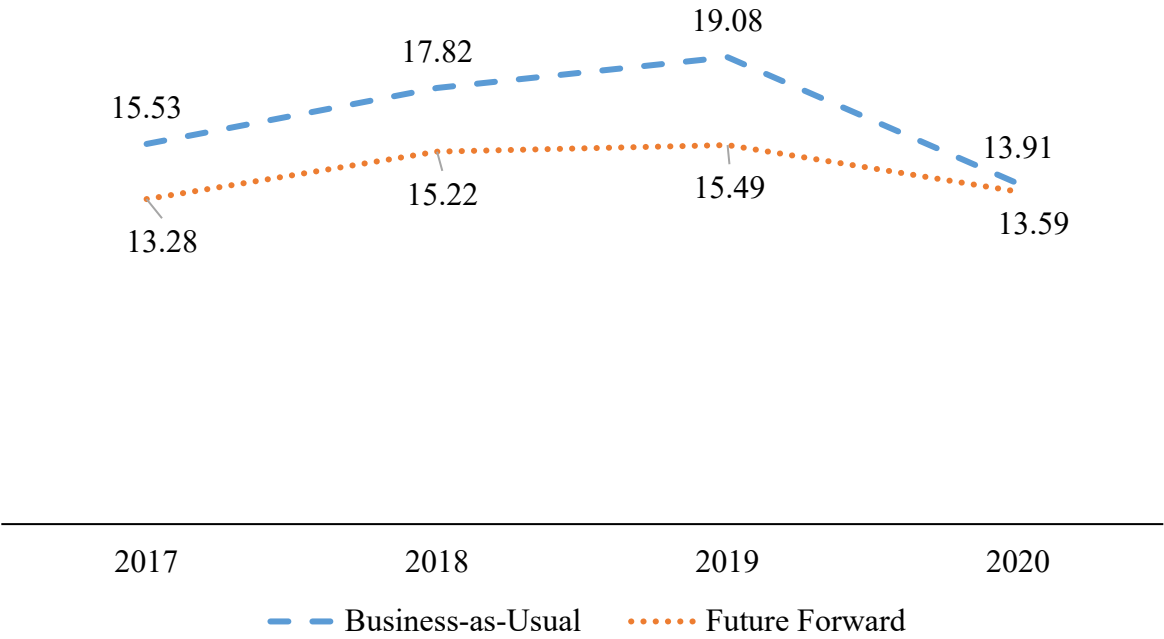


Figure 12: Students in the upper 50% in their literacy development among study participants: The average number of school absences each year after the Future Forward program ended.



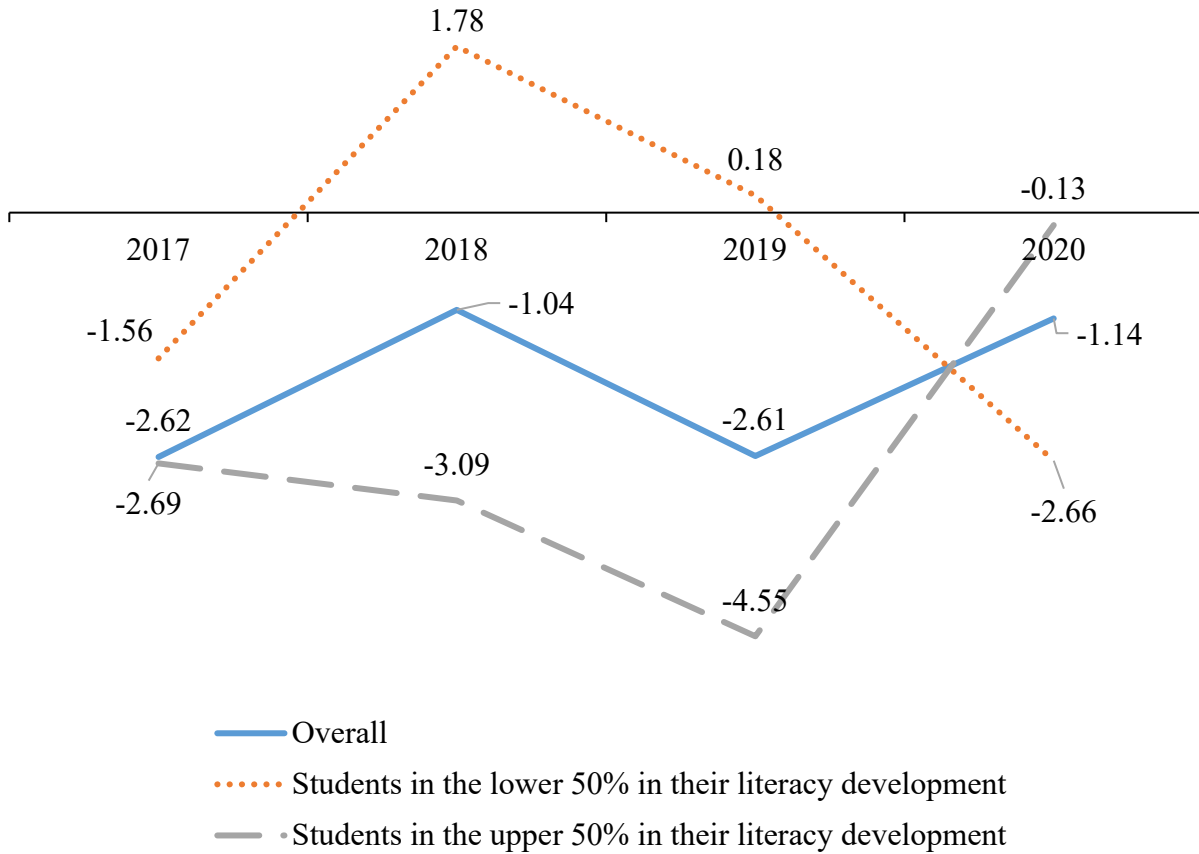
***What was the sustained impact of Future Forward on attendance?***

Table 4 (Appendix) presents the unadjusted number of absences for study participants from 2017 to 2020. Correlations suggest weak relationships between baseline measures of literacy and follow-up school absences (Table 5, Appendix). The results of statistical models predicting absences each year after Future Forward suggest Future Forward students continued to be absent from school less often. These differences however were not statistically significant (Table 6). This was the case overall, for students who started the study in the lower 50% in reading achievement among study participants, and for students who started the study in the upper 50%. The impact of Future Forward on attendance measured in the original i3 study (Jones & Christian, 2020) was small, so it is not surprising that follow-up impact estimates would not be statistically significant. In addition, since our statistical models did not explain as much of the variance in follow-up attendance as we expected ( $R^2$  between .04 and .095), our power to detect an impact was greatly diminished.

Table 6: Attendance (absences) impact estimates for each year after participation ended.

		Impact	<i>Robust</i> <i>SE</i>	<i>t</i>	<i>p</i>	Future Forward <i>n</i>	BAU <i>n</i>
Overall	2017	-2.62	1.56	-1.68	0.094	180	181
	2018	-1.04	1.99	-0.52	0.601	168	155
	2019	-2.61	2.02	-1.30	0.196	162	153
	2020	-1.14	1.75	-0.65	0.516	145	154
Students with reading skills in the lower 50% of study participants	2017	-1.56	2.36	-0.66	0.509	84	89
	2018	1.78	2.90	0.62	0.540	76	78
	2019	0.18	3.42	0.05	0.957	73	79
	2020	-2.66	2.86	-0.93	0.354	73	78
Students with reading skills in the upper 50% of study participants	2017	-2.69	2.17	-1.24	0.217	96	92
	2018	-3.09	2.74	-1.13	0.261	92	77
	2019	-4.55	2.83	-1.61	0.110	89	74
	2020	-0.13	2.64	-0.05	0.960	82	76

Figure 13: The impact of Future Forward on school absences five years after the program ended.





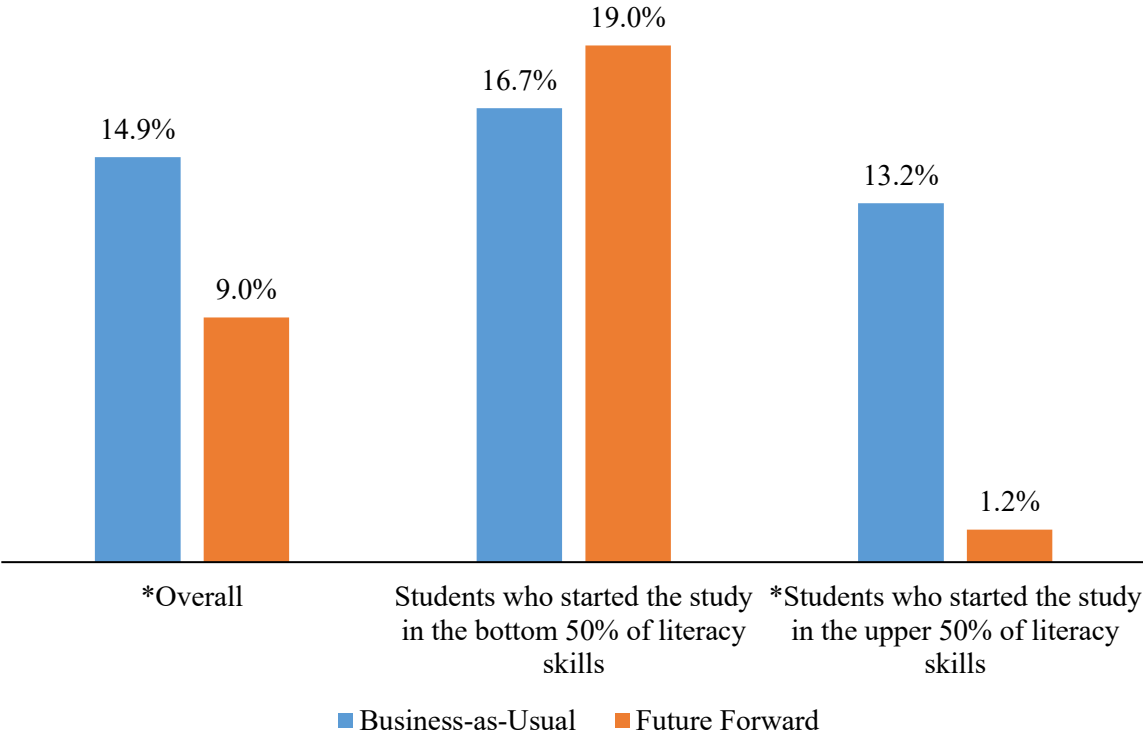
### **What was the long-term impact of Future Forward on special education placement?**

In the 2020 school year, five years after the end of the program, 13 (9.0%) former Future Forward students were receiving specialized services compared to 23 (14.9%) BAU students (Figure 14). The results of a logistic regression suggests this difference of 10 students is statistically significant ( $B = -1.21$ ,  $SE = .479$ ,  $p = .012$ ). Logistic regression analyses provide an impact estimate called an odds ratio. Odds ratios range from 0 to an unlimited number. Odds ratios below one indicate the group has lower odds for the outcome, in this case receiving specialized services. Odds ratios above one indicate greater odds. Future Forward students had about 30% the odds ( $Exp(B) = .298$ ) of being placed in special education than BAU students.

Regarding students who started the study with reading skills in the lower 50% among study participants, 12 (19.0%) former Future Forward students were receiving specialized services compared to 13 (16.7%) BAU students (Figure 14). The results of a binary logistic regression suggests this difference was not statistically significant ( $B = -0.749$ ,  $SE = .697$ ,  $p = .282$ ).

Regarding students who started the study in the upper 50% of literacy skills, only one (1.2%) former Future Forward student was receiving specialized services compared to ten (13.2%) BAU students (Figure 14). Logistic regression suggests this difference of nine students is statistically significant ( $B = -4.30$ ,  $SE = 1.79$ ,  $p = .017$ ). Future Forward students who started the program in the upper 50% in their literacy development had about one-hundredth the odds ( $Exp(B) = .014$ ) of being placed in special education than BAU students.

Figure 14: The percentage of students with an IEP five years after the Future Forward program ended.



\* Difference indicates a significant impact of Future Forward referral to special education

## Summary findings

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We followed participants in the i3-funded impact study of Future Forward (Jones & Christian, 2020) for five years after it ended in 2015, to determine if the positive impacts of Future Forward on reading achievement and school attendance measured in that study were sustained. Regarding reading achievement, the impact of Future Forward was sustained. At the end 2015, its impact on reading achievement was 0.10 standard deviations. In subsequent years, Future Forward demonstrated an increased impact of 0.15 standard deviations in 2016 and 0.12 standard deviations in 2020. The improved reading achievement is equivalent to approximately one-third of a school year's growth, as defined by national norms. However, in the context of study schools, where reading achievement typically improved by only 0.5 to 0.6 grade levels each year, the impact of Future Forward was roughly equivalent to one-half of a year of academic growth.

Regarding school attendance, the results were less clear. Although Future Forward students continued to have fewer school absences than BAU students, these differences were not statistically significant. This may be attributable to the reduced sample of students included in follow-up analyses and the lack of strong covariate controls.

We also examined the impact of Future Forward on placement in special education. Fewer Future Forward students were receiving specialized services in 2020 than BAU students. Future Forward students had 30% the odds of receiving special education services. Beyond the long-term academic benefits to students, that Future Forward reduced the use of special education services speaks to a potential fiscal benefit for districts. At follow-up, ten fewer former Future Forward participants were receiving specialized services than students who received just BAU reading instruction. Because the cost of special education is estimated as approximately \$112,500 per student across their education, each student diverted away from specialized services saves the district that amount. Multiply that by ten and Future Forward could ultimately save the district \$1,125,000 in the costs associated with educating these ten students. Although no full accounting of the costs of Future Forward has been done yet by the evaluation team, the estimate of its cost per student provided by Education Analytics, the administrator of Future Forward, indicated it costs \$2,700 per student. There were 259 students who completed one year of Future Forward. Assuming a cost of \$2,700 per student results in a total cost of \$699,300, which represents a savings of \$425,700 to the district. Even if the cost of serving 192 students during the second year (\$518,000) is factored in to the cost benefit of reduced special education placement, the program still mostly pays for itself.

We also explored whether the differential impact of Future Forward on students who started the program with lower literacy compared to other students in their school was sustained beyond their participation. We did not find that these students continued to benefit more from their participation than students who started the study with more developed literacy skills. Surprisingly, the sustained impact observed overall was driven by a differential impact on students who started Future Forward with above average literacy for their school. While the i3 study of Future Forward (Jones & Christian, 2020) concluded that students with below average literacy benefitted more, with a large effect of 0.52 standard deviations on literacy skills, that was not the case for all measures. For overall reading achievement, as measured by the MAP assessment, the impact of one year of Future Forward was considerably greater for students with higher literacy abilities (0.18 standard deviations) than for students with lower literacy (0.02 standard deviations). In subsequent years, Future Forward demonstrated a sustained impact of 0.18 standard deviations in 2016 and 0.19 standard deviations in 2020 on students who started the program with above average literacy for their school. The reading achievement for these students was approximately one-third of a school year ahead that of BAU students. In addition to the impact on reading achievement, students who started the program with above average reading skills were much less likely to be receiving specialized services than BAU students who also started the study with above average reading skills. This all suggests that perhaps it is not entirely accurate to conclude the Future Forward program impacted students with less developed literacy skills more than students with more developed skills. It may be more accurate to say that it impacted each group differently.

## Discussion

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This follow-up study of Future Forward stands out among other longitudinal studies of tutoring programs in that it leverages the original study's randomized control design to measure the sustained effect. While the study is affected by increasing attrition, the resulting attrition still allows for estimates of program effects that are less likely to be affected by the types of bias inherent in other quasi-experimental studies typically employed to follow students past program participation.

This study is also unique in the length of time it tracks the performance of participants. Students ended their participation as first, second, or third graders in 2015. Five years later, in 2020, these students were in middle school. Following students this long provides more robust evidence regarding the long-term stability of the impact of Future Forward. The previously reviewed studies of Reading Recovery followed students two (May, Sirinides, Gray, & Goldsworthy, 2016) and three (D'Agostina, Lose, & Kelly, 2017) years past program participation. The follow-up study of Success for All followed students for three to

four years after participation (Borman, & Hewes, 2002). Relatedly, estimating the program impact each year after participation, as this study does, provides a unique look at how the sustained impact changes over time. The authors are not aware of another literacy program evaluation using this method.

It is noteworthy that Future Forward was not found to have much of a sustained impact on students who started the program with reading skills in the lower 50% among study participants, despite the sizable impact on this group measured at the end of the program. After the program ended the impact largely dissipated. This is not to say that the students did not continue to benefit. The impact estimates were too small to statistically test with the reduced sample. After a larger initial impact, the small sustained impact may indicate that these students needed continued support beyond the program to continue to succeed. The students in this group were lower achieving students among the students in low-achieving schools. As was discussed, only 10.6% of Black and 19.2% of Latinx MPS students are proficient in reading. The students who started the program with reading skills in the lower 50% of study participants were far from reaching reading proficiency. The reasons for this may have overwhelmed the intervention. That students who started Future Forward with above average literacy continued to benefit from their participation provides some evidence for this explanation.

Another strength of this study is that it translates program impacts into the meaningful metric of grade level equivalency. This allowed us to examine the practical impact the program had on the academic success of students. Most programs with a sustained impact equivalent to one-third of a year of academic growth compared to national norms, and one-half of a year compared to local norms, would be considered a huge success. However, given students were still years behind in reading, it is difficult to celebrate this impact. Borman and Hewes (2002) made a similar finding in their follow-up study of Success for All. While Success for All had a sustained impact equivalent to one-half of a year of reading growth, students were still reading far below grade level. The authors suggested Success for All was not the “Great equalizer” in education, but that it could be a part of the solution if paired with an array of validated programs. Similarly, while Future Forward can certainly be part of the solution for the low academic performance of underserved students in Milwaukee and elsewhere, it is not enough to overcome the myriad of factors that hold students back.

Even with Future Forward, the opportunity gaps provided to Black and Latinx MPS students compared to White students remain large. Tutoring programs like Future Forward do not change ineffective reading instruction (Shanahan & Barr, 1995). Thus, after a student leaves the program their continued development depends on ineffective reading instruction provided in their regular classroom. Programs like Future Forward exist as pieces of potential on an

educational terrain built to create and sustain disparities between students. When programmatic successes are analyzed as small part of this terrain rather than singular programmatic solutions, we highlight the need for systemic change beyond Future Forward's reach. Examining the microlevel impact of programs like Future Forward emphasizes the capacity for growth and implicit rejection of a deficit-based ideology often conferred on Black and Latinx students. When looking across institutions, however, we see the limits of programmatic solutions. It is unreasonable to expect time and resource-limited programs to fundamentally transform the educational terrain responsible for creating the disparities. Such expectations unfairly relocate the liability for transformation from system-level to individual schools or even students. Within this educational terrain, schools are not organized to effectively serve the students who have the greatest potential for benefitting from their school. Schools serving students of color typically have serious educator retention challenges (Achinstein, Ogawa, Sexton, & Frietas, 2010; Jones, Reeves, & Rainey, 2021) that result in less effective and newer teachers, unchecked racial bias, and a weak learning community (Jones, Reeves, & Rainey, 2021). Far from being organized to improve student outcomes, the schools serving Black students in Milwaukee are more often organized to stagnate (Jones, Reeves, & Rainey, 2020). No one program, including Future Forward, can change this. The level of change necessary to equalize the opportunities provided to students of color requires a reorganization of the school system.

## Future research on Future Forward

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Understanding the mechanisms through which Future Forward participants were diverted away from special education is complicated and should be examined in future research. It is worth noting that MPS over-identifies students of color for special education. In 2019, 25.0% of Black eighth-grade students were receiving specialized services compared to only 15.7% of White eighth-grade students. Considering this, and that most study participants were Black, the impact of Future Forward on special education placement may represent a reduction in over-identification. As such, the greater number of BAU students receiving specialized services may reflect students who actually should not be in special education.

It is also important to study the ability of Future Forward to be scaled to other schools outside of MPS. Because of the positive results reported in the i3 evaluation of Future Forward, in 2017, Education Analytics received an Education Innovation and Research (EIR) Mid-Phase grant from the U.S. Department of Education to test its scalability and impact in 15 schools across six school districts and three states. In addition to evaluating the scalability of Future Forward to other schools, the evaluation of this grant is testing its impact on reading achievement, school attendance, and social-emotional development.

Along with everything else, the EIR-funded study of Future Forward was negatively impacted by the COVID-19 pandemic and the associated disruption to education. In spring of 2020, schooling moved online because of the COVID-19 pandemic. Plans for student testing were scrapped. This prevented Future Forward from continuing in-person tutoring and family engagement and prevented the evaluation from completing an impact study of reading achievement and social-emotional development. However, the evaluation was still able to measure the impact of Future Forward on the school attendance of participants prior to schools closing in early March. Future Forward was found to have a statistically significant, positive impact on school attendance, with greater impacts on Black students, male students, and students with a history of low school attendance (Jones & Li, 2021).

Because of the continuing disruption to education caused by COVID-19, the 2020-2021 program was moved online. Although the evaluation is testing the impact of this modified version of Future Forward on reading achievement, the program delivery method is too different to inform our understanding of the effectiveness of the i3-funded Future Forward program model. Instead, this study is testing the impact of a modified program design, which if found to be effective, could make Future Forward more adaptive to local education needs.

In the 2021-2022 school year, all schools are expected to be back to in-person instruction. This will provide Education Analytics the opportunity to implement Future Forward with fidelity to the intended program design of face-to-face tutoring and family engagement. It will also allow for a full evaluation of its impact across all three domains: achievement, attendance, and social-emotional development. The evaluation will also set up systems for measuring the sustained impact of Future Forward beyond student participation. Finally, a focus of this study will involve measuring the cost effectiveness of Future Forward. As the current study discussed, the cost of Future Forward is estimated as approximately \$2700 per student. However, a more structured examination of its cost in relation to its impact will help educators better understand how to best leverage this resource. Together, this work will add to an increasingly strong empirical foundation that validates Future Forward and supports its systems approach to helping students learn to read.

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Table 1: Follow-up STAR Reading assessment scores

	2016			2017			2018			2019			2020		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall															
BAU	294.2	132.9	185	366.9	156.9	171	427.3	161.7	157	486.3	218.0	150	465.5	204.0	156
Future Forward	321.4	164.7	205	396.6	165.0	169	467.5	208.9	168	525.0	242.3	157	500.6	211.3	162
Lower 50%															
BAU	235.5	108.0	96	311.3	128.9	87	358.5	126.5	84	413.7	165.6	80	391.4	167.5	80
Future Forward	240.7	120.0	93	320.5	145.4	80	360.5	153.9	74	413.3	196.7	69	402.6	163.7	72
Upper 50%															
BAU	357.6	129.3	88	424.5	163.1	84	506.6	162.3	73	569.4	241.0	70	543.4	210.8	76
Future Forward	389.1	167.8	111	466.8	151.3	88	553.3	209.1	93	614.6	240.1	87	580.9	213.5	89

Table 2: Correlations of achievement measures

	MAP										
	MAP Math Fall 2013	MAP Reading Fall 2013	PALS Fall 2013	MAP Reading 2014	PALS 2014	PALS 2015	MAP Reading 2015	STAR Spring 16	STAR Spring 17	STAR Spring 18	STAR Spring 19
MAP Math Fall 2013	1										
MAP Reading Fall 2013	0.750	1									
PALS Fall 2013	0.464	0.416	1								
MAP Reading 2014	0.632	0.622	0.442	1							
PALS 2014	0.493	0.418	0.761	0.508	1						
PALS 2015	0.460	0.412	0.526	0.508	0.767	1					
MAP Reading 2015	0.555	0.479	0.472	0.537	0.615	0.686	1				
STAR Spring 16	0.519	0.502	0.454	0.520	0.576	0.608	0.726	1			
STAR Spring 17	0.475	0.433	0.425	0.471	0.585	0.583	0.680	0.788	1		
STAR Spring 18	0.494	0.487	0.458	0.474	0.602	0.589	0.692	0.801	0.818	1	
STAR Spring 19	0.459	0.466	0.375	0.465	0.496	0.486	0.663	0.739	0.768	0.800	1
STAR Winter 20	0.524	0.545	0.394	0.519	0.547	0.537	0.680	0.771	0.776	0.840	0.859

Table 4: Follow-up attendance (absences)

	2017			2018			2019			2020		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Overall												
BAU	17.95	15.78	181	19.29	17.90	155	21.44	18.04	153	15.29	14.37	154
Future Forward	15.90	13.05	180	18.76	16.44	168	19.09	16.56	162	14.41	14.71	145
Lower 50%												
BAU	20.44	16.35	89	20.74	17.76	78	23.65	18.82	79	16.62	14.68	78
Future Forward	19.10	12.92	83	23.35	16.78	75	23.81	17.99	72	15.48	14.66	63
Upper 50%												
BAU	15.53	14.90	92	17.82	18.04	77	19.08	16.96	74	13.91	14.02	76
Future Forward	13.28	12.60	96	15.22	15.28	92	15.49	14.33	89	13.59	14.79	82

Table 5: Correlations between baseline achievement and follow-up attendance

	MAP Math Fall 2013	MAP Reading Fall 2013	PALS Fall 2013	Absences 17	Absences 18	Absences 19
MAP Math Fall 2013	1					
MAP Reading Fall 2013	0.750	1				
PALS Fall 2013	0.464	0.416	1			
Absences 17	-0.150	-0.183	-0.213	1		
Absences 18	-0.120	-0.103	-0.180	0.738	1	
Absences 19	-0.126	-0.163	-0.150	0.657	0.712	1
Absences 20	-0.048	-0.073	-0.130	0.536	0.545	0.636