Fundations® Studies of Program Effectiveness

Introduction

Wilson Fundations®, for students in pre-K to Grade 3 classrooms, incorporates the science of reading and writing to address critical foundational skills, spelling, and handwriting program in a multimodal, Structured Literacy approach for all students.

Additionally, it significantly reinforces other English Language Arts standards, particularly vocabulary, comprehension, and writing goals, in an explicit, systematic, sequential, cumulative, and integrated approach.

The program focuses on student development, differentiation of instruction, and active engagement so students master the foundational skills necessary to become successful readers and writers.

The power of this foundational skills program is in the manner in which it overlaps skills being developed, not treating them in isolation, so that a daily 30–35 minute lesson teaches and then reinforces many corresponding skills, making it an efficient and effective program

Fundations is integral to a Response to Intervention (RTI) model, providing scientifically based instruction in Tier 1 as well as an early intervention program for students at risk. RTI is a prevention based model that acknowledges the diversity of reasons for why a child might struggle to learn, with a specific learning disability being only one of several possible causes. To aid in the implementation of an RTI model, progress monitoring is built into Fundations. Thus, students requiring a more intensive program can be identified before enduring years of struggle.

The use of an RTI model allows educators to identify and intervene early to prevent students from developing more invasive reading deficits, and helps to more accurately identify those students who struggle to learn as a result of a specific learning disability (Fletcher & Vaughn, 2009)[1]. The overall goal of an RTI model is to prevent the domino effect of children developing weaknesses in foundational skills that, over time, give rise to deficits in higher level reading skills, such as the comprehension of complex text.

Summary of Key Findings

Fundations is built on a clear and thoroughly documented research basis. Since the publication of Fundations, several impact and efficacy studies of thousands of kindergarten and first-grade students have been performed in schools across the United States.

The consensus across these studies is that, when implemented properly, students using Fundations in Tiers 1 and 2 achieve **greater gains in foundational literacy skills** compared to students using programs previously implemented by the schools. These results held with English learners (ELs) as well.

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[1] Fletcher, J.M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, *3*(1), 30–37.

Studies of **kindergarten students** who received Fundations instruction in **Florida**, **New York**, and **Massachusetts** demonstrated:

- better learning of letter knowledge
- larger gains in phonological and phonemic awareness
- greater gains in phonological decoding
- reduction in risk of later reading difficulties

First-grade students who received Fundations instruction demonstrated:

- larger gains in oral reading fluency
- larger gains in nonsense word fluency: whole words and correct letter sounds
- improvement in phonemic awareness (phoneme segmentation)
- improvement in phonological decoding (reading nonsense words)
- significant gains in basic reading skills
- reduction in risk of later reading difficulties

English learners (Grade 1) who received Fundations® instruction demonstrated:

- greater gains in phonemic awareness
- greater gains in oral reading fluency

ESSA Evidence

We present two impact studies as evidence of effectiveness that meet the criteria for ESSA Evidence. Additional details of these studies follow the brief overview.

An independent analysis of data from a Florida district determined that Fundations implementation in the general classroom (Tier 1) is associated with better performance on four of six tested DIBELS scores in first grade and the DIBELS Letter Naming Fluency (LNF) subtest in kindergarten. LNF is a critically important and telling factor of the potential for developing literacy in younger students. Alphabetic knowledge, as measured in this subtest, is a strong predictor of how easily a child will learn to read. The study included multiple regression analyses with statistical controls for demographic and behavioral factors and is sufficient for a rating of "Promising Evidence" / Tier 3 on the U.S. Department of Education's Every Student Succeeds Act (ESSA) evidence scale.

In addition, a retrospective study (2022) was undertaken to explore the effects of Fundations® on student literacy gains in the Wayne Highlands (PA) School District (WHSD). The principal analyses included multiple regression models with statistical controls for demographic factors such as ethnicity and eligibility for free/reduced price meals. The models showed that Fundations implementation is associated with better performance on DIBELS Nonsense Word Fluency (NWF) and Oral Reading Fluency (ORF) for first grade students. The study was sufficient for a rating of "Promising Evidence" (Tier 3) on the U.S. Department of Education's Every Student Succeeds Act (ESSA) evidence scale.

The following two studies are among several that were conducted in schools across the U.S. These two studies demonstrate the statistically significant and educationally meaningful impact of Fundations on students and fit criteria for ratings on the U.S. Department of Education's Every Student Succeeds Act (ESSA) evidence scale.

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Fundations® utilizes a Structured Literacy approach grounded in the science of reading that guides teachers to implement effective instructional practices while building a strong foundation for students to develop lifelong literacy. The program's research-based approach and materials allow K–3 teachers to teach a structured reading, spelling, and handwriting curriculum using engaging, multisensory techniques.

Impact studies are important for establishing the efficacy of a program when implemented in schools. The use of external evaluators to analyze the data helps to reduce bias and allow for an analysis that is independent of a program's authors or publishers. The purpose of this study was to determine the effect of implementing the Fundations® program in a rural school district. The question addressed with this impact study was: Are students' outcomes improved following implementation of the Fundations® program when compared to a historical control group?

Methods

A retrospective study (2022) was undertaken to explore the effects of the Fundations® program on student literacy gains in a rural public school district located in a large mid-Atlantic state serving more than 500 students in kindergarten through Grade 2. Starting in the 2016–2017 school year, Fundations® was implemented in Grades K through 2 in four elementary schools. Student outcomes were measured using three subtests of DIBELS measures: Oral Reading Fluency Accuracy (ORF ACC), Nonsense Word Fluency Correct Letter Sounds (NWF CLS), and Nonsense Word Fluency Whole Word Reading (NWF WWR).

To meet the guidelines of an ESSA Tier 3 study, a control comparison group who did not receive Fundations was created for all elementary students in the district from 2012–2013 through 2015–2016. Data from this treatment group was compared to the control comparison group's data from the 2016–2017 through the 2018–2019 school year. Using available and complete data, Grade 1 results were evaluated.

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[2] Analysis performed by Metis Associates, 2020.

Results

An external evaluator conducted the data analyses. The analyses included multiple regression models with statistical controls for demographic factors and compared student outcomes of the treatment and control group. The study was sufficient for a rating of **"Promising Evidence" (Tier 3)** on the U.S. Department of Education's **Every Student Succeeds Act (ESSA)** evidence scale.

The multiple regression analysis results to control for eligibility for free/reduced price meals and Title I status are depicted in Table 1. Effect sizes using Hedges' g are also included in Table 1 with 0.231, 0.290, and 0.502 calculated for Nonsense Word Fluency, Correct Letter Sounds (NWF, CLS), Oral Reading Fluency Accuracy (ORFACC), and Nonsense Word Fluency, Whole Word Reading (NWF< WWR) respectively in favor of the treatment group.

**Table 1. Multiple Regression Results for Grade 1 – Cohort 2 (Control Comparison vs. Fundations Treatment)**

Predicted	Predictor (Direction)	r2 change	Beta	*t*	Sig.	Hedges' *g*
ORF Accuracy* r2=0.477 N=149	ORFACC Pre ↑	0.409	0.456	6.611	<0.001	**0.290**
	Economically Disadvantaged ↓	0.029	-4.142	-2.105	0.037	
	Title I Status ↓	0.020	-7.973	-2.801	0.006	
	Treatment ↑	**0.019**	**4.554**	**2.304**	**0.023**	
	Constant		51.801			
NWF WWR* r2=0.628 N=150	NWF WWR Pre ↑	0.533	1.111	12.089	<0.001	**0.502**
	Treatment ↑	**0.053**	**6.733**	**4.888**	**<0.001**	
	Title I Status ↓	0.041	-7.080	-3.999	<0.001	
	Constant		8.378			
NWF CLS* r2=0.664 N=150	NWF CLS Pre ↑	0.633	1.105	13.339	<0.001	**0.231**
	Title I Status ↓	0.018	-13.323	-3.070	0.003	
	Treatment ↑	**0.013**	**7.779**	**2.373**	**0.019**	
	Constant		26.634			

*Note. [1]ORF Accuracy = Oral Reading Fluency Accuracy; NWF WWR = Nonsense Word Fluency Whole Words Read; NWF CLS = Nonsense Word Fluency Correct Letter Sounds.
[2]*p*<0.001

The treatment group (*M*=19.74) outperformed the comparison group (*M*=14.17) on the DIBELS Nonsense Word Fluency Whole Words Read (NWF WWR) subtest, and the difference was statistically significant (p=0.001). Figure 1 illustrates the growth comparison for the two groups from fall to spring.

Figure 1. DIBELS Nonsense Word Fluency Whole Words Read Grade 1, Cohort 2
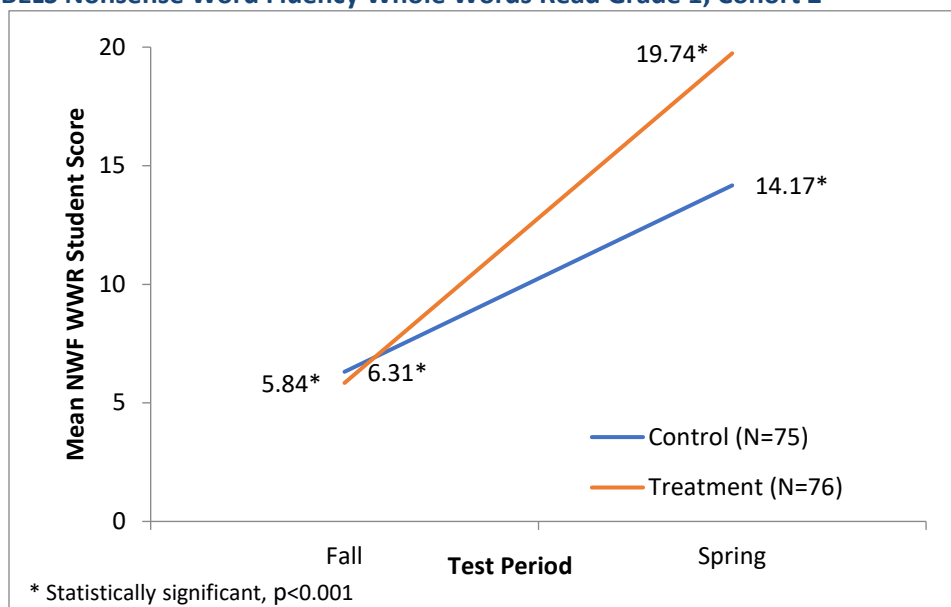
*Note. Control comparison group and Fundations treatment group mean scores Grade 1, fall to spring. NWF WWR = Nonsense Word Fluency Whole Words Read. * p<0.001.

Discussion

The analysis revealed that Fundations® implementation in first grade was associated with statistically significant gains in the following DIBELS subtests administered to students in Grade 1:

- Nonsense Word Fluency (NWF): Whole Words Read (WWR)
- Nonsense Word Fluency: Correct Letter Sounds (CLS)
- Oral Reading Fluency (ORF)

The treatment effects are large enough to be considered substantively important.

The study was sufficient for a rating of **"Promising Evidence" (Tier 3)** on the U.S. Department of Education's **Every Student Succeeds Act (ESSA)** evidence scale.

Grade 1 Outcomes

Grade 1 Cohort 1 and Cohort 2 analyses indicated that Fundations treatment had positive impact on student outcomes.

- Cohort 1 data indicated substantively important effect size for Nonsense Word Fluency Whole Words Read (NWF WWR), but the data quality impacted statistical significance.

- Cohort 2 analyses between the control comparison and the Fundations treatment group's mean scores showed a statistically significant difference for DIBELS NWF WWR between fall and spring (see Figure 1).
- Cohort 2 analyses showed Fundations instruction as a statistically significant predictor with gains in Oral Reading Fluency (ORF) Accuracy, Nonsense Word Fluency Whole Words Read (NWF WWR), and Nonsense Word Fluency Correct Letter Sounds (NWF CLS) (see Table 1).

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Impact studies are important for establishing the efficacy of a program when implemented in schools. The use of external evaluators to analyze the data helps to reduce bias and allow for an analysis that is independent of a program's authors or publishers. The purpose of this study was to determine the effect of implementing the Fundations® program in a rural school district. The question addressed with this impact study was: Are students' outcomes improved following implementation of the Fundations® program when compared to a historical control group of students who did not receive instruction using the Fundations® program?

Methods

The School District of Indian River County, Florida, partnered with Wilson Language Training® (WLT) to implement Fundations® with fidelity and sustainability in kindergarten and first grade across 11 elementary schools. Fundations® was implemented in these locations as the foundational skills component of the total literacy plan.

To gauge the effect of Fundations® on student outcomes, an impact study was initiated that contrasted the gains in literacy skills made by kindergarten and first grade students using Fundations® to the gains made by kindergarten and first grade students prior to the implementation of Fundations®. Figure 1 exhibits the various treatment and comparison groups among cohorts.

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[3] Analysis performed by Metis Associates, 2020.

The number of kindergarten students who attended the schools prior to the implementation of Fundations and for whom data was available was 1,584. The number of first grade students was 1,513; these two groups comprised the historical control group. Data for kindergarten students were available for DIBELS subtests Initial Sound Fluency (ISF), Phoneme Segmentation Fluency (PSF), and Letter Naming Fluency (LNF). Data for first grade students were available for DIBELS subtests Oral Reading Fluency (DORF) and Nonsense Word Fluency Correct Letter Sounds (NWF CLS). Outcomes for students in each year of implementation were measured using the same subtests for each grad level with the exception of NWF WWR; this measure was not available for first grade students in the historical control group.

Fundations® was implemented in the kindergarten and first grade classrooms in the 11 elementary schools. Classroom teachers implemented Fundations daily.

Results

Figure 1. Fundations Treatment Comparison Groups for Indian River County

Pink represents comparison group, green represents treatment group, blue represents Fundations® implementation

Addressing the Needs of First Grade Students

The analyses compared treatment and comparison performance on DIBELS at two points in time based on administration during the school year (i.e., fall to spring, winter to spring, or fall to winter). For first grade, comparative analyses were conducted for several DIBELS scales including:

- Nonsense Word Fluency Correct Letter Sounds (NWF CLS) – fall to spring
- Nonsense Word Fluency Whole Words Read (NWF WWR) – fall to spring
- Oral Reading Fluency Words Correct (DORF FWC) – winter to spring
- Oral Reading Fluency Errors (DORF Errors) – winter to spring
- Oral Reading Fluency Accuracy (DORF Accuracy) – winter to spring
- Composite Score (Composite) – fall to spring

Figure 2 shows the growth in the various DIBELS subtests for Grade 1.

Figure 2. Results of Mixed Model ANOVA (Analysis of Variance) Comparisons for Grade 1
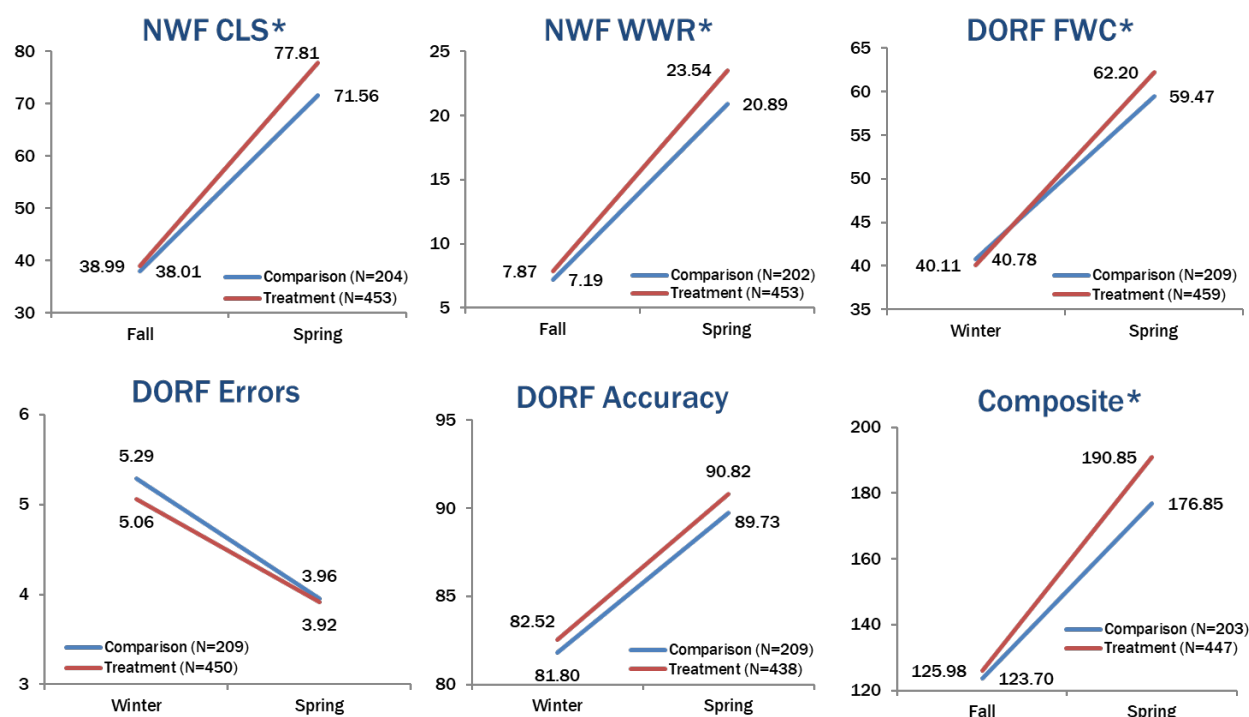
Note. Statistically significant: NWF CLS p=0.023, NWF WWR p=0.039, DORF FWC p=0.006, Composite p=0.033

The results in Figure 2 show that the difference in growth between first grade treatment and comparison students was statistically significant on four of the six tests. Students receiving 1st grade Fundations® achieved higher rates of growth on the DIBELS NWF CLS, NWF WWR, and DORF FWC subscales, as well as the overall DIBELS Composite score.

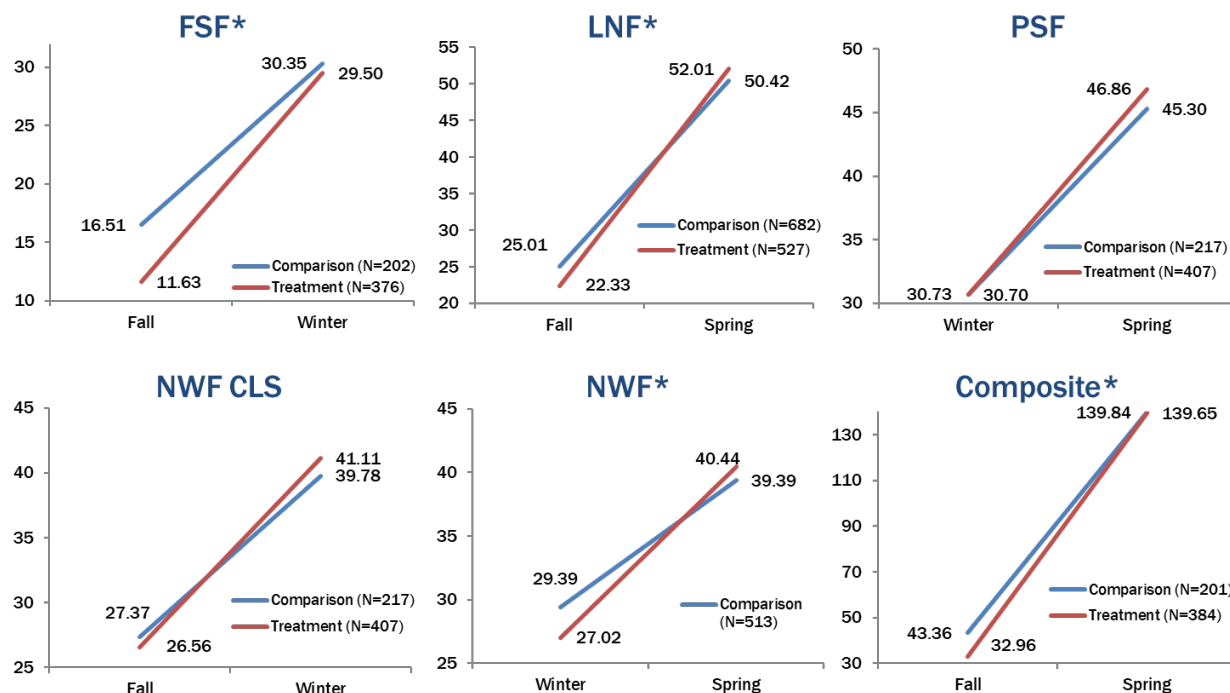## Addressing the Needs of Kindergarten Students

Student outcome data from a total of 3,115 kindergarten students were included in this impact study. Of these students, 1,584 attended kindergarten prior to the implementation of Fundations® and received a different program for foundational literacy skills (i.e., instruction as usual). The remaining 1,700 kindergarten students attended the 11 schools after the adoption of Fundations® and received foundational literacy skills instruction using Fundations.

For kindergarten, comparative analyses were conducted for six DIBELS scales including:

- First Sound Fluency (FSF) – fall to winter
- Letter Naming Fluency (LNF) – fall to spring
- Phoneme Segmentation Fluency (PSF) – winter to spring
- Nonsense Word Fluency Correct Letter Sounds (NWF CLS) – fall to winter
- Nonsense Word Fluency (NWF) – winter to spring
- Composite Score (Composite) – fall to spring

Figure 3 shows the growth in the various DIBELS subtests for kindergarten.

Figure 3. Results of Mixed Model ANOVA Comparisons for Kindergarten

FSF*
30.35 (Comparison)
29.50 (Treatment)
16.51
11.63
Comparison (N=202)
Treatment (N=376)
Fall — Winter

LNF*
52.01
50.42
25.01
22.33
Comparison (N=682)
Treatment (N=527)
Fall — Spring

PSF
46.86
45.30
30.73
30.70
Comparison (N=217)
Treatment (N=407)
Winter — Spring

NWF CLS
41.11
39.78
27.37
26.56
Comparison (N=217)
Treatment (N=407)
Fall — Winter

NWF*
40.44
39.39
29.39
27.02
Comparison (N=513)
Winter — Spring

Composite*
139.84
139.65
43.36
32.96
Comparison (N=201)
Treatment (N=384)
Fall — Spring

*Note. Statistically significant: FSF p<0.001, LNF p<0.001, NWF p=0.007, Composite p=0.002

Discussion

On average, kindergarten and first grade students made greater gains in literacy skills when Fundations® was being used as the foundational skills program. The study included multiple regression analyses with statistical controls for demographic and behavioral factors and is sufficient for a rating of **"Promising Evidence"/Tier 3** on the U.S. Department of Education's Every Student Succeeds Act (ESSA) evidence scale.

An independent analysis of data from 2010–2014 determined that the implementation of Fundations® is associated with better performance on four of six tested DIBELS scores in first grade and DIBELS Letter Naming Fluency (LNF) subtest in kindergarten. LNF is a critically important and telling factor of the potential for developing literacy in younger students. Alphabetic Knowledge, as measured in this subtest, is a strong predictor of how easily a child will learn to read.

The results of the kindergarten comparisons showed that the difference in growth between treatment and comparison students was statistically significant on four of the six tests. Students receiving Fundations® Level K (kindergarten) achieved higher rates of growth on the DIBELS FSF, LNF, and NWF subscales in addition to the overall DIBELS Composite score.

Although the ANOVA results essentially confirm the results of the comparisons, the regression analyses provide a stronger suggestion of the effects of Fundations® on student achievement. While controlling for effects of possible demographic and behavioral (i.e., attendance)

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confounds, the regression analyses establish that Fundations implementation is associated with better performance on one of six tested DIBELS scores in kindergarten: LNF.

As indicated above, LNF is a critically important and telling factor of the potential for developing literacy in younger students. Alphabetic Knowledge, as measured in this subtest, is a strong predictor of how easily a child will learn to read.