ABSTRACT

Title of Dissertation:	INCREASING READING ACHIEVEMENT AND NARROWING THE READING ACHIEVEMENT GAP FOR STUDENTS WITH DISABILITIES THROUGH EFFECTIVE EVIDENCE-BASED CORE INSTRUCTION, EARLY IDENTIFICATION & PREVENTION AND TIERED INTERVENTIONS
	Christina M. Harris, Doctorate of Education, 2021
Dissertation directed by:	Dr. Margaret McLaughlin, College of Education

Many students, especially students with disabilities are underachieving in reading. Early evidence-based literacy instruction implemented in kindergarten and first grade is critical for providing the necessary foundation for learning to read. The status of kindergarten and first grade literacy instruction impacts the goal of ensuring students are reading by grade three and sets the trajectory for future academic success.

This study focused on determining the status of evidence-based early literacy instruction in K-1 classrooms in District C through surveying teachers regarding their knowledge and skills in teaching reading and their use of instructional practices. Observations during literacy instruction in a sampling of classrooms in the district

focused on implementation of key practices aligned with structured literacy. The investigation of teacher knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in K-1 classrooms will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades which will improve reading achievement for all students, including students with disabilities.

The research study was guided by these questions: 1. To what extent do teachers in grade K-1 classrooms report having the knowledge and skills to teach all students using evidence-based early literacy practices in the five areas of reading? 2. What challenges to implementing evidence-based early literacy practices do K-1 teachers report? 3. To what extent do a sample of K-1 teachers demonstrate evidence-based literacy practices aligned with key principles of structured literacy?

Based on the survey results, the majority of teachers rated having about average to high levels of knowledge with teaching the 5 areas of reading but rated lower teaching reading to struggling readers and students with disabilities. Teachers rated highest their knowledge/skills in teaching phonemic awareness and phonics and rated lowest for vocabulary. Teachers reported the most prevalent instructional practices used are teacher demonstrations/modeling and guided practice and the most prevalent grouping approach is whole class. Classroom observation results indicated that teachers are implementing evidence-based instructional practices, but with varying frequencies including high rates of teacher modeling and low practice opportunities for students.

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by

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Dedication

This dissertation is dedicated to my sons Tommy and Travis Harris. I am thankful for all that they have done over the past few years to help me with so many things which allowed me to devote my time to my dissertation. I hope that I've inspired my sons to always aim to make the world a better place and to realize that despite many obstacles you should never give up on your aspirations. I am also very thankful to my parents for all the love, support, and encouragement they have provided me throughout my life and while writing this dissertation. I appreciate the encouragement that has been offered to me by my entire family and my friends. Most importantly, this dissertation is dedicated to all struggling readers, including students with disabilities. I believe that reading instruction will be improved for you and that this dissertation will help play a role.

Acknowledgements

I would like to thank Dr. Margaret McLaughlin for serving as my advisor for this dissertation. I appreciation the guidance, feedback and encouragement that Dr. McLaughlin and the entire committee has provided throughout the process. I am thankful to my colleagues, especially all of the teachers who helped me with my study as I could not have done it without them.

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Section 1: Introduction

A. Problem Statement

Many students are struggling readers. According to Fuchs, Fuchs, McMaster & Lemons (2018), millions of American children are experiencing extremely low academic achievement in reading, with many of these poorly achieving children having significant learning or behavior disabilities. In order to address the poor reading achievement of students with disabilities it is first necessary to improve reading instruction for all students including those who are struggling readers. Improved core reading instruction for all students reduces the severity of reading deficits which enables students to progress and reduces the risk of students being identified for special education. In fact, in many school districts, up to half of the referrals to special education are due to reading difficulties and referral rates jump in third through sixth grades when reading problems impact learning in math, social studies and science (Levenson & Cleveland, 2016). In addition, the largest group of students identified for special education are those with Specific Learning Disabilities (SLD) and the majority of these students have their primary academic deficit in the area of reading (Judge & Bell 2010). The core instruction provided in general education is key to teaching students to read in the early grades in effort to reduce referrals to special education and to reduce the achievement gaps for students with disabilities. Especially in the early grades, most students with disabilities are in the general education classroom for the majority, if not all of their instructional day which means their literacy instruction is being provided in the general education classroom by general education teachers. The classroom teacher providing the core instruction has to provide good instruction to all students, which

makes evidence-based instruction essential (Jones, Yssel & Grant, 2012). General education classroom teachers are the starting point working to meet the needs of many diverse learners. General education teachers make informed decisions, respond to student needs and provide what is best for all learners (Jones, Yssel & Grant, 2012). It is important that scientifically based strategies and interventions be available to all educators, along with a plan for students who require intervention due to a lack of responding to instruction (Jones, Yssel & Grant, 2012).

Although students with disabilities are already identified for special education, improving core reading instruction through evidence-based practices will enhance their ability to gain foundational skills to make progress in reading. Today, there is a large achievement gap between students identified as having a disability and all other student subgroups. For example, in the area of reading, only 12% of fourth grade students with disabilities scored at or above the Proficient level on the 2019 National Assessment of Educational Progress (NAEP) while 35% of all 4th graders scored at or above the Proficient level (NCES, 2019). On the 2019 Maryland Comprehensive Assessment Program (MCAP), only 9.7% of 4th grade students with disabilities scored at or above proficient compared to 42.6% of all 4th graders, which is a 33.9 point gap (Maryland Public Schools, 2019). Consequences for students with disabilities who fail to become competent readers are equal to or greater than other students impacted by poor reading. We need to consider the reading achievement of students with disabilities as there is a fine line between struggling readers and children with reading disabilities. Reading ability impacts future academic success and is a critical life skill for all students. According to Wei, Blakorby and Schiller (2011)

> Reading is the first of the "3 Rs" in American education and no one would argue against its importance for individuals or for society. Observers have linked reading skills to a

> range of important outcomes including success in the K-to-12 and postsecondary education systems, the ability to compete in the labor market, and even the health of American democracy. (p.89)

Learning to read in the early grades is a key milestone on the path to success (The Annie Casey Foundation, 2014). According to the Annie Casey Foundation, the end of third grade marks the point when children transition from learning to read to reading to learn and children who read proficiently by the end of third grade have an increased likelihood of graduating from high school and being economically successful in adulthood (The Annie Casey Foundation). An overwhelming majority of students who have not mastered reading by third grade will struggle throughout high school and beyond. These students tend to have increased rates of behavior problems in later grades and are less likely to graduate from high school or to enroll in college (Levenson & Cleveland, 2016). According to McLaughlin, Speirs, & Shenassa (2014), "The widening of the achievement gap between proficient and struggling readers can set a child on a path for poor academic achievement" (p.374) and poor educational and economic outcomes. Therefore, it is imperative that reading instruction in the early grades for all students be of the highest quality and focused on the evidence-based instruction.

Without effective evidence-based early reading instruction, many students will not master the necessary foundational reading skills (IDA, 2017; Solari et al., 2017; Birsh, 2019). Extensive evidence demonstrates the benefit of reading instruction at the early elementary level targeting both foundational skills, such as phonological awareness, phonics, word recognition and reading fluency, as well as higher-order skills such as language, vocabulary and comprehension (Austin et al., 2019). Strong core reading instruction along with a multi-tiered system of supports to

provide all students with the necessary instruction and effective intervention must be in place (Judge & Bell, 2010; Rasinski, 2017; Solari et al., 2017; Coyne et al., 2018). Supplemental reading interventions, or instruction provided in addition to core instruction in the general education classroom, can remediate reading difficulties and prevent school failure (Austin et al., 2019). In particular, students with disabilities who struggle with learning to read need the most effective reading interventions beginning as early as Pre-K and kindergarten (Austin et al., 2019; Vaughn & Wanzek, 2014; Claessens, Duncan, and Engel, 2009). In order to avoid later detrimental effects, it is imperative for young students to have appropriate instruction in foundational reading skills in order to master these skills by third grade.

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Although students with disabilities are already identified for special education, improving core reading instruction through evidence-based practices will enhance their ability to gain foundational skills to make progress in reading. Today, there is a large achievement gap between students identified as having a disability and all other student subgroups. For example, in the area of reading, only 12% of fourth grade students with disabilities scored at or above the Proficient level on the 2019 National Assessment of Educational Progress (NAEP) while 35% of all 4th graders scored at or above the Proficient level (NCES, 2019). On the 2019 Maryland Comprehensive Assessment Program (MCAP), only 9.7% of 4th grade students with disabilities scored at or above proficient compared to 42.6% of all 4th graders, which is a 33.9 point gap (Maryland Public Schools, 2019). Consequences for students with disabilities who fail to become competent readers are equal to or greater than other students impacted by poor reading. We need to consider the reading achievement of students with disabilities as there is a fine line between struggling readers and children with reading disabilities. Reading ability impacts future academic success and is a critical life skill for all students. According to Wei, Blakorby and Schiller (2011)

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Vaughn & Wanzek, 2014; Claessens, Duncan, and Engel, 2009). In order to avoid later detrimental effects, it is imperative for young students to have appropriate instruction in foundational reading skills in order to master these skills by third grade.

B. Scope of the Reading Achievement Problem and Students with Disabilities

Estimates suggest that as many as one in five children in the U.S. have learning and attention problems that include lower reading achievement, however, only a small percentage of these children are being identified as having a disability (Horowitz, Rawe, & Whittaker, 2017). Other sources such as the International Dylexia Association (IDA) indicate that approximately 5 to 10% of the population in the United States has a reading disability (IDA, 2017). Other studies have indicated that the prevalence of students with a reading disorder ranges from 7% to 16% of school-age children (Mascheretti, Andreola, Scaini, & Sulpizio, 2018). Francis, Caruana, Hudson, & McArthur (2019) conducted a meta-analysis of studies and reported that the reading abilities of 16% of children fall below the average range for their age or grade and 5% of children have significantly impaired reading skills for their age. The differences between the estimates of students who struggle with reading and those identified as having a disability such as SLD is due in part because in the early years, it is often difficult to distinguish between students who are struggling readers because they may have a neurobiologically based reading disability or because of inappropriate instruction or other risk factors (Solari, Denton, & Haring, 2017).

When it comes to students with identified disabilities, it is well established that these students often have severe reading deficits scoring several grade levels behind in reading. This low

reading achievement is a national, state and local school district problem. In the US the number of students ages 3 to 21 receiving special education services under the Individuals with Disabilities Education Act (IDEA) was 7 million in the 2017-2018 school year. This represented 14% of all public school students. These students may be categorized as having one or more of 13 IDEA disability categories; most if not all of the students in the 13 categories face challenges in learning to read proficiently (O'Connor, 2010).

The greatest numbers of students who receive services under the IDEA are those identified as having a specific learning disability (SLD). Of the 7 million students in the US served under the IDEA in 2017-2018, 34% were identified as having SLD (NCES, 2019). Specific Learning Disability is also the most prevalent identification code for students with disabilities in Maryland and one of the most prevalent in District C (MSDE, 2019). SLD is typically characterized by a primary deficit in the area of reading. IDEA guidelines define three areas of SLD within reading: basic reading skills, reading fluency, and reading comprehension (Judge & Bell, 2010).

Severity of Reading Deficits. Students identified as having a disability have significant deficits in reading. Fuchs et al. (2018) cited findings from Allison Gilmour's meta-analysis of 23 studies published between 1997 and 2016 that compared reading comprehension scores of K-12 students with and without disabilities in order to estimate the size of the reading gap between the two groups of students. Gilmour's analysis compared all students with disabilities to typical peers and found students with disabilities, on average performed 1.17 standard deviations or 3.3 years below typically developing peers.

In addition, Fuchs, et. al. (2018) reported on the findings from two nationally representative longitudinal studies of students with disabilities. The National Longitudinal Transition Study-2

(NLTS-2) provided a snapshot of high school students with disabilities as they transitioned to post school life. The NLTS-2 found that students with SLD were on average 3.4 years behind in reading and 3.2 years behind in math compared to their same grade peers that demonstrates that low performance for students with learning disabilities continues into high school. The Special Education Elementary Longitudinal Study (SEELS) was a similar nationally representative study of students with disabilities in elementary grades that paralleled the NLTS reported that 64% of elementary-age students with SLD scored below the 21st percentile in reading comprehension for three consecutive years (Fuchs, et al.).

National reading achievement data for students with disabilities. According to the 2019 results of the National Assessment of Educational Progress (NAEP), overall reading performance of students in the United States is not at a satisfactory level. NAEP reading assessment scores are reported in two ways, the average scores on a scale of 0-500 and by the percent scoring at each proficiency level. Results are reported as percentages of students performing at or above the three NAEP achievement levels (*basic, proficient,* and *advanced*). Students performing at or above the *NAEP Proficient* level on NAEP assessments demonstrate solid academic performance and competency over challenging subject matter. In order to score Proficient in grade 4 a minimum score of 238 is needed and for grade 8 a score of 281. The minimum score for Basic is 208 for grade 4 and 243 for grade 8. The percentage of students scoring at each proficiency level is encompassing of that level and the higher levels (ie. Basic includes those scoring at Basic, Proficient and Advanced). Reading scores at Grade 4 on the NAEP indicate that only 35% of all 4th grade students scored at or above the Proficient level. However, only 12% of 4th grade students with disabilities scored at the Proficient level; a 23 percentage point gap. I want to

demonstrate the seriousness of this. Students with disabilities are one of the lowest performing student groups on the NAEP with the only 4th grade group scoring with a lower percentage at the proficient level being English Language Learners (ELL) at 10%. An extremely low percentage of 4th grade students with disabilities scored at the proficient level, but even worse only 30% of students with disabilities scored at the basic level compared to 72% of students without disabilities. When compared to other student groups, 35% of 4th grade ELL students scored at the basic level, which is the second to lowest scoring group. For comparison purposes, 77% of 4th grade white students scored at the basic level and 45% scored proficient. The highest scoring student group is Asian with 82% scoring basic and 57% scoring proficient. Nationally, 34% of 8th grade students scored at or above Proficient in reading, while only 9% of students with disabilities scored at or above Proficient, which is a 25 percentage point gap. In Maryland 35% of all 4th grade students scored at or above proficiency on the 2019 NAEP reading assessment compared to 14% of students with disabilities, a 21 percentage point gap, and 36% of all 8th grade students scored at or above proficiency compared to 15% of students with disabilities, also a 21 percentage point gap. (NCES, 2019).

These achievement gaps on 4th and 8th grade NAEP reading scores have been consistent for the last 20 years. When examining trends over a ten year period from 2007 to 2017, the gap between reading Proficiency of 4th grade students with and without disabilities increased by seven points nationally and 17 points for Maryland. The gap remained consistent at 8th grade nationally and increased by seven points for Maryland (See Table 1). From 2017 to 2019, the gaps nationally and for Maryland decreased, but overall scores for all students also decreased.

Table 1

NAEP Reading Data- Grades 4 and 8
NAEP (National and Maryland) Average Scale Scores for Students Not Identified as Having a Disability and for Students with Disabilities (SWD), Including Students with 504 Plans

Grade	Year	National - Not Identified as SWD	National-SWD	Gap	Maryland-Not Identified as SWD	Maryland-SWD	Gap
4	2007	224	191	33	227	202	25
4	2017	227	187	40	230	188	42
4	2019	220	184	36	225	188	38
8	2007	266	227	39	267	236	31
8	2017	271	232	39	272	234	38
8	2019	263	229	34	269	233	36

Source: NCES, 2019

In addition to the NAEP reading scores, performance of students with disabilities on state assessments is of significant concern as supported by data from the National Center for Education Outcomes (NCEO) (Wu & Thurlow, 2019). *The NCEO collected state level assessment data on the* performance of students receiving special education services that are used for Elementary and Secondary Education Act (ESEA) accountability. The NCEO report indicates that, proficiency rates of students with disabilities on the 2016-2017 8th grade state reading assessments ranged from 2.7% to 33.4%. On average, 10.2% of students with disabilities scored at or above the proficient level in reading across 49 states. These findings are relatively consistent with 2015-2016 assessment results also reported by NCEO *(*Wu & Thurlow, 2019). *In 2015-2016,* the percent of students with disabilities on 8th grade reading assessments ranged from 2.2% to 38.5% with an average of 12.3% of students with disabilities scoring at or above the proficient level across 47 states. These data indicate a decline of 2.1 percentage points from 2015-2016 to 2016-2017 *(*Thurlow & Wu, 2018). According to NCEO (2018), reading

proficiency for students with disabilities on regular state assessments was also low for 4th graders in the2015-2016 school year with the percentage of students with disabilities meeting proficiency ranging from 4% to 59%.

The first few years of elementary school are considered to be the most important for impacting the trajectory of children's reading development and children who struggle with reading will likely have difficulty in subsequent years (Sonnenschein, Stapleton, & Benson, 2010). Most of the change in reading trajectory takes place by first grade, with almost none taking place after third grade (Sonnenschein et al., 2010). Not all low performing readers stay low performing readers, which is influenced by classroom instruction (Sonnenschein et al.). Although some children may become good readers in any environment, many only become good readers if they receive high quality instruction (Sonnenschein et al.). National data on the reading performance of kindergarten and first grade students is limited, perhaps because this is not an accountability measure. The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) is a national study focused on children's early school experiences beginning with kindergarten and following children through middle school. The ECLS-K cohort consisted of a nationally representative data set of 17,565 children who were in kindergarten in the United States in the 1998-1999 school year and followed through eighth grade. The ECLS-K data provide descriptive information on children's status at entry to school, their transition into school, and their progression through 8th grade. Reading performance, along with other areas was assessed at five points over the first six years: at the fall and spring of first, third and fifth grade. The wide range of data collected across the years allows for the study of how various child,

home, classroom, school, and community factors at various points in children's lives relate to cognitive, social, emotional, and physical development (IES-NCES).

Sonnenschein and colleagues (Sonnenschein et al., 2010), conducted an investigation which used the ECLS-K data set (kindergarten through fifth grade) as part of an analysis of reading growth and the impact of the type of instruction and the amount of instruction. They found that children's reading skills at kindergarten entry and ethnicity were predictors of reading scores at the end of kindergarten children. They found that the type and amount of reading instruction predicted reading scores; however, type and amount of reading instruction were time-sensitive, occurring only in kindergarten and first grade. Sonnenschein and colleagues reported mean scores using the ECLS-K data for entering fall ability based on the item response theory (IRT) reading score from the fall of kindergarten (0.00 mean score) and outcomes based on spring reading scores in kindergarten (40.99), first grade (72.74), third grade (119.67) and fifth grade (140.48). Their study findings support the need to consider the type of instruction in relation to the children's skill levels and to tailor instruction to the skills demonstrated by the students. Their study also supports the importance of early explicit phonics instruction.

It is important to consider the impact of low reading achievement and that the number of students receiving special education services increases from kindergarten through fifth grade with the majority of students with disabilities experiencing reading difficulties. The ECLS-K indicated that the percentage of the student cohort receiving special education grew from 4.1% in kindergarten to 11.9% in fifth grade and the percentage of students with Learning Disability (LD) as a primary disability increased from 0.5% in kindergarten to 6.5% in fifth grade (Judge & Bell, 2010). Judge and Bell (2010) conducted a study using ECLS-K data to examine reading

achievement and growth rates by learning disability subgroups of when in the elementary school years the students were identified as having LD. Judge and Bell (2010) found that lower levels of reading achievement were evident for all subgroups of LD at kindergarten entry, regardless of when they were identified; students with LD made smaller gains in reading achievement than students without disabilities. Judge and Bell's (2010) findings support the need for ongoing progress monitoring and responsive, targeted instruction in addition to early identification.

Maryland state reading acheivement data. Analysis of data on the 2019 Maryland Report Card demonstrates low reading achievement of students with disabilities as well as a gap between this subgroup of students and their non-special education peers.(MSDE, 2019). MCAP has five proficieny levels (1-5), with levels 4 and 5 meeting or exceeding proficiency. According to the results on the reading portion of the Maryland Comprehensive Assessment Program (MCAP), the percentage of students with disabilities scoring at or above the proficiency level (levels 4 and 5) decreases as the grades go up. For grade 3 reading, 10.8% of students with disabilities scored proficient compared to 41.2% of all students (a gap of 30.4 percentage points); on the grade 4 reading assessment, 9.7% of students with disabilities scored proficient, while 43.6% of all students scored proficient (a gap of 33.9 percentage points); at grade 5, 8.6% of students with disabilities scored proficient in reading compared to 43.9% of all students (a gap of 35.3 percentage points), and at grade 8 only 6.9% of students with disabilities students scored proficient in reading, while 45.1% of all students students scored proficient (a gap of 38.2 percentage points), (Maryland Public Schools 2019). Students with disabilities are either the lowest or second lowest performing student group at each grade level, with ELL scoring comparably. Unfortunately, not only is there a small percentage of students with disabilities

meeting proficiency, but the majority of students with disabilities scored at the lowest levels (level 1 and 2) on the ELA MCAP; for example, 57.1% of third grade students with disabilities scored at level 1, (77.8% scored at levels 1 and 2); 49.3% of 5th grade students with disabilities scored at level 1 (77.2% scored at levels 1 and 2); and 58.8% of 8th grade students with disabilities scored at level 1, (81.1% scored at levels 1 and 2) (Maryland Public Schools).

Reading Achievement in District C. District C had student population of 15,292 in the fall of 2020 with 10% of the students receiving special education services. District C's student demographics at that time were as follows: African American 14%, Hispanic 7%, Multiracial 10%, White 68%, Economically Disadvantaged 20%, English Language Learners 20% and less than or equal to 5% American Indian/Alaskan, Asian, and Hawaiian/Pacific Islander (District website, 2021). District C demonstrates the same low reading achievement among its students with disabilities on the MCAP state reading assessment data as well as the achievement gaps as the state between students with disabilities and other subgroups. While average scores for all students in District C are higher than the state average, the proficiency gap, as represented by students scorng at levels 4 and 5, between students receiving special education services and other students is even greater. See Table 2 for the District C reading assessment results. The proficiency gap between students with disabilities (defined as those receiving special education) ranged from 39.6% for 4th grade ELA to 52.7% for 8th grade ELA (Maryland Public Schools 2019). The majority of students with disabilities scored at the lowest levels on MCAP which indicates that most of these students are far from reading at a proficient level.

Table 2

District C MCAP Results ELA 2019

Test Grade	Subgroup	Level 1	Level 2	Level 3	Level 4	Level 5	Levels 4&5 (proficient)
ELA03	All	10.1	14.3	19.1	48.9	7.6	**56.5**
ELA03	Spec Ed	46.4	25.5	14.5	13.6	0	**13.6**
Gap		-36.3	-11.2	4.6	35.3	7.6	42.9
ELA04	All	7.3	13.8	26.9	39.7	12.3	**52**
ELA04	Spec Ed	37.1	26.7	23.8	9.5	2.9	**12.4**
Gap		-29.8	-12.9	3.1	30.2	9.4	39.6
ELA05	All	6.5	12.4	27.3	49.1	4.7	**53.8**
ELA05	Spec Ed	40	31.3	20	8.7	0	**8.7**
Gap		-33.5	-18.9	7.3	40.4	4.7	45.1
ELA06	All	6.5	15.2	26.7	39.7	11.9	**51.6**
ELA06	Spec Ed	29.6	44.3	20	6.1	0	**6.1**
Gap		-23.1	-29.1	6.7	33.6	11.9	45.5
ELA07	All	7.1	12.5	20.9	36.1	23.4	**59.5**
ELA07	Spec Ed	40	30	22	6	2	**8**
Gap		-32.9	-17.5	-1.1	30.1	21.4	51.5
ELA08	All	7.5	10.3	18.5	44.4	19.4	**63.8**
ELA08	Spec Ed	45.6	27.8	15.6	10	1.1	**11.1**
Gap		-38.1	-17.5	2.9	34.4	18.3	52.7

Source: 2019 Maryland Report Card (Maryland Public Schools 2019)

The MCAP assessment results provide evidence of low reading achievement and an achievement gap at 3rd grade (and beyond) between students identified as having disability and other students. However, data from a District C reading assesssment show that low reading performance for the students with disabilities and an achievement gap between these students and others begins earlier. District C currently administers the Northwest Evaluation

Association's Measure of Academic Progress (MAP) which is a universal screener and diagnostic assessment given to all students in grades K-12 at three points during a school year: beginning, middle, and end. The MAP is intended to measure a student's academic achievement in reading at each point and calculates growth. In the primary grades, MAP assesses foundational reading skills and is an adaptive assessment which advances the student to more complex levels based on their performance.

Prior to school year 2019-2020, District C administered quarterly literacy assessments (QLA) in English Language Arts (ELA) to students in first and second grade which assessed decoding and comprehension skills. District C also administered decoding surveys, Beginning Decoding Survey (BDS) and Advanced Decoding Survey (ADS), which measure the decoding skills which students should have mastered in the primary grades. The ADS was administered only to those students who passed the BDS. Although District C no longer administers the decoding surveys, the most recent data from the 2017-2018 school year, showed that students with disabilities were performing poorly in the early grades (see Table 3 below). Achievement on the District C QLAs administered during the 2018-2019 school year also show the low performance of 1st and 2nd grade students with disabilities compared to all students (Table 3).

Table 3

District C Decoding Survey (2017-2018) & Quarterly Literacy Assessment (QLA) 4th Marking Period (2018-2019) Results

Grade Level	Assessment	Percent All Students Met	Percent Students with Disabilities Met	Gap
1	BDS #1	23.3	0.8	22.5
1	BDS #2	44.4	1.7	42.7

1	ADS #1	36.5	1.4	35.1
1	QLA	68.1	44.9	23.2
2	BDS #1	47.3	4.0	43.3
2	ADS #1	35.8	1.9	33.9
2	QLA	55.9	25.2	30.7

Table 4 below presents the results of the District C fall 2019 administration of the MAP for grades K-5. As evidenced in the table, a much higher percentage of students with disabilites compared to students without scored in the at risk range, 14% of District C students with disabilities scored in the at-risk range compared to 3% of students without disabilities; at first grade 42% of the sudents with disabilities scored at-risk compared to 14% of students without disabiities; and or second grade, 58% of students with disabilities scored as at-risk compared to 25% of students without disabilities. Based on this district MAP data, students with disabilities are more at risk for reading failure than other student groups.

Table 4

District C MAP Results 2019-2020 School Year- Fall Administration
Percentage of All Students Scored At-Risk (bottom quintile)

Grade	All Students	Students with Disabilities	Students without Disabilities	African American	Hispanic	Multi-racial	White	Economically Disadvantaged
K	4	14	3	5	2	4	4	4
1	18	42	14	33	18	16	16	27
2	29	58	25	34	29	31	29	46
3	20	53	15	33	16	23	17	36
4	12	43	7	18	12	13	10	21
5	12	47	8	21	14	12	9	23
6	12	53	8	27	13	15	9	28
7	12	51	8	26	15	12	9	30
8	11	47	8	25	15	10	8	30

Complexity of assessing reading achievement of students with disabilities. As alarming as is the achievement data for students with disabilities, consideration should be given to the complexities of comparing the reading achievement of students with disabilities through measuring the proficiency gap. The achievement gap is typically measured in regard to comparing performance of students with disabilities to those without disabilities using the results from standardized assessments such as NAEP and state developed assessments such as the MCAP. However, some have noted the problems with using NAEP and other state level assessments as a measure of proficient performance and achievement gaps. According to Harvey (2018), the vast majority of students in the majority of other nations would not meet the proficiency marks for NAEP for reading, math or science, nor would they meet the benchmarks for the state measures of career and college readiness in mathematics and English language arts. Harvey notes that results from the International Education Assessment, (IEA), a highly credible international institution that monitors comparative school performance, found that the US 4th graders ranked second-place out of the 27 nations; however, NAEP reported that just one third of American fourth graders were proficient in reading. He states that the performance benchmarks (scale scores) attached to NAEP would mean that 50% or less of students in e majority of nations would not be able to reach the proficiency targets.

Regardless of the measure, there are large gaps between the reading achievement of students with disabilities compared to their non-disabled peers. Lemons and colleagues (Lemons, Otaiba, Conway, & Mellado De La Cruz, 2016) note that the developmental course of reading achievement of students with disabilities can be defined as a deficit model in which

initial differences persist over time with no sign of lower-achieving groups catching up with higher achieving groups.

The meta-analysis conducted by Gilmour et. al. (2019) that was described earlier also noted that it is unclear how poor the performance of students with disabilities actually is because estimates of the achievement gap are often undermined by imprecise metrics and other considerations. Gilmour, et. al. acknowledge that both the IDEA and the Every Student Succeeds Act of 2015 (ESSA) require that schools demonstrate how much students with disabilities learn by comparing the percentage of students who meet or exceed specific performance benchmarks (e.g, Proficient) to other subgroups of students without disabilities. This requires comparing the performance of students with disabilities to a "norm" based on the performance of students without disabilities. Gilmour, et.al. also notes that many researchers have used comparisons of students with and without disabilities against a "norm" and most report large gaps in achievment. Among the limitations of using the "gap" as a measure of accountability or reading progress noted by Gilmour, et. al. are the large variation in the estimates of reading achievement gaps across studies. This suggests that the estimates are influenced by sample characteristics, such as disability categories (e.g., combining scores of students with SLD, speech/language impairments and Attention Deficit Hyperactivity Disorder (ADHD)), grade levels, when the data were collected; the specific assessment characteristics such as constructs being measured and testing accommodation policies. In addition, when measuring the differences between percentages or numbers of students with and without disabilities scoring above a specific normative cut score (i.e., proficient)may also be misleading because using the norm may overestimate the difference between students with and without disabilities in districts where most students are performing

poorly. Another limitation of gap estimates as a measure of reading achievement in research as noted by Gilmour, et al. is that researchers may rely on a smaller and less representative sample which results in limited generalizability, although many reading researchers use individually administered standardized measures that address specific skills and are able to demonstrate small differences in performance as compared to the large scale state and national assessments.

Regardless of whether a study used a nationally norm-referenced assessment or a state accountability assessment, the results of all of the studies reviewed by Gilmour, et. al. (2019) indicate average reading achievement gaps of one to two standard deviations between students with disabilities (either in the aggregate or by specific categories) and the non-disability or norm. Furthermore, regardless of the measure, the meta-analysis also indicates that early achievement gaps between students with disabilities and their typical peers begin in kindergarten and persist through school.

C. Consequences of Low Reading Achievement

As noted earlier in the Introduction, according to the Annie B. Casey Foundation (2014), if we do not ensure that all children learn to read, their future educational and economic prospects will be diminished, and our economy will suffer. Strong relationships between literacy skills and socioeconomic factors such as further education and employment have revealed potential risks of adult poor readers being marginalized in technologically advanced industrialized societies (Arnbak, 2004). Arnbak (2004) conducted a study of 189 adults who were enrolled in formal adult education, and found that the adults who fell in the lowest 10th percentile in reading on a screening of functional reading skills demonstrated very poor decoding

skills based on a decoding assessment. She also found that the reading comprehension skills and the decoding skills of the adults with below mean grades on course exams were significantly lower than the adults with above mean grades. She concluded that poor adult readers, who were achieving in the 10-25th percentile in reading skills, were at risk of failing to get an education and that reading skills were a strong predictor of educational success of adults.

McLaughlin et. al. (2014) referenced a study by Currie and Thomas that found reading and math test scores at age 7 were significant predictors of test scores at age 16 and educational attainment, employment and earnings at ages 23 and 33. In addition, McLaughlin et al. analyzed data from a longitudinal study conducted in the New England states and found that controlling for family economics and race and gender, children identified as having a reading disability at age seven were 74% less likely than those with average or above reading achievement at age seven to attain a higher level of education by their mid-40s and 56% less likely to attain a higher income.

Early reading performance as a predictor of later reading achievement. Many children, up to 20% including those with identified disabilities, may have serious low reading achievement. While assessing the achievement gap between subgroups of students may be required for policy reasons, these measures may underestimate the true numbers of struggling readers and the severity of the reading deficits. Not learning to read proficiently by third grade sets children on a very shaky trajectory for continued poor school achievement and education outcomes. A substantial body of research has indicated that children's reading achievement in the early elementary grades predicts reading achievement in later grades (Stanovich, 2009; McNamara, Scissons & Gutknetch, 2011, Hernandez, 2011; McLaughlin, et al. 2014; Solari,

Denton, & Haring, 2017). Students who do not learn to read proficiently in the early grades will likely have persistent reading difficulties (Solari, et. al., 2017; Stanovich, 2009). McLaughlin, et al. (2014) found that children who were identified as poor readers in first grade, were more likely to be identified as poor readers in fourth grade; poor readers in fourth grade remained poor readers in ninth grade and the gaps between proficient and poor readers grew as children progressed through school. This has been referred to as "the Matthew Effect", in which good readers get richer and poor readers getting poorer (Stanovich, 2009).

Stanovich (2009) presented a framework for conceptualizing the development of differences in individual's reading ability by synthesizing the research literature. Stanovich indicated that poor readers have significantly less reading practice which emerges early in first grade and continues through the elementary grades. For instance, Stanovich cited a study by Bielmiller conducted in two classes of first graders who were categorized, based on individual assessments into three ability groups (most able, average, and least able). Bielmiller found that early in first grade, children in the most able group in his sample read a mean of 12.2 words per reading session; the children in the three average ability groups read on average 11. 9 words per child per reading session, and the children in the two least able groups were not reading. Children were reassessed in January and at that time, the mean words read for the most able group was 51.9; for the three average groups the mean was 25.8, and the least able group read an average of 11.5 words per session.. In April the means were 81.4, 72.3, and 31.6 respectively. Stanovich concluded that these results demonstrated that poorer readers are exposed to less text than their more able reading peers and the combination of lack of practice and exposure to reading, deficient decoding skills, and increasingly difficult reading materials result in negative

early reading experiences for the lower ability groups. This delays skills such as word recognition and makes reading a slow and capacity draining experience, comprehension is limited and reading becomes an unrewarding experience which children avoid.

McNamara, Scissons, & Gutknetch, (2011) conducted a longitudinal study that consisted of collecting reading achievement data for 382 students as they progressed from kindergarten through grade 3. Children were screened in kindergarten with a battery of phonological measures, percentile rank scores were collected and children were identified as having poor, average or strong phonological awareness. As children moved from grades 1 through 3 reading data was collected each spring. Findings showed that children in the lower ranks of reading achievement in kindergarten were likely to remain in the lower percentile on reading. Furthermore, at each progressing data collection point, struggling readers fell further behind their grade-level reading peers. Children with poor phonological awareness begin their trajectory throughout formal schooling at a significant disadvantage compared to their peers. This finding is consistent with the Matthew effect. A further consequence of the Matthew effect is the research which suggests that children who demonstrate early difficulties with phonological awareness are slower in their word-level decoding and as a result experience less exposure to vocabulary and have fewer opportunities to engage in reading practice. In turn these students experience a decrease in motivation to engage with reading-based material, compounding the effects of their delay.

Claessens, Duncan, and Engel (2009) conducted a study to determine the role of foundational reading and math skills (basic skills such as number and letter recognition), capabilities for paying attention, sitting still and making friends, mental health, and inclinations

for aggressive behavior and the impact on fifth grade school achievement in reading and mathematics. The data for this study came from the national Early Childhood Longitudinal Study-Kindergarten (ECLS-K) which followed a nationally representative sample of 21,260 children who were in kindergarten in the 1998-1999 school year. All children were administered reading and math assessments as well as socioemotional and attention skills measures in the fall of their kindergarten year and certain years after. Claessens, et. al. compared to reading and math skills of 11,820 children at the time they entered kindergarten to their reading and math achievement at the end of fifth grade. They found that school entry math and reading skills, followed by attention skills, were consistently predictive of both math and reading fifth grade achievement.

Reading ability and impact on high school graduation. Reading ability has been shown to impact graduation from high school. Many studies have found that students with disabilities experience significantly negative outcomes when they do not earn a high school diploma (Johnson, Thurlow, & Schuelka, 2012). By 2020, the United States is expected to have a shortage of 1.5 million workers with college degrees and a surplus of 6 million individuals without a high school diploma who are unemployed because they lack necessary educational credentials (The Annie Casey Foundation, 2014).

Lacking a high school diploma can have major consequences for students with poor reading skills. Persons without a diploma earn approximately 19% less than their peers per hour and have greater rates of unemployment and incarceration; therefore, the pressure is higher than ever for high school students to graduate (Johnson, 2012). According to the Bureau of Labor Statistics (2019), in 2018 the median weekly earnings for persons with a high school diploma

was $730 compared to $553 with less than a high school diploma, with a mean of $932 for all workers; higher earnings correlated with higher educational attainment. The total unemployment rate for 2018 was 3.2% and 5.6% for those with less than a high school diploma; lower rates of unemployment coincide with higher levels of educational attainment (Bureau of Labor Statistics, 2019). Having a high school diploma improves outcomes beyond high school which is influenced by reading proficiency in the primary grades.

Reading achievement and graduation. Hernandez (2011), analyzed data from the National Longitudinal Survey of Youth (NLSY), a nationally representative study that has assessed reading in third grade and followed the same children into their young adult years. The NLSY calculated high school graduation rates for children born between 1979 and 1989 based on a sample of 3,975 children with reading assessments conducted as early as 1986, and as recently as 2008. Reading skills in the NLSY were assessed using the Peabody Individual Achievement Test (PIAT); reading assessments were based on third grade scores unless unavailable, then an average of the second and fourth grade score was used. Children and their mothers were interviewed biennially. One in six children who were not reading proficiently in 3rd grade did not graduate on time, which is four times greater than that for proficient readers (Hernandez). According to Hernandez, 23% of children who were below-basic readers in 3rd grade based on the PIAT reading score distribution, which correlates to the NAEP score distribution, dropped out or failed to finish high school by age 19, compared to 9% of children with basic reading skills and 4% of proficient readers. In addition, Hernandez found that students who had lived in poverty and students with disabilities were impacted by multiple factors in addition to low reading achievement and were at even greater risk for not graduating

with a diploma. Twenty-two % of the children who had lived in poverty did not graduate from high school and 32% of children who had spent more than half of their childhood in poverty did not graduate. Among children who spent at least one year living in poverty and were not reading proficiently in 3rd grade, 26% did not graduate.

Graduation rates and students with disabilities. According to data from the U.S. Department of Education, for the 2016-2017 school year, the Four-Year Adjusted Cohort Graduation Rate (ACGR) for the United States was 84.6% total and 67.1% for students with disabilities which demonstrates a gap of 17.5 percentage points; Maryland had a higher graduation rate, but a greater gap, with 87.7% total and 67.5% for students with disabilities (gap of 20.2) (NCES, 2019). For the 2016-2017 school year, the ACGR across states for all students ranged from 71.1% (New Mexico) to 91% (Iowa) with the percentages for students with disabilities ranging from 36.4% (Mississippi) to 83.8% (Arkansas) (NCES, 2019). Graduation rates for students with disabilities have increased some over the past decade. In 2002-2003, 51.9% of students with disabilities in public schools across the nation earned a regular high school diploma (O'Connor 2010). In general, students with disabilities have about a 60% chance of graduating high school with a general education diploma. Without a high school diploma, students with disabilities have very limited options and are only able to gain entry level employment in most cases (Johnson, Thurlow, & Schuelka, 2012; O'Connor 2010). According to the National Center on Learning Disabilities (NCLD):

> Failure to address learning and attention issues too often leads to students being incarcerated, which further disrupts their education and contributes to high dropout and recidivism rates. Some studies indicate a third or more of incarcerated youth have

learning disabilities, and an even greater proportion may show signs of ADHD. Inadequate instruction while incarcerated or inadequate support upon reentering school helps explain why more than a quarter of reentering students drop out within six months, and nearly half return to confinement within three years." (Horowitz, Rawe, & Whittaker, 2017, pg. 4).

Emotional and behavioral impact of poor reading. Not only does poor reading performance impact academic areas, but it often impacts students' emotional well being. Poor readers are at increased risk for experiencing internalizing problems compared to typical readers. Francis et al. (Francis, Caruana, Hudson, & McArthur, 2019) conducted a meta-analysis of studies that examined poor reading performance and associations with internalizing problems which included 34 studies comprising 16,275 participants comprised of children (ages 6 - 12), adolescents (ages 13 – 18) and adults (ages 18+) with poor readers (N=2491 poor readers), being determined by their score on a reading test or if they met the criteria for reading problems identified in the DSM . Francis, et. al. found statistically significant differences between poor readers and typical readers on general measures of internalizing problems (d = 0.41), as well as specific measures of anxiety (d = 0.41) and depression (d = 0.23).

Trzesniewski and colleagues (Trzesniewski, Moffitt, Caspi, Taylor & Maughan, 2006) conducted a study to examine the association between reading achievement and antisocial behavior using the Environment Risk (E-Risk) Longitudinal Twin Study involving a nationally representative 1994-1995 birth sample of five and seven year olds and found that reading achievement and antisocial behavior are related and are present during the first few years of schooling. They found that for boys, reading achievement and antisocial behavior are primarily

due to environmental factors that are common to both; the development of reading achievement and antisocial behavior are intertwined with recripricol influences over each serving as the primary environmental factor which means as one changes so does the other. They also found that ADHD is closely related to reading achievement which is genetically influenced. They found that antisocial behavior was a predictor of reading problems even after taking into account the comorbidity of ADHD and conduct disorder. They suggest that in regard to reading achievement, ADHD and antisocial behavior should not be considered equal since ADHD and reading problems are related to genetic factors and reading problems and antisocial behavior are related to environment factors. Their finding that boys' ability and behavior when they enter school influences changes in their reading achievement and antisocial behavior after 2 years of instruction suggests that the association can be broken up by intervening in the early stages of school.

Bennett, et. al. (Bennett, Brown, Boyle, Racine, & Offord, 2003) conducted a study involving a random sample of 549 kindergarten and first grade students, who were free of pre-existing conduct problems, drawing from data from the Helping Children Adjust- A Tri-Ministry Study drawing from 60 schools in Ontario, Canada which were rated by school board officials as having higher than average rates of aggressive behavior and found that poor reading achievement at school entry increased the risk of conduct problems 30 months later. Their study found that an 8 point increase in reading scores (equivalent to a moderate effect size of 0.5) would result in a 23% decrease in the risk of conduct problems 30 months later. They concluded that reading problems are a well established correlate of conduct disorder and that children who develop conduct problems are at increased risk of negative health and social outcomes including injuries, voilence, school failure, substance abuse, depression and suicide.

Adolescents with significant reading problems are also at higher risk for emotional and behavior difficulties (Daniel, Walsh, Goldston, Arnold, Reboussin, & Wood, 2006). Daniel and colleagues conducted a study in order to examine risk of suicidal ideation, suicide attempts and school dropout among youth with poor reading in comparison to youth with typical reading performance. They recruited 188 students from public schools at the age of 15 and conducted repeated research assessments with the youth and parents to gain information about suicide ideation, attempts, psychiatric and socio-demographic variables, and school dropout. They found that students with poor reading were at higher risk for suicidal ideation and attempts and for dropping out of school. The researchers found that reading achievement was also related to major depression, conduct disorder and substance use disorder.

The International Dyslexia Association (IDA) (2017) cited a study conducted by Samuel T. Orton, M.D., decades ago that concluded that the majority of preschoolers that were later diagnosed with dyslexia were happy, well-adjusted young children. However, emotional problems developed later when early reading instruction did not match their learning needs. Orton reported that over the years, a child's frustration increases as classmates surpass the student with dyslexia in reading skills. The IDA notes children, adolescents, and adults with dyslexia experience increased levels of stress and anxiety and many individuals with learning disabilities do not fully understand the full nature of their disability and often blame themselves for their difficulties which decreases self-esteem due to years of self-doubt and self-recrimination, and often discourages students about continuing in school. Depression is often a complication of dyslexia; the child with dyslexia who is depressed not only experiences pain in present experiences, but also foresees a life of continuing failure (IDA, 2017).

D. Causes of Poor Reading Achievement of Students with Disabilities

There are a number of potential causes contributing to low reading achievement of students with disabilities that create the reading achievement gap. Extensive research has been and continues to be conducted on factors that correlate with poor reading achievement for beginning readers. Figure 1 presents a conceptual model that attempts to summarize four of the major interelated causal factors. One group of factors are child specific and recognize that certain characteristics or conditions can put children at risk of poor reading achievement. The second set of factors are all school related and are based on the evidence that indicates what schools do that can support or impede development of foundational reading skills. Within the second large school related causal factor are several key areas including policies and practices that promote effective early reading instruction through use of evidence-based curriculum and instruction. A third major causal factor leading to low reading achievement among students with disabilities is the interaction of failure to develop specific skill sets by 3rd grade due to inadequate instruction and the subsequent poor reading skill development, specifically comprehension. This is similar to what was described earlier as "the Mathew Effect". A summary of the research supporting each of the three major causal factors will be presented in the following section. There are many factors including, but not limited to curricular policies, procedures and materials, systemic leadership, school-based leadership, etc. that contribute to the low reading achievement of students with disabilities. The causal factors presented in Figure 1 are not all encompassing, but are those that I believe to be most impactful and connected to my role and sphere of influence within the district.

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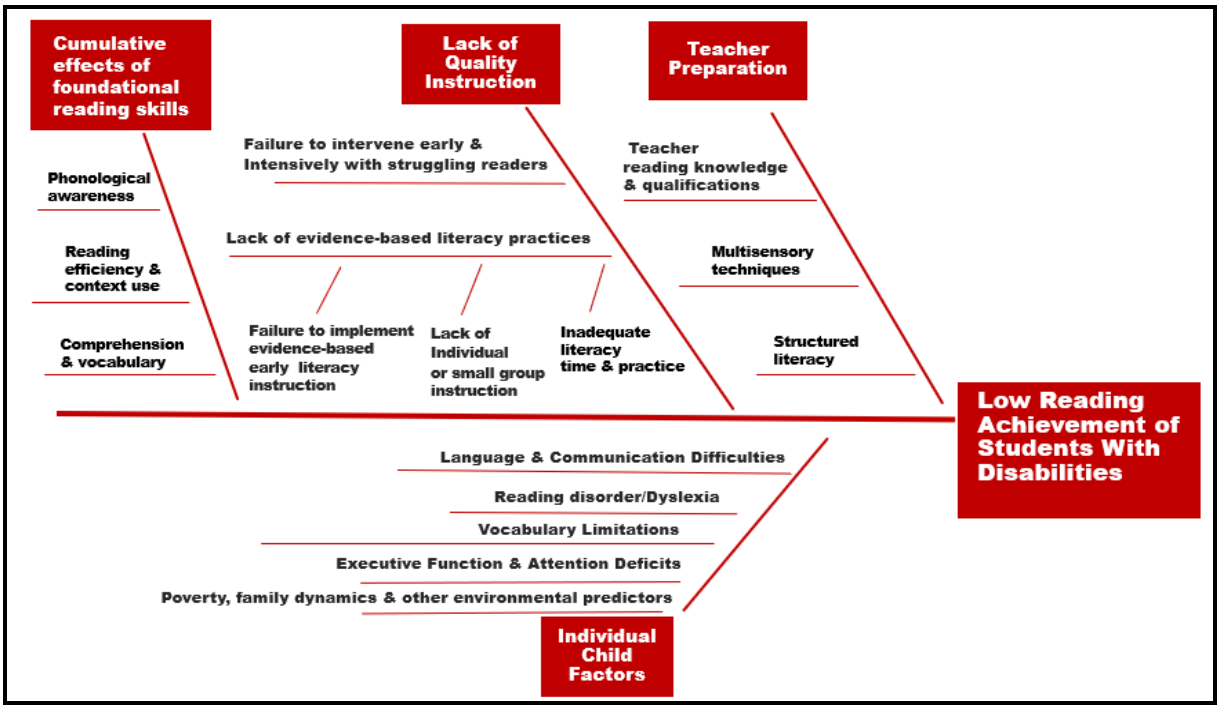

Figure 1. Major contributing factors of low reading achievement of students with disabilities.

Individual child factors. Reading is a complex activity and there can be many reasons as to why students struggle. Among those reasons are: the child's socio-economic status, family dynamics, and other environmental factors, the child's motivation, executive functioning and attention, vocabulary limitations, reading disorder or dyslexia, and language and communication difficulties and delays.

Poverty, family dynamics and other environmental predictors. According to Raskinski (2017), teachers and schools have little control over some of the reasons that children struggle in reading such as poverty, which has repeatedly been shown to be a powerful correlate to reading difficulty. Among the family factors Rasinski identifies are.parents reading to children and access to books and reading materials.

Environment plays a role in human development. Extensive research exists on the impact of socioeconomic status and children's environments and reading achievement. Significant disparities exist in what children know and are able to do well before they enter kindergarten and these differences are strongly correlated with social and economic circumstances and are predictive of subsequent academic achievement (National Academy of Sciences, 2000). From birth to age five, children develop critical foundational skills that subsequent skills build upon (National Academy of Sciences). These foundational capabilities, which are all intertwined, include linguistic and cognitive growth, and emotional, social, regulatory and moral capacities. In order to grow and thrive, children need parents and caregivers to provide close and dependable relationships that provide love, nurturance, security, responsive interaction and encouragement for exploration (National Academy of Sciences). Many young children do not have these basic needs being met. Growing up in poverty significantly increases the likelihood that a child will be exposed to environments and experiences that impose burdens on his or her well-being and increasing the probability of adverse outcomes (National Academy of Sciences). Children's early development is dependent on the health and well-being of their parents while many young children are burdened by untreated mental health conditions of their families, recurrent exposure to family violence, and the psychological impact of living in a demoralized and violent neighborhood (National Academy of Sciences). Early experiences affect the development of the brain. Environmental threats to the brain and central nervous system include poor nutrition, infections, environmental toxins and drug exposures beginning in the prenatal period, as well as chronic stress from abuse or neglect throughout the early childhood years and

beyond (National Academy of Sciences). All of these environmental child factors impact learning and achievement.

A range of studies have implicated environmental and social risk factors, such as socioeconomic status and disadvantaged family circumstances for word reading difficulties. For example, Russell et al. (Russell, Ukoumunne, Ryder, Golding & Norwich, 2018) conducted an analysis of a U.K. population-based birth cohort of 13,680 participants to identify factors associated with word reading score at age seven and found that on average, boys and girls who were born preterm had lower word reading ability scores and parental concern about speech and language and expressive vocabulary at age five predicted lower word-reading ability at age seven. They also found that socioeconomic factors were significantly associated with word reading ability which included lower maternal education level, living in government funded low-income housing and being from a single parent family which predicted poorer reading ability. Other findings included greater parental attachment and frequency of reading with children at age three were significantly predictive of higher word reading ability. Russell et al. concluded that poor parental involvement and unsupportive home background are early risk factors for reading difficulties and that good early language skills are a pathway to promoting reading ability. Therefore, it is necessary for young children to be talked to, listened to and read to in order to develop the prerequisite language skills for reading. Russell et al. reference a 2014 study by Law, King and Rush that found that the number of books owned by a household significantly correlated with early reading ability, even when controlling for income. Russell et at. indicate that phonological skills could be a mediator of the relationship between these predictors and word reading.

An analysis of children's developmental trajectories of early letter knowledge in relation to prior language-related measures, cognitive measures and environmental factors and their subsequent grade 1 reading achievement was conducted by Torppa, Poikkeus, Laakso, Eklund, and Lyytinen (2006). Torppa et al.'s study involved a longitudinal data set of 187 children with and without familial risk for dyslexia that were grouped into three clusters based on letter knowledge: delayed, linearly growing, and precocious. Torppa et al. found that environmental predictors of poor reading included maternal education and the amount of home-based letter name teaching and that familial risk for dyslexia was a significant predictor of poor reading. The study found that almost all of the students who experienced difficulties with beginning reading had delayed letter knowledge and the strongest predictors of delayed letter knowledge were skills in phonological sensitivity, phonological memory and rapid naming. Among the group of children with familial risk of dyslexia, Torppa, et. al. concluded that a genetic vulnerability appears to manifest itself early in phonological processing problems which lead to delayed letter naming and a high likelihood of subsequent beginning reading problems. This analysis also showed that phonological processing is an important component of vocabulary on letter knowledge (Torppa et al.).

In addition to socio-economic and family factors, preschool environments serve as predictors of reading achievement. Molfese, Modglin, and Molfese (2003) conducted a study of 113 children, including 35 with poor reading skills, that focused on children's home environments during the preschool and primary-grade periods and the relation to their performance on reading achievement tests annually at ages 8, 9, and 10. They found that socioeconomic and home factors were related to later reading achievement, but home preschool

environment measures such as learning materials in the home, stimulation of communicative competence, physical environment, warmth and acceptance, academic stimulation, modeling, and variety in experience were more strongly and consistently related to and predictive of reading scores.

Research has also indicated that preschool children who fall in the lower quartile of language and early literacy skills proficiency are often those with limited experience, low socioeconomic status (SES), dual-language experiences, or developmental delays (Greenwood, Carta, Schnitz, Irvin, Jia, & Atwater, 2019). These children in the lower quartile do make progress in a preschool year, but are not likely to catch up to typically developing peers. These young children remain at risk for not being ready for school and not learning to read proficiently (Greenwood, et al.). Reading is a language-based activity; therefore, very young students with language and early literacy skill difficulties are at risk for future reading struggles.

SES and vocabulary limitations. One important language skill is vocabulary knowledge. Vocabulary development is crucial to academic success. Vocabulary limitations of students with diverse learning needs have significant effects on learning since new learning always builds on something the learner already knows. Learning is dependent on language, which is profoundly based on vocabulary development (Baker, Simmons, & Kameenui, n.d.). Multiple factors may impact vocabulary acquisition. A strong correlation between environmental factors including socioeconomic status and vocabulary knowledge, indicating that home factors may contribute substantially to students' vocabulary knowledge (Baker et al.). Biological factors such as language and memory impairments, and instructional factors such as

strategy differences for learning new words may partially account for differential rates of vocabulary growth (Baker et al.).

Vocabulary gaps are evident when students begin preschool or kindergarten or and because reading achievement differences between students also develop as early as first grade the vocabulary gap widens rapidly (Baker et al.). Baker et al. synthesized the research on vocabulary acquisition and support decades of research linking vocabulary size to the academic achievement of disadvantaged students. Baker et al. also state that empirical support that students who begin school behind typical peers in important areas such as vocabulary and language development can master basic reading skills as well as typical peers under optimal instructional conditions, but the primary difficulty with sustaining early gains in reading is the lack of vocabulary to meet the increasing academic demands beginning in the upper elementary grades. There is a strong connection between reading comprehension and vocabulary knowledge (Baker et al.). In addition, no research evidence supports the contention that a specific vocabulary method or program can bridge the vocabulary gap that exists at the onset of schooling between groups of students with poor versus rich vocabularies and which widens throughout schooling (Baker et al.). Students who are unsuccessful in developing early reading skills do not engage in the volume of reading necessary to significantly increase their vocabulary development (Baker et al.).

Executive function and attention deficits. Other child-specific characteristics that have been shown to relate to reading difficulties include, motivation, executive functioning and attention. Poor academic achievement including reading is a prominent feature associated with attention-deficit/ hyperactivity disorder (ADHD) (Loe & Feldman, 2007). Being diagnosed with

ADHD has been correlated with poor grades and poor reading and math standardized test scores, Children who show symptoms of inattention, hyperactivity, and impulsivity with or without formal diagnoses of ADHD have also been shown to demonstrate poor academic and educational outcomes (Loe & Feldman). Pharmacological treatment and behavior management are correlated with reduced symptoms of ADHD and increased academic productivity, but not with improved standardized test scores or ultimate educational attainment (Loe & Feldman).

Frazier, Youngstrom, Glutting and Watkins (2007) conducted a meta-analysis of the published literature since 1990 that included72 investigations, to determine the magnitude of achievement problems associated with ADHD. They concluded that students with ADHD are at a higher risk for a range of academic complications including lower standardized test scores, failing grades, grade level retention, and an increased rate of being identified as having learning disabilities. Frazier et al. found that significant differences in reading achievement between study participants with and without ADHD even when evaluating effects for certain moderators including age, gender, achievement domain (reading, math, and spelling), and measurement method (standardized tests vs. grades). Frazier and colleagues found the greatest disparities were in reading followed by math and then spelling.

Other research has established a relation between attention, executive functioning and reading performance. Blankenship, et al. (Blankenship Slough,Calkins, Deater-Deckard,Kim-Spoon & Bell (2019) conducted a path analysis study of 157 infants and observed them during appropriate executive functioning tasks at five months of age as well as at 10 months old and 3, 4, and 6 years of age. They found that infant attention had a direct statistical predictive effect on executive functioning at 10 months of age, with a continuous pattern of executive functioning

development to six years of age, with executive functioning and verbal IQ at age six having a direct effect on reading achievement. They concluded that executive functioning is directly correlated with school readiness and academic success and that there is a direct pathway from infant attention to early reading achievement through the development of executive functioning.

Reading disorder/dyslexia. The low reading achievement of some students with disabilities is attirbuted specifically to having a reading disorder or reading disability, which is also called dyslexia. Dyslexia is included within the category of SLD for determining eligibility for special education services or Section 504 accommodation plans. The IDEA defines dyslexia as a language-based disability which results in people having difficulties with language skills, specifically reading. The IDA describes students with dyslexia as typically experiencing difficulties with other language skills such as spelling, writing, and pronouncing words and notes that most people with dyslexia have difficulty with identifying the separate speech sounds within a word and/or learning how letters represent sounds (IDA, 2017). The core difficulties of dyslexia include word recognition and fluency, spelling, and writing. According to the IDA, children with dyslexia, have varying differences in brain development which impacts the degree of difficulty a child has with reading and spelling. The brain of a child with dyslexia is normal, often very intelligent with strengths in areas other than the language area and difference goes undetected until the child finds difficulty learning to read and write.

According to Mascheretti et al. (2018), the American Psychiatric Association defines specific reading disorder, or dyslexia, as a neurocognitive disorder characterized by non-fluent word identification and poor spelling performance, which are not the result of sensory impairments, intellectual disabilities, other mental or neurological disorders, psychosocial

adversity, or inadequate educational experience. The origins of a reading disorder/reading disability are complex andMascheretti et. al. statethat a reading disorder is a complex heritable disorder with heterogeneous genotype-phenotype association patterns involving multiple interacting risk factors, genetic or environmental. Mascheretti and colleagues. reviewed the literature on the impact of environmental risk factors implicated in reading disorders. They found that gestational weeks and birth weight reliably predict reading readiness and the odds of having a reading disorder. Theyalso found some studies that connected maternal cigarette smoking during pregnancy to language, reading and spelling disabilities.

Language, cognitive and communication disorders. Children with language and communication difficulties are at high risk of literacy problems. Learning to read imposes significant cognitive burdens on children at an age when cognition is only beginning to form and also requires linguistic skills (Riley, 2020; Snowling & Hulme, 2012). Learning to read is a progression from decoding text to fluent reading to making inferences and comprehending written text, the ultimate goal of learning to read (Riley; Snowling & Hulm). The first step to becoming a proficient reader is ability to decode or make the connection between a letter and a speech sound. Beyond decoding, reading comprehension requires access to the meanings of words and higher-level processes such as sentence integration, inferencing and comprehension monitoring. Snowling and Hulme note that many of many of these processes are in place in the developing child who has been listening and understanding spoken language, but the child still has to refine and use these skills in concert to read proficiently. They state that there is a great deal of evidence that reading disorders are strongly correlated with underlying delays and difficulties with language development. They claim that poor comprehenders have weak oral

language comprehension and that several studies indicate that children with reading comprehension impairment demonstrate broad language difficulties including weak vocabulary knowledge, difficulties in processing grammatical information in spoken language and poor performance on general measures of language comprehension.

Speech and language difficulties are also risk factors for literacy development. There is considerable overlap between communication disorders (language impairments and speech disorders) and reading disorders. Early childhood speech sound disorders (SSD) and later school-age reading, written expression and spelling skills are influenced by shared genetics (Lewis, et al., 2011). An estimated 16% of children are affected with SSD at age three and 3.8% of these children continuing to present with speech delay at age six. Language impairment (LI) often occurs with SSD, with an estimated 6% - 21% comorbidity for receptive language deficits and 38% - 62% for children with expressive language disorders (Lewis, et al.). According to Lewis, et al., although SSD and LI may resolve by early school age, more than half of these children encounter later academic difficulties in language, reading, and spelling. Lewis et at. report that SSD, LI, and Reading Disorder overlap on cognitive and etiological levels and are complex disorders with varying severity. Early SSD alone has modest effects on literacy development, but when additional risk factors are present such as language impairment and family risk of dyslexia, these can have serious negative consequences on reading achievement (Hayiou-Thomas, Carroll, Leavett, Hulme, Snowling, 2017). Hayious-Thomas et al. conducted a study involving 245 children with identified SSD at age 3½ and assessed their literacy skills at age 5 ½, at the start of formal reading instruction, and again at age 8, using measures of phonemic awareness, word-level reading, spelling and reading comprehension, and found that

children with co-occurring SSD and LI were significantly impaired in their literacy skills and that the children who in addition had family risk of dyslexia showed the most significant reading impairments at age eight. Long-term reading and spelling difficulties have been found to exist for adolescents who experienced language difficulties in the preschool years (Brizzolara, et al., 2011). Therefore, it is important to recognize the continuities between language and reading disorders (Snowling & Hulme).

In the following section I review some of the key causal factors that focus on what happens or does not happen within the school instructional environment that can support reading proficiency. These are: the cumulative effects of foundational reading skills; lack of quality instruction, and teacher preparation.

Cumulative effects of foundational reading skills. A key problem in literacy instruction can be the lack of understanding and/or specific instruction that acknowledges what is required to "learn to read". Stanovich (2009) recognizes that the cognitive processing involved in reading is complex. "The vast literature on individual differences in the cognitive processes of reading will only be fully understood when we are able to determine which performance linkages reflect causal relationships, which are developmentally limited,which are the result of third variables, which enter into relationships of reciprocal causation, and which are consequences of the individual's reading level or reading history," (pg. 24). Stanovich reviewed an extensive body of research related to factors that relate to learning to read. First, there is a 1986 original article which was reprinted in 2009 and then again in 2017 (Stanovich 1986; Stanovich 2009; Stanovich 2017). His research began in the 1980s and as a result he has developed a model to

explain the Matthew effects in reading and what he terms the "bootstrapping" of reading skills. A summary of his model follows.

Phonological awareness. Stanovich's (2009) review of evidence on learning to read concludes that the primary specific mechanism that enables early reading success is phonological awareness which is the ability to recognize and work with sounds in spoken language (Stanovich). Phonological awareness is the greatest predictor of reading acquisition. As supported by many researchers, phonological awareness is important for various reasons: a beginning reader must discover the alphabetic principle, that units of print map to units of sound; children must be able to decode independently the numerous unknown words they will encounter in early reading stages; the child will gain the reading independence that eventually leads to the levels of practice that are prerequisites to fluent reading (Stanovich). The advantage of the alphabetic principle is that it enables children to recognize words that are in their vocabulary but have not been taught or encountered previously in print. Stanovich states that the research supports the need fore explicit instruction of the spelling-to-sound relationship to support decoding independently and it is important for the phonological awareness and skill at spelling-to-sound mapping be in place early in the child's development because absence can initiate a causal chain of spiraling negative effects (Stanovich).

Reading efficiency and use of context. Stanovich (2009) also examined the research related to eye movement patterns and use of context as an aide to word recogntion as they correlate with reading achievement. There is a history of research that attempted to link eye movement to reading skill and there were exercises and interventions designed to change children's eye movements. Stanovich's review of the research concluded that eye movement

patterns are determined by the efficiency of the reader but do not cause or create reading efficiency. Eye movements closely relect the efficiency of ongoing reading with the number of regressions and fixations per line increasing as the material becomes more difficult and decreasing as efficiency of reading increases. Fluent readers are able to completely sample the visual array and process and comprehend the information more efficiently than poor readers.

Another area of confusion regarding causes of poor reading is context use to help a student recognize a word. Stanovich (2009) reviewed this body of research and concluded that context use is not relied on more heavily by skilled readers for word recognition, but is used to aid comprehension. Studies show that not only do poorer readers use context, but often use context to a greater extent than better readers. According to Stanovich, when a child's decoding processes used to recognize words are deficient, then the child's processing system relies more heavily on other knowledge sources or clues that provide hints or additional information such as definitions, synonyms, antonyms, examples and explanations that may be in the same sentence or in another part of the text. However, poorer readers more often deal with materials that are relatively more difficult in the classroom which they may experience decoding problems. These decoding problems reduce the context available to the poorer reader. Because of the decoding problems, even when poorer readers and competent readers both have the same materials, the poorer reader has less contextual information to use which contributes to the widening of the gap (Stanovich,). When considering context use to aide in the recognition of a target word there must be consideration of the difficulty of the material preceeding the target word. As the text prior to the target word becomes more difficult the poorer reader will not be able to form the context to decode the target word (Stanovich).

Comprehension and vocabulary. Comprehension of text is the ultimate skill necessary across academic areas. As noted earlier comprehension is negtively impacted when a child's decoding skills are not well developed resulting in decoding of words that is slow and capacity-demanding (Stanovich, 2009). Vocabulary knowledge enhances reading comprehension; and reading enhances vocabulary growth. The more reading experience a child has, the more vocabulary the child can gain and poorer readers experience signficantly less reading and fewer vocabulary. Stanovich reported on a study conducted by Allignton that found among a sample of first graders, the total words read during a week of school reading group sessions ranged from 16 for one of the children in the less skilled group to a high of 1,933 for one of the children in the skilled reading group. The average skilled reader read about three times the number of words of the average less skilled reader. This reduced exposure to words read by poor readers negatively impacts vocabulary knowledge and comprehension.

Educators need to determine patterns of reading difficulties to match explicit instruction and interventions to the specific area(s) of difficulties for the students. Stanovich (2009) references a study conducted by Bradley and Bryant (1985) that offers an ideal way to attack the spiraling problem of achievement deficits in reading which is to identify early, remedy early, and focus on phonological awareness.

Many consequences are linked to reading level and practice. As discussed earlier, the Stanovich (2009) review of research established that readers of differing skill experience differences in the amounts of practice they receive at reading and writing and have different histories of success and failure in regard to academic tasks. Lack of success can create other cognitive and behavioral differences for poor readers including lower self esteem and lower

motivation or persistence in tasks that require reading. They may also perform poorly on memory tasks as a result of their lack of reading experience. The research is clear that reading practice needs to be increased for poorer and struggling readers. Stanovich recommends strategies such as providing immediate feedback and exposure to grade level texts to build comprehension and positive experiences when reading to make it more enjoyable.

Motivation. When children do not master the foundational reading skills early, their motivation to read is negatively impacted, which in turn impacts their reading practice. Research has shown that motivation and reading achievement are correlated for upper-elementary school students and that intrinsic motivation is one of the factors relating to success or failure in reading (Vaknin-Nusbaum, Nevo, Brande, & Gambrell, 2018). However, that motivation begins early as the child is learning to read. Vaknin-Nusbaum et al. conducted a study of 155 second grade students' reading intrinsic motivation and reading achievement at the beginning and end of the year. Low reading achievers scored lower in overall reading motivation and self-concept as a reader as well compared to typical readers. The low reading achievers showed a decline throughout the school year in motivation and self concept while reading motivation of typical readers remained high and steady (Vaknin-Nusbaum et al.). Vaknin-Nusbaum, et. al note that the relation between intrinsic reading motivation and reading skills develops as early as 6 years old and that low achieving readers need practice to improve their reading, yet try to avoid reading activities because of low motivation.

Research findings have indicated that reading attitudes are most positive in grade 1 and decline as students progress to grade 6 (Marinak, 2013). Although more prevalent negative attitudes and rapidly declining attitudes toward recreational reading are found for low-ability

readers, teachers can improve intrinsic motivation through implementing motivation interventions (Marinak). Some instructional methods that increase intrinsic reading motivation have the following attributes: choice, challenge, collaboration and authenticity. Teachers can foster literacy learning and intrinsic motivation to read by including specific actions of providing authentic choices and purposes for reading and writing, allowing students opportunities to control their learning by engaging in self-monitoring, encouraging collaboration, emphasizing strategies that encourage the construction of meaning, and using consequences to build responsibility (Marinak). The success students are set up for by such interventions is supported by expectancy-value theory which argues that individual's choice, persistence and performance can be explained by their self-efficacy or ability related to the task and the extent to which they value the activity (Marinak). The amount of time focused on literacy instruction and reading practice needs to be increased along with implementing interventions to promote intrinsic motivation which contribute to improved self-efficacy and reading achievement.

Lack of quality literacy instruction. High quality evidence-based reading instruction is imperative for developing foundational and later reading skills. There are two major bodies of research that relate to the poor reading performance of children identified as struggling readers including students with identified disabilities. The first body of research focuses on early identification and intervention to prevent or reduce incidence of failure to learn to read. The second body of research concerns instruction for children who have not developed the important foundational literacy skills. The literature on early identification and prevention followed by high quality and intensive instruction for struggling readers will be discussed below.

According to Spear-Swerling (2015), and Francis, et al. (2019) poor readers may have trouble learning to read new words using grapheme-phoneme correspondence rules or by recognizing whole written words from memory. They may also struggle to read words fluently or with understanding the meaning of what they read. A portion of poor readers present with just one of these reading problems while the majority of poor readers have a number of these reading problems (Francis et al.). Understanding how the various reading skills interact is important for designing effective interventions.

Spear-Swerling (2015) identified three common patterns of reading problems exist which include specific word-reading difficulties (SWRD), specific reading comprehension difficulties (SRCD), and mixed reading difficulties (MRD). Children with SWRD have difficulty with reading words, not with comprehension areas such as vocabulary or background knowledge. Children with SRCD have poor reading comprehension despite at least average word-reading skills. Identifying the type(s) of reading problems and providing explicit instruction and intervention matched to the student's deficit(s) is essential to increase reading performance. Children with MRD have a combination of weaknesses in word-reading skills and core comprehension areas. Spear-Swerling notes that children with word-reading difficulties benefit from explicit, systematic phonics interventions and children with comprehension difficulties benefit from explicit teaching and modeling of text comprehension strategies as well as from interventions that promote vocabulary and oral language development (Spear-Swerling). Although reading is a very complex process and child and family factors impact progress in learning to read, research is clear that instructional factors are strongly related to reading achievement. Below are some of the most

prevalent and impactful school and instructional factors which research has demonstrated are effective for students with disabilities and other struggling readers.

As noted in earlier sections, the interconnectedness of becoming a skilled reader depends on developing all critical skill areas: phonemic awareness, decoding, fluency, vocabulary and ultimately comprehension. The relationships among these will be discussed later in this section; however, all of these skill areas can be improved with evidence-based early and intensive literacy instruction.

Lack of early evidence-based literacy instruction. Clear throughout the research is the need for early identification of reading problems and intensive early intervention to prevent later low reading achievement. The IDA cites the research that supports how reading disorder or dyslexia can be addressed through effective evidence-based instruction (IDA, 2017). The organization recognizes that type of instruction a person with dyslexia receives is important; a multi-sensory approach is valuable to many students and is necessary for the child with dyslexia. The experience of the teacher is key for teaching children with dyslexia to read and write as with the right teaching methods students with dyslexia can learn successfully. Both the IDA and the NCLD stress the importance of early identification and interventions as the key to helping children with dyslexia achieve in school and in life (IDA, 2017; Horowitz, Rawe, & Whittaker, 2017).

Learning to read, write and spell are cognitive linguistic tasks (Birsh, 2019). According to Birsh (2019), extensive research has shown that teaching in these basic cognitive linguistic areas must include a language-based approach that is direct, systematic, explicit in content, and

addresses the following foundational skills: phonemic awareness, phonics, fluency, vocabulary, comprehension; and include an emphasis on accuracy and automaticity. This type of instruction is especially necessary for students who are at risk or struggling to read (Birsh, 2019). The National Reading Panel (NRP) conducted an evidence-based assessment of the scientific research literature on reading and the implications for reading instruction which recommends instruction occur in the five areas of reading (NRP, 2000). These include: phonemic awareness, phonics, fluency, comprehension and vocabulary. The key elements of effective evidence-based early literacy instruction include: early identification and prevention; phonemic awareness instruction, reading fluency and comprehension instruction, and vocabulary development.

Following the NRP's review of the research and recommendations, national efforts, mostly through policy, have been put into place over the years to increase reading achievement. The No Child Left Behind Act of 2001 (NCLB), which was previously known as the Elementary and Secondary Education Act (1965), required states to test reading annually beginning in third grade and to report results for children by poverty status and race ethnicity, as well as ELL and for children with disabilities. NCLB demonstrated President Bush's commitment to ensuring every child can read by the end of third grade. When putting NCLB into place President Bush expressed his belief in public schools, but that too many children are being left behind. Under NCLB the new Reading First state grant program awarded competitive grants to local school systems to administer screening and diagnostic assessments to identify students at risk of reading failure and provide professional development to teachers in the areas of reading. The Early Reading First state grant, new under NCLB, also provided competitive grants to support early

language, literacy, and pre-reading development of preschool-age children, particularly those from low-income families (USDOE, 2001). Reform efforts across the nation were also implemented to increase reading achievement.

Focusing on prevention and early intervention in reading, a group at Johns Hopkins University developed the Success for All Program which began in Baltimore City Public Schools in 1987 and became widely used across the nation. Success for All is a whole school reform model, predominantly implemented in high poverty schools, that integrates curriculum, school culture, family and community supports for students in prekindergarten through grade 8. A literacy tutoring component is the crux of the program. The literacy program emphasizes phonics for beginning readers and comprehension for all students with teachers providing reading instruction to students grouped by ability for 90 minutes per day, five days per week and a tutoring component provided daily for students who have difficulty reading at the same level as their classmates (USDOE, IES, 2017).

The Obama Administration revised NCLB to the Every Student Succeeds Act of 2015, calling for "Putting Reading First" by significantly increasing the federal investment in scientifically based early reading instruction (Hernandez, 2011). Every Student Succeeds Act of 2015 (ESSA), aims to improve student academic achievement in reading and writing through evidence-based programs that ensure comprehensive literacy instruction (ESSA, 2015).

In addition to students being provided evidence-based universal reading instruction, it is necessary to identify students with reading difficulties early and to provide preventive interventions. There is extensive evidence that makes it clear that one major solution to the problem of school failure in general, including reading failure, is early identification and

prevention. (Lyon et al. 2001). According to Lyon et. al. (2001), it is estimated that the number of children who are typically identified as poor readers and served through either special education or compensatory education programs (as well as children with significant reading difficulties who are not formally identified and served) could be reduced by up to 70% through early identification and prevention programs (Lyon et al. 2001). Children who struggle with early reading tend to demonstrate difficulties with both print-related decoding skills and oral language comprehension, which combined can prevent children from becoming fluent readers (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017). Although identification for special education has been recommended to begin as early as kindergarten, identification for learning and reading disabilities is typically delayed until upper elementary grades (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017). Kindergarten and first grade teachers have been shown to accurately identify children who face reading or learning challenges, even if children are not formally considered as having a disability (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017). According to the National Council for Learning Disabilities (2017), researchers have noted that the achievement gap between typical readers and those with dyslexia is evident as early as first grade; however, many students struggle for years until they are identified as having an SLD.

Early identification and intervention with children who show the warning signs of dyslexia are extremely important for better outcomes later on (IDA, 2017). Researchers have identified the specific skill weaknesses that predict later reading difficulties, making early testing, identification and remediation possible (IDA, 2017). For most children, problems can be

remediated in 30 to 45 minutes per day with programs implemented at the kindergarten or first grade level (IDA, 2017).

Early detection of reading difficulties is needed. All children in school should be screened in kindergarten and first grade in order to identify potential reading problems before they turn into reading failure (IDA, 2017). Before second grade, it is more important to focus on the precursors of reading development when evaluating (IDA, 2017). Measures of language skills, phonological awareness, memory, and rapid naming, which are typically included in kindergarten and first grade screening tests, are more suggestive of being at risk for young children than measures of word reading, decoding, and spelling (IDA, 2017). For students identified as 'at risk' for reading difficulty, preventive intervention should begin immediately (IDA, 2017). If students continue to struggle in the upper elementary grades with the five reading competencies that should've been adequately developed in the primary grades, those areas of concern will likely negatively impact the students' overall reading proficiency (Rasinski, 2017). Identification of students at-risk for reading difficulties or disabilities can be achieved through universal screeners and then preventive interventions should be provided to address the deficits early in the student's educational career.

Phonemic awareness is the ability to segment words into their component sounds (phonemes), which is a critical foundational piece to reading. Phonemic awareness instruction helps children grasp how the alphabetic system works in their language and helps children read and spell words in various ways. According to the National Reading Panel (NRP) (2000), phonemic awareness instruction helped all types of children improve their reading, including normally developing readers, children at risk for future reading problems, disabled readers,

preschoolers, kindergartners, 1st graders, children in 2nd through 6th grades (most of whom were disabled readers), children across various SES levels, and children learning to read in English as well as in other languages. Systematic phonics instruction is significantly more effective than non-phonics instruction in helping to prevent reading difficulties among at risk students and in helping to remediate reading difficulties in disabled readers.

In regard to phonics instruction, the conclusion drawn by the NRP (2000) is that phonics instruction produces the biggest impact on growth in reading when it begins in kindergarten or 1st grade before children have learned to read independently. These results indicate clearly that systematic phonics instruction in kindergarten and 1st grade is highly beneficial and that children at these developmental levels are quite capable of learning phonemic and phonics concepts. To be effective, systematic phonics instruction introduced in kindergarten must be appropriately designed for learners and must begin with foundational knowledge involving letters and phonemic awareness. An extensive review of the literature indicates that classroom practices that encourage repeated oral reading with feedback and guidance leads to meaningful improvements in reading expertise for students—for good readers as well as those who are experiencing difficulties which supports that teachers should assess fluency regularly (NRP, 2000). The demonstrated effectiveness of guided oral reading compared to the lack of demonstrated effectiveness of strategies encouraging independent silent reading suggests the importance of explicit compared to more implicit instructional approaches for improving reading fluency.

Rasinski (2017) states that intentional and intensive instruction and development in word identification and fluency should begin no later than kindergarten and proceed through grade 3. Reading fluency involves reading with automaticity in word recognition and expressive reading

which impacts comprehension. Oral reading fluency (ORF) is measured by word-reading accuracy, rate and prosody. Oral reading is critical to reading development and instructional practice that at some point in students' primary school development are taught to read silently, internalizing the oral speech. Reading becomes a silent activity into adulthood. Although oral reading fades as an instructional practice, it continues to be a focus of assessment across the primary school years as it is important to reading comprehension (Sabatini, Wang, & O'Reilly, 2018). Sabatini, Wang, and O'Reilly completed a secondary analysis of the NAEP fourth-grade special study of oral reading fluency (ORF) to explore relations between reading comprehension and oral reading performance. The authors found that word recognition accuracy and fluency (number of words read correctly in a specific amount of time) independently explained comprehension. Students with the lowest comprhension scores also had problems with word recognition and a higher number of word-reading errors. They concluded that two reading competencies in particular are essential to foundational reading success: word identification (e.g. phonics, word decoding, word recognition) and reading fluency, which is also supported by Rasinski (2017).

Rasinski (2017) cited several studies that supported these findings. One study examined the results of 108 4th grade students who scored below proficiency on state assessments in reading. The study found that 82% of the students had difficulty in word identification and/or reading fluency (word recognition automaticity). Rasinski cited another study of fourth and fifth graders who had been identified as "late emerging' in reading at the end of third grade. Among these students, 67% demonstrated difficulty with word level processing deficits which involves the process of decoding and accessing the word meaning. Another study of 94 middle

school students with profiles of below proficient readers found that 76% had word identification and/or reading fluency problems and in a study of 202 struggling 8th and 9th grade readers, 95.5 % demonstrated difficulty in word identification, word meaning, and/or reading fluency. After removing those students who were adequately proficient in word meaning (vocabulary), 81.7% of students exhibited difficulties in word identification and/or reading fluency (automaticity) (Rasinski, 2017).

As the NRP (2000) began its analysis of the extant research data on reading comprehension, three predominant themes emerged: (1) reading comprehension is a cognitive process that integrates complex skills and cannot be understood without examining the critical role of vocabulary learning and instruction and its development; (2) active interactive strategic processes are critically necessary to the development of reading comprehension; and (3) the preparation of teachers to best equip them to facilitate these complex processes is critical and intimately tied to the development of reading comprehension. The NRP concluded that comprehension instruction can effectively motivate and teach readers to learn and to use comprehension strategies that benefit the reader. These comprehension strategies yield increases in measures of near transfer such as recall, question answering and generation, and summarization of texts. These comprehension strategies, when used in combination, show general gains on standardized assessments.

As noted earlier in this section, vocabulary knowledge is one of the most important skill areas contributing to comprehension and should not be neglected. Reading ability and vocabulary size are related (NRP, 2000). The NRP recommends that vocabulary be taught both

directly and indirectly and that vocabulary instruction should be incorporated into reading instruction. Teaching of vocabulary is often not separate from other instruction in the early grades, but as students begin to read content material they may need to learn vocabulary specifically related to the material, giving rise to the instructional need for vocabulary learning.

The panel concluded that although there has been considerable success in improving comprehension using a variety of strategies, the most promising lines of research focus on increasing teachers' abilities to teach comprehension. Teachers can be helped by intensive preparation in direct instruction, strategy instruction, emphasizing multimedia methods, providing rich context in which words are to be learned, ensuring active student participation, and increasing the number of exposures to words that learners will need to understand (NRP).

Lack of high-quality reading instruction for older struggling readers. Unfortunately a number of students leave 3rd grade without sufficient skills that allow them to become efficient. Readers. Reading instruction for struggling readers is not of high quality. According to Vaughn and Wanzek, (2014) based upon their review of studies, the quality of reading instruction (in general ed and special ed) appears to be inadequate to meet the intensive instructional needs of students with reading disabilities. The experiences of students with difficulties in general education revealed low levels of opportunity for active responding with and without print during the reading instructional block (4-5% of instructional time) which suggests that students with reading difficulties in general education spent the majority of time in general education instruction passively learning and there was no evidence of differentiation in engaging students in active responding based on student need (Vaughn & Wanzek, 2014). Lack of effective

instruction can limit opportunities and lead to poor outcomes for students with learning and attention issues, who are often misunderstood as being lazy or less capable. With the right instruction and support, these students can achieve at high levels (Horowitz, Rawe, & Whittaker, 2017). Low reading achievement is not unique to students with learning disabilities.

Effective general education instruction is key as students with special needs and those who struggle spend most of their day in the general education environment; therefore, core instruction provided by the general education classroom must meet most of their needs (Levenson & Cleveland, 2016). If we want students to master the general education curriculum, general education teachers need to be a big part of the solution to their success. Beyond core instruction, even interventions are often taught by general education staff, which is the hallmark of Response to Intervention (RTI). RTI embraces general education as the foundation for all students' success (Levenson & Cleveland, 2016).

Lack of individual and group instruction. Although research supports small groups and one-on-one instruction for struggling readers, this is not regularly provided. Observations conducted prior to 1990 revealed increased small group instruction compared to those conducted after 1990 in general education and special education settings (Vaughn & Wanzek, 2014). Small group differentiated instruction began increasing again in general education classrooms and interventions have begun to increase (Vaughn & Wanzek, 2014). Students with disabilities were receiving more individualized instruction than those without disabilities according to studies prior to 1990 (Vaughn & Wanzek, 2014). According to Vaughn and Wanzek, (2014) several studies conducted up to 2002 indicated that in special education settings, whole group instruction to large groups of students (5-9) prevailed; whole group instruction prevailed in recent studies of

special education resource rooms though class sizes were smaller (1-7) and individualized instruction was noted 23.7% of the time. The prevailing practice of grouping students for reading instruction does not align well with research on effective instruction. Small groups of 3-4 students are associated with significantly higher effects than groups of 8-10, with the lowest performing students benefitting the most (Vaughn & Wanzek, 2014). Differentiated small group instruction in general ed is significantly related to higher reading outcomes (Vaughn & Wanzek, 2014). Students with reading disabilities who are provided 1:1 intervention or very small group (five or fewer) make greater gains than students provided intervention in larger groups (Vaughn & Wanzek, 2014). Differentiated small group instruction should be provided in general education and very small group or one-on-one instruction should be provided to students with more significant reading difficulties or with reading disabilities.

Inadequate time and practice for literacy. As noted earlier, inadequate reading proficiency impacts motivation to read and practice. Inadequate reading time and practice for poor readers causes an increased gap. Research has shown that even beginning in preschool the time spend on literacy instruction is insufficient. According to an investigation conducted by Greenwood et al. (Greenwood, Carta, Schnitz, Irvin, Jia, & Atwater, 2019) with a sample of preschool children in order to determine the extent to which teachers provided preschool students with teacher literacy focus (TLF), the study found that only 16% of a child's preschool day included TLF. The preschool day was broken into intervals of large group (31%), center (30%), other activities (20%), small group (11%), story time (6%), and individual activities (2%). The researchers found that children were least likely to experience teacher literacy focus (TLF) in the activities where they spent the majority of their time; with the exception of large group

activities, where the probability of TLF co-occurring was higher, but only at 26%. Children were most likely to experience TLF in story time (63%), which also correlated to the highest levels of student engagement.

Children's academic engagement, which is correlated with achievement, varied widely depending on the activity and literacy focus, with the highest probability (61%) of engagement occurring during TLF compared to (16%) not TLF. Children in the high-literacy risk group received less TLF and were 1.0 times more likely to not be academically engaged compared to those not at risk; unless the student had an IEP in which case teachers appeared to be providing a greater instructional intensity (Greenwood et al., 2019).

Vaughn and Wanzek (2014) completed a study to revisit questions about instructional practices for children with disabilities. Their study involved gathering information from three sources: data demonstrating reading achievement trends for students with disabilities, findings from observation studies of reading instruction for students in general education and special education settings, and findings from two syntheses on the impact of intensive interventions for students with reading disabilities. As part of the study, Vaughn and Wanzek analyzed 16 studies of reading instruction with students with learning disabilities and emotional/behavior disabilities were conducted between 1978 and 2012. And included 11 independent samples of primary grade students. They found that primary grade students with reading difficulties were provided an average of 1 minute of time for reading print (sounds, words, text) during a 90 minute general education reading block. Teachers spent less than 1% of instructional time on reading comprehension and about 18% of that reading comprehension time was spent on quizzing students about what they had read. Asking students questions about what they read is not the

same as providing instruction to increase comprehension. Vaughn and Wanzek also found that students were observed to be engaged in many nonreading activities throughout the day, even during designated reading time; observations in kindergarten reported on average 50% of the scheduled reading instructional block for general education reading instruction was dedicated to non-literacy activities such as transitioning, discipline, calendar, games, drawing/coloring without a literacy focus. It is of great concern that students in general and special education (settings are spending large portions of time during reading on non-literacy tasks. Across all of the research synthesized, students with disabilities spent very little time reading silently (about 6-10 min during the reading instructional block) and similarly low amounts of time reading aloud (3-13 min. during the reading instructional block). Vaughn and Wanzek concluded that limited time with print, actual time provided for reading print, continues to be an issue in the general education setting for students with reading difficulties.

According to Levenson and Cleveland (2016), school districts that have successfully closed the achievement gap and significantly raised achievement of all students provide extra instructional time each day in addition to core content instruction time. Students who struggle to achieve grade-level standards often require more time for instruction in order to catch up and keep up with peers. They must master previous content while likely needing additional instruction compared to peers on current content. The authors found that in many schools, struggling readers are provided extra adults, but not extra time. They state that elementary level students who struggle with reading should receive at least an additional 30 minutes of reading instruction, in addition to core instruction each day.

Failure to intervene early and intensively with struggling readers. Students with disabilities' (SWD) poor performance may be due to the underestimating of the seriousness of the SWD learning and behavior problems and the capacity of general education to adequately address these problems has been highy overestimated (Fuchs, et al., 2018). According to Fuchs, et al.,in the 1980s many researchers explored the validity of what was then referred to as a learning disability (LD) label. For example, Ysseldyke and Algazzine, (1979) purported to show that low achievers with and without an LD label performed similarly on tests of cognition and achievement. Their conclusions were interpreted by many as evidence that the LD label was used in an arbitrary and unscientific manner.

However, Fuchs, et al. (2018) cite significant findings in their study which actually tell a different story, which is that students with LD perform significantly worse than students who were not labeled as LD. The children with the LD label reliably performed worse in the Ysseldyke et al. study on many measures, especially academics which actually supports the notion that schools label as LD their most academically vulnerable children. and Fuchs, et. al. (2018) assert that by failing to recognize that school-based personnel often use disability labels to identify their most academically challenged children, academics, policymakers and others have contributed to a widepread underestimation of these children's learning problems and failed to provide the interventions to address them resulting in what Fuchs et al. see as the cause of the abysmal academic achievement of students with disabillities. Schools fail to provide sufficiently intensive instruction because they do not recognize the need for it and they do not know how to provide it. Thus, Fuchs, et.al. conclude that thee assumptions promoted by Ysseldyke et al. (1979) that low performers with and without learning disabilities would benefit similarly from

good instruction in the general education classroom have not been proven because much of the research literature indicates that large numbers of struggling learners have not received the meaningful help needed due to lack of suffficiently intensive instruction.

Findings from a number of studies suggest positive impacts for students with disabilities who receive intensive intervention (Vaughn & Wanzek, 2014). Many researchers have indicated students with reading disabilities are unlikely to receive intensive intervention to meet their reading needs in the general education setting (Vaughn & Wanzek). Systematically adjusting early reading intervention based on student performance produces statistically significant results (Coyne et. al. 2013). For students who are not responding to Tier 2 intervention, an increased level of intensity is needed; systematically adjusting the intervention based on student performance produces positive results. According to Coyne et. al.'s (2013) experiment which studied kindergarten students identified as at risk for reading difficulties provided an early reading intervention with adjustments based on student performance, the experimental group outperformed the comparison group on all post-test measures at the end of kindergarten and at the end of first grade revealed continued advantage.

Vaughn and Wanzek (2014) conducted a study to revisit questions about appropriate instruction for students with reading disabilities to determine if reading instruction is meeting the needs of students with learning disabilities. Three data sources were used to build a rationale for necessity of intensive interventions for students with learning disabilities: achievement data in reading over time, findings from observation studies on students with reading disabilities in general education and special education classrooms, and findings from studies on intensive intervention for students with reading disabilities. Longitudinal databases of reading

achievement have also noted a lack of substantial growth over time for students with disabilities despite eligibility for special education services. Reading gains for students with disabilities have been consistently lower than students without disabilities across grades on multiple measures. There has been little evidence for the students who have demonstrated gains in reading achievement that they are accelerating learning to meet grade level expectations even with years of special education services (Vaughn & Wanzek, 2014) which substantiates that students with reading disabilities are not receiving appropriately intensive instruction. Students who struggle with reading or have disabilities require sufficient time for reading instruction and reading related tasks, individual or small group instruction, and effective quality of instruction.

Vaughn and Wanzek (2014) synthesized studies on intensive intervention and reported intensive intervention was defined by criterion of 100 sessions (approximately 20 weeks of daily treatment) or more for students in grades K-3 and a criterion of 75 sessions (approximately one semester of daily treatment) or more for students in grades 4-12. Their synthesis provides findings for studies meeting the criteria for all grades except 10-12. The findings were examined by features of interventions associated with positive effect sizes, including grade level of intervention, instructional group size, level of standardization, and intervention duration. As reported by Vaughn and Wanzek (2014) the mean effect sizes for all outcomes (comprehension, reading fluency, word reading, spelling) were larger for all studies for students in the early elementary grades than for students in the upper grades. The largest mean effect size for grades 4-9 was for word reading (MES=.20), less than half the size of the word reading effects for younger students (MES=.56). Reading comprehension, arguably the most important outcome for

reading intervention, was more than 5 times larger for early elementary students (MES= 0.46) than for students in grades 4-9 (MES=0.09). Vaughn and Wanzek (2014) reported that there are sizable differences in favor of intensive interventions with early elementary readers, possibly because younger students are more readily remediated and are more responsive to treatments. Within the early elementary grades higher effects were noted for students receiving intervention in grades K-1 than in grades 2-3. Older students (grade 4 and up) may have more intractable reading disabilities and are therefore less responsive to interventions. Reading and understanding text becomes more complex in upper grades requiring students to rely increasingly on background and vocabulary knowledge for success, both of which are not easily remediated (Vaughn & Wanzek, 2014).

Students with reading disabilities require intensive interventions over time (could be several years), provided in small groups or one-on-one for at least 45 minutes per day, and addressing the critical components of reading through explicit, systematic instruction and abundant opportunities for practice and feedback, with increased success when implemented in the early elementary grades (Vaughn & Wanzek, 2014). For students with reading disabilities, the specially designed instruction must be structured to provide the intensive interventions needed so students can better access the general education curriculum (Vaughn & Wanzek, 2014). These interventions are needed for students with disabilities to accelerate their learning since they are not progressing at the same rate as typical learners. (Vaughn & Wanzek, 2014). Providing intensive intervention to students with reading disabilities or significant difficulties proves to be beneficial especially in early primary grades.

Teacher knowledge and qualifications. Teacher knowledge and skill related to literacy instruction greatly impacts student reading performance. Teacher knowledge of reading instruction is important for child gains, potentially because teachers with a higher knowledge of reading may be more likely to use beneficial strategies (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017). Bratsch-Hines, et al. conducted a study on classroom teachers' use of instructional strategies with at risk struggling readers in early elementary grades (kindergarten and first grade). They found that teachers appeared to engage students in more code-focused strategies (word identification, decoding, fluency) than meaning-focused strategies (meaning, comprehension). They also found that teachers' experience and knowledge of reading, not teacher education level, were positively correlated with reading instruction outcomes. (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017).

According to Bratsch-Hines et al., (2017) many teachers lack the knowledge and skills to effectively provide the type of evidence-based reading instruction that was described in the earlier section. General education elementary classroom teachers are often charged with conducting assessments and providing instruction that better meets the needs of students who are struggling readers in need of remediation. These classroom teachers are also increasingly tasked with providing individualized instruction and challenging students at their appropriate skill levels and many are not prepared to teach struggling readers or students at risk for learning disabilities (Bratsch-Hines, et al.).

In addition, according to Bratsch-Hines, et al. (2017), many general classroom teachers have reported difficulty working with students of differing skill levels, including knowing how to support struggling readers or children with or at risk for learning disabilities. Teachers

experience difficulty with being able to meet the individual needs of struggling readers, providing the appropriate amount of feedback, time, and application of reading strategies.

Spear-Swerling and Cheesman (2012) reported that over two-thirds of in-service teachers were unfamiliar with the findings of the National Reading Panel (2000) and they were unable to identify evidence-based interventions. Findings from other research indicates that the majority of teachers lack an understanding of the English word structure that is needed to teach struggling readers to understand letter-sound correspondence, to decode, to spell, or to understand phonemes and morphemes in words, yet these struggles are common for students with disabilities.

According to Lemons et al., (2016), a review of studies has indicated that teachers lack knowledge of how to use assessment to inform reading instruction, and that studies have shown that over 40% of teachers of primary grades could not correctly interpret an oral reading transcript; over a third of teachers did not know how to either administer or score common reading screening measures, and less than a third of teachers could implement Data-Based Individualization (DBI), which is a research-based method of using data to guide adaptions to intensify intervention; this is problematic for our students with disabilities.

The teaching of reading in the early grades is of utmost importance as research supports that if students are not proficient in reading by third grade, they fall further and further behind. Teachers need to possess the necessary skills to deliver high quality early literacy instruction. According to Lubell (2017), who conducted an analysis of data on teacher preparation programs in the area of teaching reading, the National Council on Teacher Quality (NCTQ) analyzed 820 elementary education teacher undergraduate programs to look at teacher preparation programs

addressing all five components of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) and found that only two in five (39%) provide instruction in all five essential components. In the *NCTQ 2018 Teacher Prep Review,* it is recommended that teacher prep programs focus relentlessly on the need for future elementary teachers to be ready to teach reading, which is the most important aspect of their job (Rickenbrode, Drake, Pomerance, & Walsh, 2018).

For those teachers who take the route of becoming a teacher through post-baccalaureate elementary programs, NCTQ found both graduate and alternative route teacher preparation programs struggle to teach preservice teachers how to teach reading. Only 23% of post-baccalaureate elementary teacher preparation programs provide scientifically based reading instruction, which is an improvement from 2014 which was 15%, but is still over three quarters of programs failing to teach these methods (Rickenbrode et al., 2018). This is problematic since research has demonstrated that effective reading instruction, based on the five areas, could reduce students' reading failure by at least two-thirds (Lubell, 2017). Elementary school students cannot be ready for upper elementary school, let alone high school or college, if they are unable to read textbooks, newspapers, webpages and other content fluently, with a high level of comprehension; and their teachers cannot be ready for the complex nature of teaching reading to all students if their own educations did not include research-proven strategies (Lubell, 2017).

According to one study, many teachers report that their training programs did not adequately prepare them to impart effective reading instruction, particularly to children with limited oral language and literacy experiences or to children with the most severe forms of reading disabilities (Lyon et al. 2001). Given that many children at risk for reading failure come

from disadvantaged backgrounds, where early childhood education and preschool experiences are less available, this is particularly concerning. According to Lyon et al., many of these children fail to read because they did not receive effective instruction in the early grades. Some may then, in later grades, require special education services to make up for this early failure in reading instruction (Lyon et al. 2001). It is important to have supports in place for teachers, as well as to have the materials needed to provide effective instruction and intervention. Often inadequate instruction and early intervention is provided to struggling readers.

Fuchs and Fuchs (2009), schools fail to provide the intensive academic interventions due to a lack of educators who are highly skilled in providing these interventions. They assert that it is necessary for all individuals providing instruction and interventions to have a strong content knowledge in the subject area that they are teaching. Yet, according to Fuchs and Fuchs, in most districts extra academic instruction is provided by paraprofessionals or by special education teachers with expertise in pedagogy but, who are often generalists without expertise in math, English or reading instruction. Levenson and Cleveland (2016) state that a teacher who has been involved in extensive study and training in a particular subject is more likely to have a wider repertoire of ways to teach the content and not all special educators are strong at teaching reading and writing. Students with specific reading disabilities, as well as other struggling readers require highly skilled teachers to teach them to read.

Summary of causal factors. The review of causal factors is not exhaustive as the research is broad related to factors that impact reading achievement. The analysis attempts to provide at least the two biggest categories: Individual child factors and School factors. Although child specific characteristics such as poverty, family dynamics, other environmental factors,

executive functioning and attention deficits, vocabulary limitations, dyslexia and language and communication difficulties do influence reading achievement, the research related to instruction suggests that the achievement gaps can be reduced if not eliminated. Early and intensive evidence-based instruction provided to children at risk of struggling to learn to read can lead toward becoming proficient readers given the cumulative effects of not mastering foundational reading skills. According to the National Reading Panel (2000), evidence-based instruction needs to occur in phonemic awareness, phonics, fluency, comprehension and vocabulary. Further, literacy instruction is often not tailored to meet student needs and there must be a balance of teaching the grade level content and standards while addressing the specific areas of reading deficits.

An evidence-based foundational reading curriculum should occur in kindergarten through second grade and Rasinski (2017) states that exemplary literacy instruction should include teacher read-aloud, authentic reading of stories and dictated texts followed by meaningful response activities, time to read and explore books and other material independently, instruction on how words work (phonemic awareness, phonics, word study), a fluency lesson, and engaging activities in writing. Increasing teacher effectiveness is imperative so that teachers have the knowledge and skills to provide this instruction as well as differentiate reading instruction for children who struggle. Teachers should be able to provide intensive literacy intervention and specially designed instruction tailored to individual student needs. Effective instruction in reading for children who are at risk for reading problems or learning disabilities can reduce risk, especially when delivered early, as in kindergarten and first grade, and when targeted to meet

individual needs in the context of one-on-one or small group instruction (Bratsch-Hines, Vernon-Feagans, Varghese, & Garwood, 2017).

Research indicates that many of the approaches for providing reading instruction for students with disabilities are inadequately intensive, lacking the specialized instruction associated with improved reading outcomes and aligned with students' needs. Many students who struggle with reading are taught in large groups, with infrequent differentiation, low opportunities for engagement in explicit reading instruction, and generally students spent too much time passively learning and doing worksheets and independent work that did not provide adequate feedback (Vaughn & Wanzek, 2014). Children with disabilities, particularly those who have speech, language, and literacy delays benefit from interventions such as small group vocabulary instruction using automated storybooks reading or individualized literacy skill interventions (Greenwood, Carta, Schnitz, Irvin, Jia, & Atwater, 2019). They also require targeted instruction in comprehension, vocabulary and phonemic awareness and decoding. Consistent with the research on evidence-based literacy instruction is the need for explicit and systematic teaching of the key components of literacy.

In the next section, I will discuss the critical drivers of improving reading achievement among students with disabilities. The drivers I have selected are based on the causal analysis and my theory of improvement which is that if early evidence-based literacy instruction is provided in core general education instruction for all students, including struggling readers and those with identified disabilities, then reading achievement will increase and less intensive intervention later will be needed. Based upon the research, as well as the current status of reading performance in District C, I have developed the following drivers and theory of improvement.

E. Drivers and Theory of Improvement

Based on the analysis of the causal factors, the research indicating the critical importance of establishing foundational literacy skills early and the current status of reading performance in District C, my improvement aim and drivers focus on the early years (K-1). Further, the drivers focus on school instructional factors that have been shown to be the most effective in improving reading performance for struggling readers including students with disabilities. My aim is to increase the scores of at least 10% of those kindergarten and first grade students, including students with IEPs, who scored in the bottom quintile on the MAP reading assessment to quintile 2 or above by the end of school year 2022-2023. This aim is focused on grades K and 1 as this is when foundational reading instruction occurs and this is the opportune time to change the trajectory of reading performance of struggling readers to prevent reading failure and to prevent the need for special education services. The MAP, which was discussed earlier, is the selected measurement tool for the aim as it is a consistent, reliable and norm referenced assessment which is used as a universal screener and a growth measurement and is administered three times per year to all students in grades K-12 in District C.

In order to improve the reading achievement of students with disabilities and narrow the gaps by third grade, there are a number of changes that can be implemented. Based on the research reviewed in the previous section, the primary driver for raising the low literacy achievement of students with disabilities is to provide access to early evidence-based literacy instruction for all students including students identified as struggling readers and students with disabilities. I've chosen to focus on the primary driver of implementation of evidence-based literacy practices in the primary grades (K-1) as this is the most powerful driver within my

sphere of influence for improving reading achievement for all students, including students with IEPs. In order to achieve the primary driver, all k and grade 1 general and special education teachers will need to be able provide instruction in the five areas of reading through the use of evidence-based instructional strategies. Therefore, the secondary driver that must be implemented in order to support the delivery of early evidence-based literacy instruction is by September 2022, for all K-1 teachers to demonstrate that they have the knowledge and skills to provide early evidence-based literacy instruction to all students, including students identified as struggling readers and students with disabilities. There are two tertiary drivers which are: a) the school system must provide that a Multi-tiered System of Supports (MTSS) be implemented with consistency in at a minimum in grades K-1 and b) targeted professional learning/professional development will be provided to all teachers in grades K-1 that focuses on evidence-based early literacy instruction in the five areas of literacy. Figure 2 is a diagram which presents the drivers which will be discussed in the following sections.

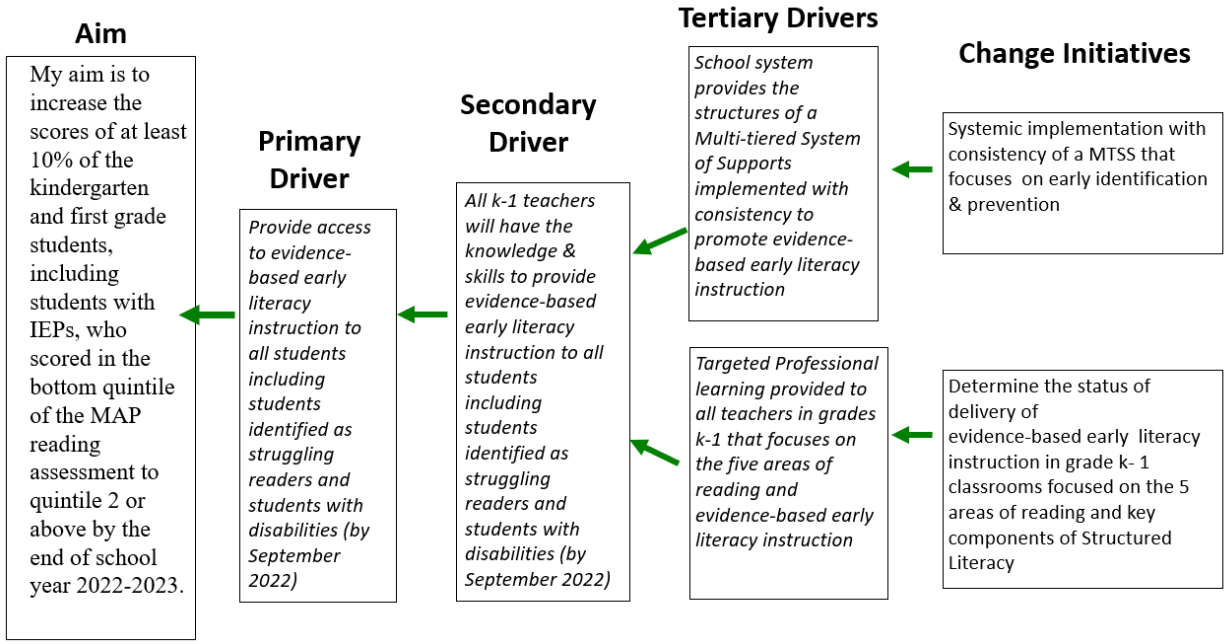

Figure 2: Driver Diagram

Primary driver: Provide early evidence-based literacy instruction. As discussed earlier, evidence-based instruction must occur in the five areas of reading: phonemic awareness, phonics, fluency, comprehension and vocabulary. Evidence-based literacy instruction in the five areas of reading needs to be explicit and systematic and involves teachers carefully selecting and sequencing instructional targets, explicitly modeling skills, providing immediate corrective feedback and ensuring students have multiple opportunities to practice to mastery, and encouraging student engagement (Otaiba et al., 2019). Structured Literacy incorporates these components of evidence-based literacy instruction. Structured literacy instructional approaches are effective for all students but are especially critical for students with or at-risk of reading problems (Otaiba et al.,). Evidence-based early literacy instruction includes providing sufficient

time for students to practice reading as well as the early identification of reading difficulties and early intervention and intensive instruction to remediate and teach children the foundational reading skills and to prevent reading failure.

The implementation of structures to support early evidence-based literacy instruction is necessary for providing the necessary reading instruction. The change initiatives relating to this secondary driver of structures and models include implementing structured literacy and the use of multisensory techniques, as well as the implementation of a Multi-tiered System of Supports (MTSS) focused on early identification and prevention.

Structured Literacy instruction. According to Louisa Moats (2019), "Structured Literacy ™ (SL) is the most effective approach for students who experience unusual difficulty learning to read and spell printed words." (Moats, 2019, Pg 9). Structured Literacy ™ refers to the content and the methods of instruction and means the same kind of instruction as the terms multisensory structured language education and structured language and literacy (Moats, 2019). According to IDA (2017), most individuals with dyslexia need help from a teacher or professional trained in a structured literacy approach. See Table 5 for elements and instructional practices of Structured Literacy. Strong evidence exists supporting that the majority of students learn to read better with structured teaching of basic language skills, and that the components of Structured Literacy ™ are critical for students with reading disabilities including dyslexia, which unfortunately is in contrast with approaches that are popular in many schools (Moats, 2019). Most reading disorders originate with language processing weaknesses which is why the content of instruction needs to involve analysis and production of language at all levels: sounds, spellings for sounds and syllables, patterns and conventions of the writing system, meaningful parts of words,

sentences, paragraphs, and discourse within longer texts. "Decoding of print is possible only if the reader can map print to speech efficiently; therefore, the elements of speech must be clearly and consciously identified in the reader's mind," (Moats, 2019, pg. 9). For high quality evidence-based literacy instruction to be provided, the guiding principles for teaching structured literacy need to be in place which include systematic and cumulative instruction, explicit instruction and diagnostic teaching. Specific student-teacher interactions that need to occur during beginning reading instruction include explicit teacher demonstrations, student independent practice, student errors, and teacher corrective feedback (Smolkowski & Gunn, 2012). It is important to focus not only on the elements of structured literacy, but on the quality of the instruction delivered through the principles for teaching the content which are evidence-based instructional practices. Structured literacy is characterized by the approach of systematic, explicit instruction (IDA, 2017).

Table 5

Structured Literacy Instruction Elements & Principles

Critical Elements of Structured Literacy	**Description**
Phonology	Study of sound structure of spoken words; Phonological awareness includes rhyming, counting words in spoken sentence, clapping syllables in spoken words. An important part of phonology is phonemic awareness- the ability to segment words into their component sounds (phonemes). Phoneme- the smallest unit of sound in a language; example the word *cap* has 3 phonemes (/k/, /a/, /p/).
Sound-Symbol Association	Once students develop awareness of phonemes, they must learn how to map the phonemes to symbols/printed letters. Sound-symbol association must be taught and mastered in 2 directions; visual to auditory (reading) and auditory to visual (spelling). Students must master the blending of sounds & letters into words as well as segmenting of whole words into individual sounds. Instruction of sound-symbol association is often referred to as phonics.
Syllable Instruction	Syllable- a unit of oral or written language with one vowel sound. Instruction includes teaching the 6 basic syllable types in the English language: closed, vowel-consonant-e, open, consonant-le, r-controlled, and vowel pair. Knowledge of syllable types is an important organizing idea. By knowing the syllable type, the reader can better determine the sound of the vowel in the syllable. Syllable division rules heighten the reader's awareness of where a long, unfamiliar word may be divided for great accuracy in reading the word.
Morphology	Morpheme- the smallest unit of meaning in the language. Structured literacy includes the study of base words, roots, prefixes, suffixes. Ex. The word *instructor* contains the root *struct*, which means *to build*, the prefix *in*, which means *in* or *into*, and the suffix *or*, which means *one who*. An instructor is one who builds knowledge in his/her students.
Syntax	The set of principles that dictate the sequence & function of words in a sentence in order to convey meaning. This includes grammar, sentence variation, and mechanics of language.
Semantics	The aspect of language concerned with meaning. Instruction in the comprehension of written language must be in place from the beginning.

Guiding Principles for Teaching Critical Elements	Description
Systematic & Cumulative	Structured literacy instruction is systematic and cumulative. Systematic- organization of material follows the logical order of the language. The sequence must begin with the easiest and most basic concepts & elements and progress methodically to more difficult concepts & elements. Cumulative- each step must be based on the concepts previously learned.
Explicit Instruction	Structured literacy instruction requires the deliberate teaching of all concepts with continuous student-teacher interaction. It is not assumed that students will naturally deduce these concepts on their own.
Diagnostic Teaching	Teacher must be adept at individualized instruction, that meets a student's needs. Instruction is based on careful and continuous assessment, informally and formally. The content presented must be mastered to the degree of automaticity. Automaticity is critical to freeing all the student's attention and cognitive resources for comprehension and expression.

Source: IDA (2017) *Dyslexia in the Classroom- What every teacher needs to know.*

According to the IDA Knowledge and Practice Standards for Teachers of Reading (2018), the following instructional principles are associated with the provision of Structured Literacy instruction:

1. Instructional tasks are modeled, when appropriate.
2. Explicit instruction is provided.
3. Meaningful interactions with language occur during the lesson.
4. Multiple opportunities are provided to practice instructional tasks.
5. Corrective feedback is provided after initial student responses.
6. Student effort is encouraged.
7. Lesson engagement during teacher-led instruction is monitored.
8. Lesson engagement during independent work is monitored.
9. Students successfully complete activities at a high criterion level of performance.

There is much value in incorporating structured literacy practices into general education. If schools incorporated the kinds of structured literacy practices outlined above as part of core instruction/Tier 1 general education instruction, many students could benefit, not just students

with disabilities (Spear-Swerling, 2019). In the primary grades, structured literacy practices involving phonemic awareness, phonics, spelling, and accurate oral reading of text are especially crucial to preventing literacy difficulties due to the fact that these skills form an essential foundation for reading comprehension and because most students' reading difficulties in these grades focus on decoding (Spear-Swerling, 2019). Implementing structured literacy practices in core general education instruction may prevent or ameliorate many reading difficulties (Spear-Swerling, 2019).

Multisensory techniques. Students have been shown to benefit from explicit instruction and intensive intervention in reading, especially in the early grades. Structured literacy is the most effective approach to teaching reading to students who experience unusual difficulty learning to read, including students with dyslexia. Multisensory techniques are also key for students with disabilities and difficulties with reading. The multisensory approach involves using teaching methods that engage more than one sense at a time. Involving visual, auditory and kinesthetic-tactile pathways a multisensory approach can enhance memory and ability to learn (The Gateway School).

The value of multisensory teaching and learning for clinical and classroom use has been known for over 75 years for students with dyslexia and other struggling readers (Birsh, 2019). Multisensory instruction is supported from the science of cognition and neuroscience, which is not familiar territory for most teachers (Birsh, 2019). Multisensory techniques are embedded into many well-established instruction programs and are central to their design (Birsh, 2019). Multisensory structured language lessons involve a daily structure which ensures students feel secure in knowing that the lesson is stable and predictable and designed for their success (Birsh,

2019). Neural systems for reading are malleable and highly responsive to effective reading instruction, even in individual's with dyslexia who's ability to read is affected (Birsh, 2019). Recent studies show that following intensive, systematic, structured language teaching with many instances of multisensory elements embedded into the programs, children and adults with reading disabilities demonstrated normalized brain patterns to aid their word recognition (Birsh, 2019).

Based on What Works Clearinghouse, the National Reading Panel and District Management Council (DMC) experiences, DMC established the 10 most essential best practices in teaching reading (Levenson & Cleveland, 2016). See Table 6. According to Levenson and Cleveland, (2016), districts have dramatically reduced the number of struggling readers by using these proven strategies, but unfortunately many districts fail to faithfully implement these best practices and tragically in too many districts, students with mild to moderate disabilities are more likely than general education students to be excluded from these practices.

Table 6

Elementary Reading Best Practices

Standards	• Clear and rigorous grade level expectations • Identification of struggling readers beginning in kindergarten • Frequent measurement of achievement
Core Instruction	• At least 90 minutes per day of balanced core instruction • Explicit teaching of phonics and comprehension
Intervention	• At least 30 minutes per day of additional time for all struggling readers • Tight connection of remediation to core instruction
Effective Teaching	• Highly skilled and effective teachers of reading
Management	• Put one person in charge of reading • Use instructional coaching and professional development

Source: (Levenson & Cleveland, 2016)

Multi-tiered System of Supports. Strong evidence-based core curriculum and instruction, along with early identification of at-risk students and the provision of preventive intervention are essential. Implementing a multi-tiered system of support (MTSS) for academics (RTI) and behavior, and collaborative instruction between general and special educators is key to providing effective instruction to all students (Sailor, 2015). One model that provides opportunities for intensive interventions is a MTSS with embedded response to intervention (RTI) (Sailor, 2014). Multi-tiered system of supports (MTSS) is an integrated model encompassing of academics and behavior which focuses on providing high-quality instruction and interventions matched to student need across domains and monitoring progress frequently to

make decisions about changes in instruction or goals. It involves the integration of both systems response to intervention (RTI) and school-wide positive behavioral interventions and supports (PBIS) (McIntosh & Goodman, 2016).

MTSS provides a structure for the provision of instruction needed to build the foundational skills for students in order to increase reading achievement. MTSS includes tiered instruction and supports matched to student needs. Tier 1 is universal/core instruction that involves planning and delivering instruction with principles of Universal Design for Learning (UDL) and differentiation to meet the needs of students.

An essential component of MTSS is for all students to receive evidence-based reading instruction in general education as part of Tier 1 instruction (Solari, Denton, & Haring, 2017). Additional reading support is provided in Tier 2 for students who are performing in the bottom 20% as compared with their peers. Tier 2 is typically provided in small groups with the goal of meeting grade-level benchmark scores in reading-related skills (Solari, et al.). Tier 2 involves supplemental interventions and Tier 3 involves intensive intervention for students who were not responding to Tier 2 instruction. Tiers 2 and 3 must focus on building the missing foundational reading skills (Fuchs & Fuchs, 2009). Tier 3 instruction involves more intensive intervention typically outside of the general education classroom setting (Solari, et al.).

Effective early reading interventions have demonstrated help with accelerating reading growth and closing the achievement gap between skilled readers and poor readers over time (Wei, X., Blackorby, J., & Schiller, E., 2011). The goal of MTSS frameworks in reading is to provide a continuum of increasingly more intensive supports aligned to student needs to prevent or ameliorate reading risk long-term effects (Coyne et. al. 2018). A large body of research exists

supporting the efficacy of small group reading interventions for students in grades K through 3 (Coyne et. al. 2018). According to a study conducted by Coyne et. al. (2018), which focused on providing Tier 2 supplemental reading intervention to students in grades 1 through 3 experiencing reading difficulties, results indicate that supplemental reading intervention implemented within an MTSS framework can impact key reading outcomes when the intervention significantly increases instructional intensity. The results of this study indicated statistically significant overall effects on measures of phonemic awareness and word decoding (Coyne et. al. 2018). Strong converging evidence exists supporting the efficacy of small group reading interventions on the literacy and reading outcomes of primary grade students with disabiities and experiencing reading difficulties (Coyne et. al. 2018).

There are fewer studies that have evaluated the effects of reading interventions implemented in more naturalistic, non-experimental settings such as schools implementing MTSS practices and systems, and the results of these studies are mixed. According to Coyne et. al. (2018), an example is Balu et. al. 2015, reported findings from the *Evaluation of Response to Intervention Practices for Elementary School Reading,* a national evaluation of RTI, which provided negative results which seemed to contradict the large body of research supporting the efficacy of small group reading interventions. This national study however, differed from typical studies of Tier 2 interventions in a number of ways to include: schools using different cut-points to identify students for intervention based on different universal screening assessments/procedures, schools made different decisions about the content, dosage, and delivery of interventions which caused variability, in some schools intervention replaced Tier 1 instruction rather than supplementing it, schools self-reported data about the level of

implementation of the RTI practices, and finally the regression discontinuity design of the study did not compare students who received intervention to students in a control or comparison group, but rather just compared students who scored just below and just above the cut-point of eligibility for intervention. This study is unlike other studies investigating the effects of reading interventions in which the dosage and delivery of a standard protocol treatment is carefully controlled by researchers (Coyne et. al. 2018). Coyne et. al. (2018) also reference a 2015 study by Baker et. al. which evaluated the effects of reading intervention within the context of an MTSS initiative which found that students who received Tier 2 intervention accelerated their performance on the Stanford Achievement Test by 10 percentile points beyond what their performance would have been if they had only received Tier 1 classroom instruction. Baker et. al. carefully controlled recruitment, screening, intervention implementation and ensured high levels of fidelity of MTSS practices (Coyne et. al. 2018). It may be that Tier 2 interventions need to be implemented with a high degree of intensity to accelerate reading outcomes and that this level of intensity goes beyond what typically occurs within an MTSS in most schools (Coyne et al., 2018). Instructional intensity includes ensuring that interventions use an evidence-based platform with content that is aligned to the needs of students, increase dosage, supplement Tier 1 instruction, are delivered with consistency, are implemented with fidelity, and implemented with quality (Coyne et al., 2018). Nationally schools are adopting MTSS frameworks to provide intesnive intervention supports to students experiencing academic difficulties (Coyne et. al. 2018).

Many students require intensive interventions due to the significance of their reading difficulties and/or disabilities. MTSS and RTI hold promise for addressing the needs of many

elementary students who are at risk for developing academic disabilities; however, between 2% and 7% of students continue to demonstrate poor response after receiving high-quality Tier 2 interventions that were implemented with fidelity (Lemons, Otaiba, Conway, & Mellado De La Cruz, 2016). As many as 25% to 50% of students with learning disabilities fail to respond adequately to Tier 2 interventions (Lemons et al., 2016). Intensive interventions are needed for these students (Lemons et al., 2016). One way to intensify interventions is through Data-Based Individualization (DBI) which is a framework for using data to guide adaptions to intensify intervention for students who have shown a persistent lack of response. DBI is research-based and is a validated method to help special educators to meet the needs of their students academically and behaviorally (Lemons et al., 2016). In many studies, students with disabilities demonstrated greater response to intervention when providers used DBI, with an average effect size of .70 favoring DBI across academic areas (Lemons et al., 2016). Special educators can use DBI to address persistent reading difficulties by tailoring intensive intervention to the student's individual needs (Lemons et al.). According to Lemons et al, despite the potential of DBI and that it is supported by over 25 years of research, few special educators today know how to use DBI to improve reading outcomes for students with severe academic and behavior needs. Further, in order to implement DBI in reading, special educators must be clinical experts in implementing a range of specialized and validated interventions and progress monitoring tools in flexible and skilled ways. Lemons, et al. state that special educators need knowledge of explicit reading instruction, how to implement evidence-based interventions, how to identify students who need additional intervention, how to use reading assessments to individualize instruction for

students and to determine whether they are adequately responding or need additional intervention.

Secondary driver. All K-1 teachers will have the knowledge & skills to provide early evidence-based literacy instruction to all students including students identified as struggling readers and students with disabilities (by September 2022).

As discussed earlier many teachers do not have the knowledge and skills to teach struggling readers, and many do not have knowledge of early evidence-based literacy instruction. However, almost every student needs to have explicit literacy instruction in the early grades to become a competent reader and all K-1 teachers need to have the necessary skills and knowledge to deliver that instruction. Further, not all K-1 teachers come prepared with those skills. The NRP (2000), in analyzing teacher prep, concluded that appropriate teacher education does produce higher achievement in students; therefore, investing in targeted professional development will increase reading achievement of students with disabilities and other struggling readers.

Tertiary drivers and change initiative. Two key tertiary drivers are necessary to ensure access to evidence-based early literacy instruction for all students. The first tertiary driver is for the school system to provide the structures of a MTSS implemented with consistency to promote evidence-based early literacy instruction focused on early identification and prevention. The second tertiary driver is for targeted professional learning/professional development to be provided to all teachers in grades K-1 that focuses on the five areas of reading and evidence-based early literacy instruction.

The change initiatives associated with these tertiary drivers include consistent systemic implementation of a MTSS that focuses on early identification and prevention of reading failure

and determination of the status of the delivery of evidence-based early literacy instruction in grade K- 1 classrooms focused on the 5 areas of reading and key practices of Structured Literacy in order to establish a baseline for developing and providing targeted professional development, coaching and resources to all K-1 teachers to increase their knowledge of and to support the use of specific evidence-based early literacy instruction.

Current status of literacy instruction in District C. District C has recognized that although a high performing district overall, students with disabilities have poor reading achievement. District C also recognizes that many primary grade teachers do not have the training and knowledge to effectively teach reading to students with reading difficulties and disabilities and has put some training into place over the past ten years. About 10 years ago, District C provided professional development in LETRS to some district leaders and a learning specialist at each school. LETRS, Language Essentials for Teachers of Reading and Spelling, is an IDA accredited professional development course that is designed to bridge research into practical classroom application (Voyager Sopris). LETRS provides educators the background, depth of knowledge and tools to teach language and literacy skills to all students. LETRS is comprised of eight units, which were delivered in eight full-day face-to-face sessions, but now may also be delivered through online modules. This literacy training is for preK-12 educators which provides them with the skills needed to master the fundamentals of teaching reading to include phonological awareness, phonics, fluency, vocabulary, comprehension, writing and language. The intent of training the specialists at each school was for them to then train others who taught reading at their schools. Some training did occur; however, the training varied from

school to school and was not provided to all teachers. The school-based learning specialist positions were eliminated a few years after the initial training.

Following the professional development in LETRS, District C brought in consultants from Readsters (Readsters, 2020) to do a three day training for all elementary (K-5th grade) teachers of reading focused on diagnostic teaching of phonemic awareness, phonics/decoding. This training along with follow up coaching was provided to general and special educators which built capacity. Teachers were provided diagnostic tools to assess students' performance and identify missing skills to target phonics instruction through a systematic method. This was helpful to teachers as District C no longer had a systematic curriculum for teaching phonics. Unfortunately, there was not a sustainability plan for ongoing training and support beyond the first two years, and there were not future opportunities for new teachers to receive the training.

In 2018, District C was awarded the Striving Readers Comprehensive Literacy (SRCL) grant by MSDE. The purpose of the federal grant was to support struggling readers at all grades. The grant directly aligns with MSDE's State Comprehensive Literacy Plan (CLP), *Maryland's Keys to Comprehensive Literacy*, which is focused on increasing literacy for all students from birth through grade 12. Maryland's CLP is focused on five key areas: instructional leadership, strategic professional learning, continuity of standards and evidence-based instruction, comprehensive system of assessments, and tiered instruction and interventions (MSDE, Maryland Public Schools.org).

District C chose to use the SRCL grant funds for the salaries of three literacy coaches who were assigned to support 6 schools (3 elementary schools and two middle and one high school) with the lowest reading achievement. SRCL grant funds also supported a data

coordinator to assist the district and the 6 schools with data-driven decision making for literacy and funded two rounds of LETRS training for at least one teacher at every school in the system. The grant will end at the end of school year 2021 and District C does not plan to continue funding the literacy coaches beyond the 2020-2021 school year due to lack of funding, and there is not a plan at this time for systemic training with LETRS of all teachers of reading, not even at the early grades.

District C offers a variety of reading interventions to struggling readers and students with identified disabilities. Trainings in delivery of the approved interventions are offered at least annually and some follow up and coaching is provided by special education reading specialists; however, there are only two reading specialists for the entire school system. Some schools have clear processes in place for reviewing and analyzing data and making decisions regarding reading instruction and intervention, however there is not a systemic process for this. District C began administering MAP to all students in grades k – 12 in the 2019-2020 school year which provides schools with a reliable and valid measure of reading performance and a tool to monitor growth. District C has also established a district level MTSS committee in order to plan for implementation of MTSS as the district recognizes this is a need for supporting all learners. Finally, District C has processes in place for revising curriculum to make ongoing improvements to help ensure the five areas of reading are taught in the primary grades.

In summary, District C has low reading achievement for students with disabilities, as supported by reading scores discussed earlier in this section. The above efforts focused on professional development for teachers involved evidence-based literacy practices, but due to a lack of sustainability and plans for future professional development for new primary grade

teachers, all primary grade teachers are not prepared to teach reading. With the LETRS training being offered through the SRCL grant, only one or two teachers at each school will receive the training, when all elementary teachers should be provided this training. District C provides reading interventions to students, but mostly in later grades when the gaps are more significant and District C does not have an MTSS in place focused on early prevention and early intervention. If core early reading instruction is strong, then more students will learn to read proficiently in the early grades and will not need special education services and intensive interventions. District C does not have a systematic curriculum for providing reading instruction at the early grades. Many years ago District C had a basal reading series, Open Court, which was a guide to systematic reading instruction, but was disbanded. Although evidence-based resources are available to teachers, without a systematic curriculum for teaching reading, teachers have to construct their reading instruction. As indicated earlier, many teachers lack the skills and knowledge to effectively teach reading to struggling learners and students with disabilities. Examining the current status of literacy instruction in the primary grades, specifically kindergarten and first grade, is necessary in order to determine the extent of early evidence-based literacy instruction in classrooms in order to drive instructional improvements. Based upon the research, the identified drivers, and the current status of reading performance in District C, I have developed my theory of action. Figure 3 presents the outcome, drivers, and change initiative.

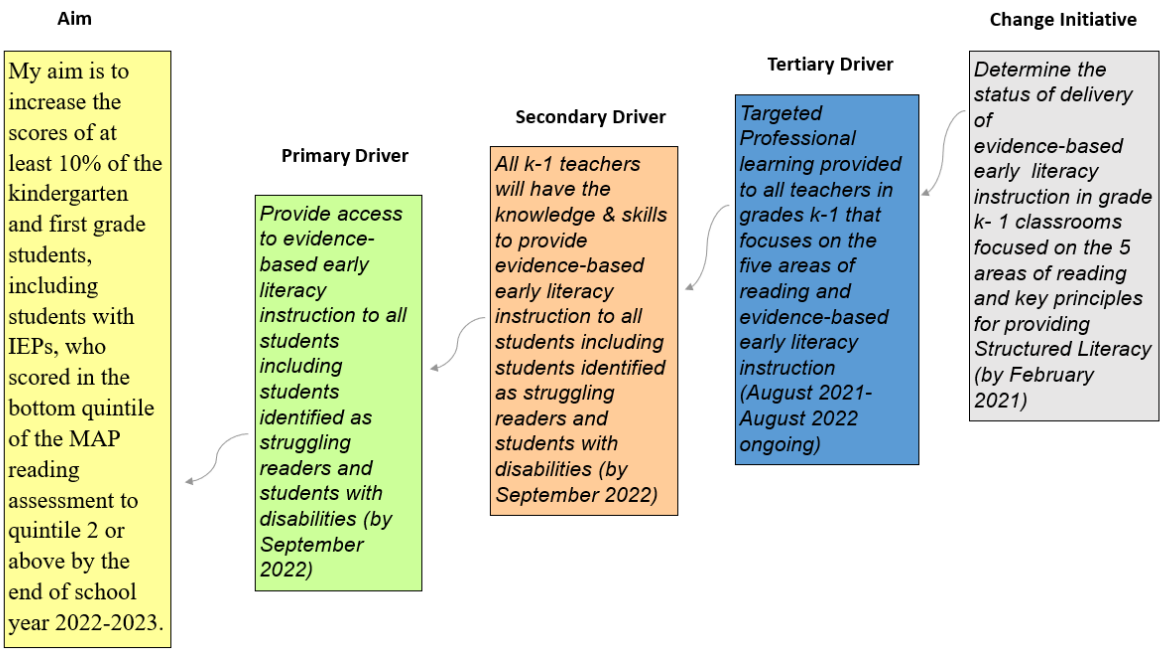

Figure 3. Primary driver of improvement and change initiative

F. Theory of Action

As stated above, my theory of action focuses on improvement initiatives that will support the primary driver, which is to provide access to early evidence-based literacy instruction to all students including students identified as struggling readers and students with disabilities. As discussed above, I believe that there is one secondary driver and two tertiary drivers that if addressed will lead to change in the primary driver to achieve the aim. Of the two tertiary drivers, I have chosen to focus on targeted professional learning being provided to all teachers in grades K-1 that focuses on the five areas of reading and evidence-based early literacy instruction. Although consistently implementing an MTSS focused on early identification and prevention of

reading difficulties is highly impactful, this requires a system wide "buy in" and implementation effort. Currently District C has not adopted MTSS as an initiative although a district committee has been formed to plan for implementation in the future. For this reason, I have determined that my change initiative will focus on the provision of targeted professional learning. However, as the term "targeted" implies, the professional learning must: 1. Ensure that every teacher receives sufficient professional development in each of the 5 areas of reading and key components of structured literacy and 2. That the professional development content and process be flexible and responsive to differing levels of teacher knowledge and demonstrated skill. In order to do that, I must first determine the current status of evidence-based early literacy instruction in grade K-1 classrooms to determine a baseline for teacher knowledge and instructional practices and the instructional gaps. Figure 4 presents my theory of action.

Determining the current status of implementation of evidence-based literacy instruction in the primary grades, specifically in grades k and 1 where the most critical foundational reading instruction occurs, is necessary because before we put practices into place we need to investigate what is happening in classrooms in District C and establish a baseline for making changes to curriculum, instruction and professional development for teachers. Effective schools rigorously examine the quality of core instruction as the first and most substantial method for fostering student learning (Frey & Fisher, 2017).

If I identify the current status of implementing evidence based early literacy instruction in kindergarten and first grade classrooms, which is when the critical foundational reading skills are taught, I will

Then be able to determine, develop, and deliver specific targeted professional development initiatives and other resources to build teacher capacity to deliver structured literacy in the early grades and then I will monitor the extent of teacher implementation of the practices of structured literacy instruction in the future to ensure

That evidence-based early literacy instruction will be implemented in grade k- 1 classrooms, that will

Result in an increase in the scores of at least 10% of the kindergarten and first grade students, including students with IEPs, who scored in the bottom quintile of the MAP reading assessment to quintile 2 or above by the end of school year 2022-2023.

Figure 4. Theory of Action

Summary and Purpose of Proposed Investigation. To meet the challenge to have all American students ready to compete in a global economy they must be able to demonstrate their conceptual and procedural knowledge and skills in English language arts (reading, writing, listening, speaking) and mathematics (Council of Chief State School Officers, 2010). The demand for high quality evidence-based early reading instruction is essential to create the foundations for proficient readers and increase reading achievement. Unfortunately, too many students, particularly those with disabilities struggle with reading.

As evidenced in the review of research in this Section, the causes of the low achievement in reading for students with disabilities are that early literacy instruction for students with disabilities and for struggling readers does not include evidence-based literacy practices, which is especially important in the early years. Early reading instruction is insufficient as it is not of

high quality due to the lack of recognition of the interrelated and cumulative effects of teaching foundational reading skills, there is a failure to identify struggling readers and offer preventive interventions through a tiered system of supports, and there is a lack of early evidence-based reading instruction.

As indicated earlier in this section, a high percentage of teachers lack the skills to teach struggling readers and are not skillful in implementation of early evidence-based literacy practices including Structured Literacy. Further, based on an analysis of current literacy instruction and teacher supports in District C, there appears to be a need to address the gaps in teacher knowledge and skills, particularly at the early grades. In order to design targeted professional development for early grade teachers it is first necessary to investigate the status of K-1 teachers' knowledge and implementation of evidence-based early literacy practices. Therefore, the purpose of the proposed investigation is to implement a descriptive quantitative study of teacher application and knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms, including key practices of structured literacy. This information will be used for determining, developing, and delivering specific targeted professional development initiatives and other resources to build teacher capacity to deliver evidence-based literacy practices in the early grades and will be used for future monitoring of evidence-based early literacy instruction.
Details of the investigation are presented in Section II.

Proposed Investigation. The purpose of this descriptive quantitative study was to determine the status of evidence-based early literacy instruction in the primary grades (K-1). Investigating teacher application and knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms, including key practices of structured literacy (explicit instruction including teacher demonstration, independent practice, and teacher corrective feedback in response to student errors) will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades (k and 1st) which will improve reading achievement for all students, including students with disabilities. The descriptive quantitative method was selected as I used a survey and conducted observations with a tool that yielded quantifiable data regarding early literacy practices.

As discussed earlier in this section, the research supports early evidence-based literacy instruction targeted in kindergarten and first grade as these are the most critical grade levels for providing the necessary foundation for learning to read. The status of kindergarten and first grade literacy instruction impacts the goal of ensuring students are reading by grade three and sets the trajectory for future academic success.

Section 2: Study Design

In this section I will discuss two major aspects of my study. First, I present the model for the implementation of the Theory of Action presented in Section 1, including major tasks and timelines. Second, I describe the investigation.

A. Implementing Theory of Action

My aim is to increase the scores of at least 10% of the kindergarten and first grade students, including students with IEPs, who scored in the bottom quintile of the MAP reading assessment to quintile 2 or above by the end of school year 2022-2023. In order to achieve this aim, I needed to assess the level of evidence-based early literacy instruction that is currently being implemented in k and 1st grade classrooms, determine professional development strategies and other resources that might be required to build teacher capacity and give teachers enough time, support and coaching to implement the evidence-based early literacy instruction. My projected timeline for testing my theory of action follows, beginning with an assessment of evidence-based early literacy instruction of K-1st grade classrooms by April of 2021 using a survey and a sampling of classroom observations. The actual timeline for the survey and classroom observations completion occurred between February and April 2021. I initially investigated the status of evidence-based literacy instruction in K-1 classrooms through surveying all teachers of reading of K-1 students regarding their classroom instructional practices and their knowledge and skills in regard to teaching reading. I also had observations conducted of a sampling of K-1 general education classrooms in the district conducted focused on student-teacher interactions encompassing of key practices of structured literacy and evidence-based early literacy instruction. Student MAP data for K-1 will also be further analyzed focusing on the winter and spring administrations in order to determine where the deficits in reading are for the lower performing and at-risk readers (students falling in the bottom quintile). Several steps will be taken beginning with a data analysis of K-1 MAP administration data to isolate specific skills in order to identify areas of greatest deficit for students scoring in bottom quintile. The ELA and

special education specialists will use data from the survey, classroom observations and MAP scores to prioritize the focus for the professional learning (literacy areas and instructional practices) including identifying and planning for resources needed for teachers to implement the evidence-based instructional practices. The information gathered from the survey and observations, as well as the skill isolated student data, will be analyzed by the end of this school year (2020-2021) and will be used by the departments of instruction and special education to collaboratively develop targeted professional learning.

The design and delivery of the professional learning will be in accordance with the newly revised Standards for Professional Learning which outline characteristics of professional learning that leads to effective teaching practices, leadership, and improved student results (Learning Forward, 2021). Consistent with the standards, K-1 teachers will participate from the beginning in the development as well as implementation of the initiatives throughout the 2021-2022 school year. Throughout the 2022-2023 school year as all K-1 teachers engage in professional learning, they will also provide evidence-based early literacy instruction, with coaching as needed to support this implementation. Both the survey and samples of classroom observations using the COSTI that were used in this study will be conducted at the end of the 2022-2023 school in order to monitor implementation of the evidence-based instructional practices.

At the conclusion of the 2022-2023 school year, results from the survey and classroom observations will be compared to 2021 findings to determine if the primary and secondary driver have been met. The Spring 2023 MAP data will also be analyzed to determine if the aim has been met. Based on these data sources, if, by the end of school year 2022-2023, evidence-based early literacy instruction is not occurring in all K-1 classrooms additional professional learning

activities will be designed and provided to K-1 teachers. If results show that both MAP scores and teacher instructional practices have met the targets, the survey and classroom observations will be implemented in 2nd grade in Fall, 2023. The entire process of measuring implementation and designing targeted professional learning will be repeated. The entire process must be implemented slowly and systematically in order to achieve the ultimate global aim of increasing reading achievement of all students, including students with disabilities by third grade. See Figure 5 for a timeline of the implementation process for my theory of action. This study is focused on the first phase of the implementation plan represented in the first box in the Figure 5 diagram. Figure 6 provides a breakdown of each of the steps outlined in the timeline for implementing my theory of action.

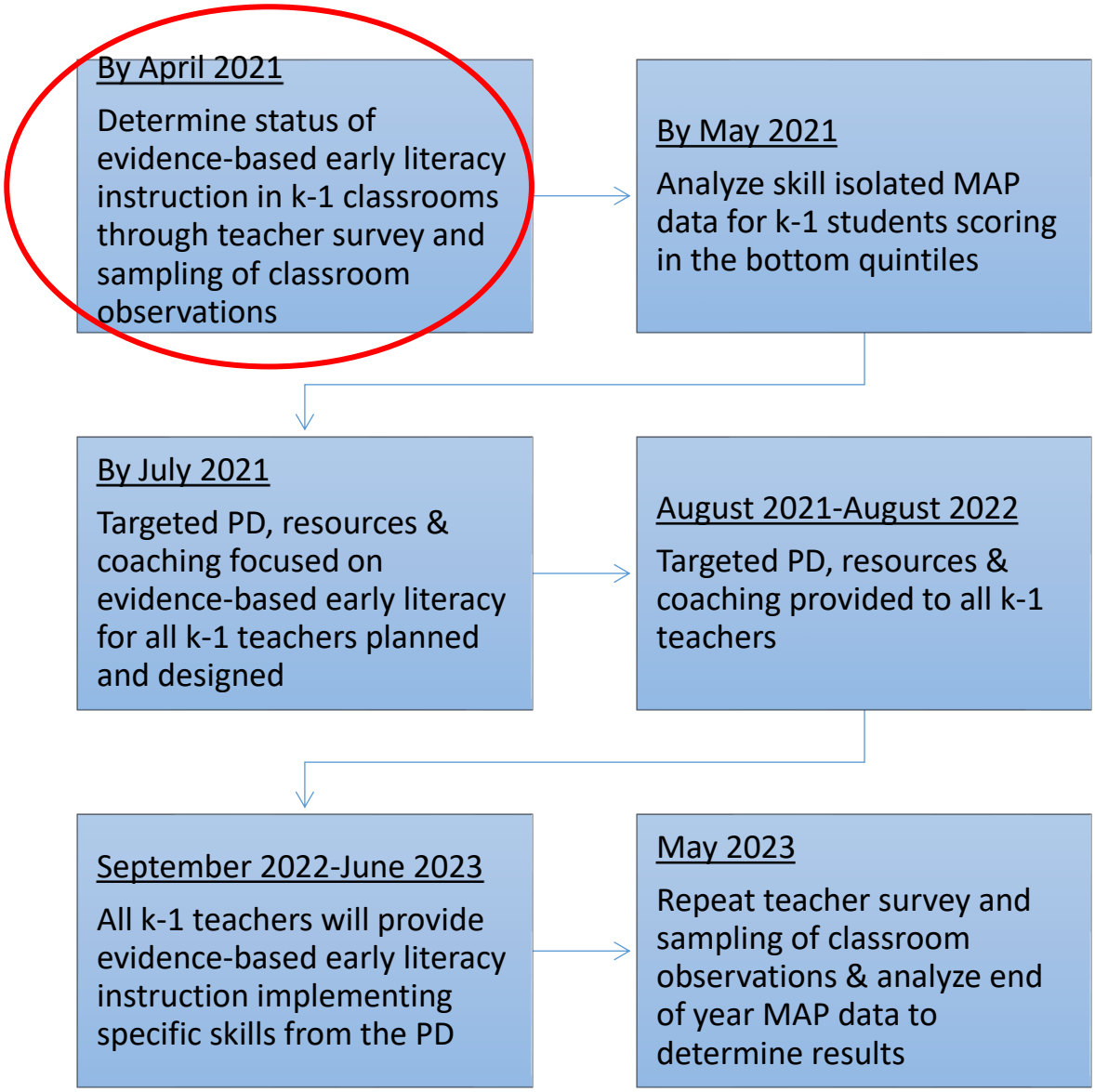

Figure 5. Timeline for implementing theory of action

This Dissertation Study		
By Apr.2021, Determine status of evidence-based early literacy instruction in k-1 classrooms through teacher survey and sampling of classroom observations	Analyze results from survey & observations	End of Dissertation Study

Next Steps Following Dissertation

STEP 1

By May 2021, Analyze isolated MAP skill data

Activities	Enablers	Outcomes
• K-1 Students take MAP administration • Data is analyzed by skill for all students and students scoring in bottom quintile (last 3 administrations analyzed)	• Data coordinator pulls system data by skill • ELA & special education dept. specialists analyze	• Identify skill areas of greatest deficit on MAP for all students and for students scoring in bottom quintile.

Step 2

By July 2021, Targeted PD, resources & coaching focused on evidence-based early literacy for all k-1 teachers planned and designed

Activities	Enablers	Outcomes
• ELA & spec. ed. specialists use data from survey, observations and MAP to prioritize focus for PD (literacy areas and instructional practices) • Specialists & select K-1 teachers design PD (online modules & in-person) and plan for delivery. • Identify /plan for resources needed for teachers to implement the instructional practices (materials of instruction, trainers/consultants for PD, consultant(s), coaching support & monitoring	• ELA & special ed. specialists, K-1 teachers to plan/design PD	• PD Developed, scheduled, resources secured • Fidelity checklists for monitoring implementation of practices designed

Step 3

August 2021 - August 2022, Targeted PD, resources & coaching provided to all k-1 teachers

PD Provided

Activities	Enablers	Outcomes
• Pilot PD with small group of teachers, collect feedback, modify as needed. • Provide PD to all K-1 teachers of literacy • Teachers implement the evidence-based instructional practices in areas targeted in PD • Ongoing coaching by specialists, coaches & teacher PLC follow-up discussions	• ELA & Special ed specialists, consultant(s), teacher volunteers for pilot; K-1 teachers	• PD Delivered to all K-1 Teachers • PD followed up with coaching, PLC discussions and recursive PD provided as needed • PD provided to new teachers who are hired (ongoing)

Step 4

September 2022 - June 2023, All K-1 Teachers will provide evidence-based early literacy instruction, implementing skills from the PD

Activities	Enablers	Outcomes
• Expectations set, refresher PD provided start of the year • Coaching ongoing & teacher PLCs focused on instructional practices • K-1 teachers will implement evidence-based instructional practices in the areas of reading of focus in PD	• ELA & Special ed. specialists set expectations, provide refresher PD, PLCs, coaching & monitoring with fidelity check tools	• Teachers will use the evidence-based instructional practices focused on in PD in the targeted areas of reading as measured by fidelity checks

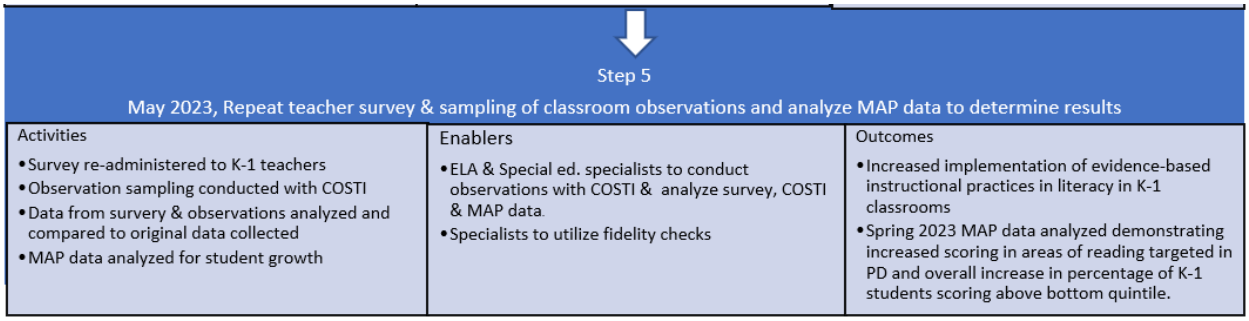

Figure 6. Breakdown of timeline for implementing theory of action

It is important to note that this study was conducted during the COVID-19 pandemic in which schools are operating under unprecedented conditions. There have been ongoing changes in service delivery models including school closures, virtual only instruction, hybrid model of instruction, and concurrent teaching (some of the students being in person and some virtual receiving the same instruction) and students were not receiving their typical amount of instruction nor the same type of instruction.

Due to the pandemic, there is a possibility that many students in District C lost skills and did not make the typical progress they would if regular school was in session. A new study by researchers at Stanford Graduate School for Education (Spector, 2021; Dominigue, 2021) provides evidence that first through fourth graders' oral reading fluency scores abruptly stopped in spring 2020 after the sudden nationwide school closures due to the COVID-19 pandemic. The study also reported that these students' reading skills remained stagnant over the summer of 2020. This new study measured student's skills periodically throughout the year in order to assess growth at different stages of the COVID-19 pandemic. Over 100,000 students in over 100 school districts across 22 states were given an oral reading fluency assessment and the oral

reading fluency assessment trend data from back to 2018 was analyzed. The study found that although students made growth in oral reading fluency during Fall 2020 that was comparable to that of a typical year, the growth was not robust enough to recoup the lost skills. Further, the study found 2nd and 3rd grade students were most affected and on average are now approximately 30% below expected oral reading fluency (Spector, 2021; Domingue, 2021).

Spector's study (2021) also noted that it is important to consider the impact of the closures and the pandemic on teachers. Many teachers have experienced a great deal of stress and have had to deal with many challenges and much new learning. For instance, most of the teacher professional learning in District C has been focused around virtual instruction and technology, with minimal professional learning on strengthening content such as the science of reading and providing evidence-based reading instruction. All of these impacts need to be considered when examining the results of my study.

B. Proposed Investigation

The purpose of this descriptive quantitative study was to determine the status of evidence-based early literacy instruction in the primary grades (K-1) which is the first phase in the implementation plan of my theory of action. Investigating teacher application and knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms, inclusive of key principles of structured literacy, will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades (k and 1st) which will improve reading achievement for all students, including students with disabilities.

Current recommendations for evidence-based best practices in early literacy instruction are focused on direct and explicit teacher instruction and corrective student feedback which are key principles of structured literacy (Foorman, et al., 2016). The observations focused on the quality of the instruction through these principles of delivering explicit instruction aligned with structured literacy. The descriptive quantitative method was selected as a survey was used and observations were conducted with a tool that yielded quantifiable data regarding early literacy practices.

C. Research questions.

The questions below guided my investigation of K-1 classroom literacy instruction to determine to what extent evidence-based early literacy instruction is implemented during the literacy block for all students (core instruction) in grade K-1 classrooms.

1. To what extent do teachers in grade K-1 classrooms report having the knowledge and skills to teach all students using evidence-based early literacy practices in the five areas of reading? (survey)
2. What challenges to implementing evidence-based early literacy practices do K-1 teachers report? (survey)
3. To what extent do a sample of K-1 teachers implement evidence-based literacy practices aligned with key principles of structured literacy? (observation)

D. Design and methods

I used a descriptive quantitative design (Creswell & Creswell, 2018) involving a web-based survey and observations of a sample of K-1 classrooms using the COSTI observation

protocol in order to address the three research questions. The survey investigated the status of evidence-based early literacy instruction in K-1 general and special education classrooms by asking teachers about their classroom instructional practices and their knowledge and skills in regard to teaching reading. The survey also obtained teachers' reports of the challenges they face in implementing evidence-based literacy practices. Structured classroom observations of teacher-student interactions in a sample of K-1 classrooms were conducted to determine the extent to which the key practices of structured literacy are implemented during literacy instruction blocks. The survey and classroom observations were conducted concurrently.

I chose this research design, descriptive quantitative, because it provided valuable information regarding the status of the implementation of evidence-based early literacy practices in K-1 classrooms. Social researchers use descriptive research to answer questions to determine what is going on (De Vaus, 2001). Good descriptive research adds significantly to our knowledge of what is happening in society (De Vaus, 2001). Social surveys are a prime example of quantitative research and are evaluated and analyzed statistically. Quantitative surveys can provide valuable information by asking participants directly for feedback rather than only looking at information from outside perspectives (De Vaus, 2001). In my study, the teachers themselves provided information through a survey. This descriptive quantitative design of this research study enabled me to gather information directly from the teachers about their knowledge, skills and teaching of early literacy and it enabled me to gather evidence from classroom observations of teacher actions/instructional practices.

The quantifiable data from both methods, the teacher surveys and the classroom observations, will be used to drive targeted professional learning for teachers. According to

Bryk and colleagues (Bryk, Gomez, Grunow, & LeMahieu, 2015), in order to improve and make good progress, the golden rule is to observe and consult with the people on the ground who know the most about the problem which for education means that if we want to improve the quality of teaching, we should pay close attention to the work teachers are doing and to what matters to those who are doing the teaching. My design and methods align with Bryk et al. as the teachers were surveyed regarding their knowledge, skills and practices of providing evidence-based literacy instruction; their work was observed, and then later in the implementation process when this information is used to design the targeted professional development additional teacher input will be solicited.

Study in relation to Theory of Improvement. My aim, as stated earlier, is to increase the scores of at least 10% of the kindergarten and first grade students, including students with IEPs, who scored in the bottom quintile to quintile 2 or above on the MAP reading assessment. In order to achieve that aim, young students need to have access to high quality literacy instruction which will require that all teachers in K-1 classrooms have the capacity to deliver evidence-based instruction that includes key drivers of structured literacy instruction in the five areas of reading. Therefore, the first step in the improvement process required an assessment of the level of evidence-based early literacy instruction currently being implemented in K and 1st grade classrooms.

The assessment of early literacy instruction in K-1 classrooms including the teacher survey and classroom observations were completed between February and April 2021. In March through June 2021, student MAP data for K-1 students was further analyzed in order to determine the specific skill deficits of individual students scoring in the bottom quintile. The

information gathered from the survey and classroom observations, as well as the individual MAP scores will be used by the departments of instruction and special education to collaboratively plan and develop targeted professional development to be provided during the 2021-2022 school year. All K-1 teachers will be expected to implement evidence-based early literacy instruction beginning in the 2022-2023 school year. In May of the 2022-2023 school year, the survey and a sampling of classroom observations will be repeated to determine if the primary and secondary driver have been met and the end of year 2023 MAP data will be analyzed to determine if the aim has been met.

Based upon the end of year 2023 data, if evidence-based early literacy instruction is not occurring in all K-1 classrooms then additional professional development will be designed and provided to K-1 teachers, or if the change initiative is successful, this process will then be expanded to second grade beginning the following school year. The entire process must be implemented slowly and systematically to achieve the ultimate future aim of increasing reading achievement of all students, including students with disabilities by third grade.

Participants. Participants invited to participate in the survey were full time classroom teachers and special education teachers who provide literacy instruction to children in K-1 classrooms in District C as of September 2020. These selection criteria included general and special education teachers since both deliver literacy instruction to K and 1st grade students. All K-1 teachers were invited to participate in the survey, but for the classroom observations all general education K-1 teachers were offered to volunteer, except for first year teachers. Teachers who are in their first year were not be asked to participate in the observations due to the extensive learning curve of first year teachers and given the circumstances surrounding the

COVID-19 pandemic and changing instructional delivery models (virtual instruction, hybrid instructional model, concurrent instruction) as this was an atypical year.

As of September 2020, District C had 12 elementary schools, and a total of 47 general education kindergarten and 51 general education first grade teachers (98 general education teachers). 21 special education teachers were working in these schools and assigned to teach literacy to grades K-1. Although there were 119 K and 1 teachers of reading in September, there were only 114 when the survey was sent in February; therefore, 114 teachers were invited to participate in the survey portion of the study.

Participants selected for the classroom observations were selected from 5 of the 12 elementary schools. First, all 12 elementary schools were sorted into one of the 3 sections of the school system (north, south, central). There were 4 schools in each district. Then 2 schools from each district were randomly selected. This method of selection was used as there are varying demographics in each of the 3 regions of the county and this allowed for a sampling of observations in 50% of the elementary schools in the district. Within each of the 6 schools, 1 kindergarten and 1 first grade general education teachers were recruited to participate with the goal of conducting 10-12 general education teacher observations. Special education teachers were not included in the observation since the goal is to determine the status of evidence-based early literacy in core instruction which is predominantly in the general education environment.

Instruments. Two instruments were used to collect data for this investigation. A survey was used to address two of the research questions and a classroom observation protocol was used to address the third research question.

Survey. To address Research Questions 1 and 2, I used a web-based survey using the Qualtrics platform. The survey items were created using a component of the reading/language arts instruction survey, the Study of Instructional Improvement, that was developed by the University of Michigan (Loewenberg, Ball, Cohen & Rowan, 2010). I used that survey as a source for creating some of the items on grouping approaches and resources used for planning and delivering literacy instruction in the survey I created for this study. This survey has two sections with a total of 9 items (see Appendix A). The first section of the survey has 3 items asking teacher role (K, grade 1 or special education teacher), number of years teaching and number of years teaching primary grades. The second section of the survey consists of 6 Likert scale items that address Research Questions 1and 2. The first two items address Question 1 and asked teachers to indicate, on a scale from 1 to 5 (no knowledge/skills, some knowledge/skills, about average knowledge/skills, above average knowledge/skills, high level of knowledge/skills), the extent of their knowledge and skills related to providing instruction in each of the five areas of reading (phonemic awareness, phonics, fluency, comprehension, vocabulary). The next item asked each teacher to rate how often, on a scale from 1 to 5 (never, about once or twice a month, about once a week, no more than twice a week, every day), he/she uses certain instructional and grouping approaches as well as resources for planning and delivering instruction. In order to address Research Question 2, a third survey item asked teachers about the level of challenge they faced in implementing evidence-based early literacy instruction (no challenge, minimal or occasional challenge, not particularly challenging, considerable challenge, extremely challenging). The challenges are: allotted time for literacy instruction, availability of comprehensive literacy curriculum materials and planning time. The

final survey item asked teachers to select any of the five areas of literacy instruction for which they would like to have professional development.

Classroom observations. A second instrument, the Classroom Observations of Student-Teacher Interactions (COSTI) (Smolkowski & Gunn, 2012) was used to address Research Question 3. The COSTI is an observation system designed to evaluate the quality of literacy instruction which will be used to observe evidence-based literacy practices in a sample of K-1 classrooms. The COSTI documents the frequency of four teacher-student interactions during beginning reading instruction: explicit teacher demonstrations, student independent practice, student errors, and teacher corrective feedback which are all key practices to delivery of structured literacy. According to Smolkowski and Gunn, the COSTI was developed to quantify the rates of specific instructional interactions that occur between teachers and students and is both a reliable and valid data collection tool to measure the quality of literacy instruction in kindergarten classrooms.

Procedures. The study began following approval by the University of Maryland Institutional Review Board and the District C Office of Information Technology. To initiate the study an email was sent to the supervisor of elementary reading in District C to share information about the study (See Appendix B). A list of K-1 teachers of reading at each school was obtained from a district database. Emails for these teachers were taken from the district website and an email was sent to all K-1 teachers of reading explaining the purpose of the study, the voluntary nature of the study and confidentiality. (See Appendix C)

Survey. The online survey using the Qualtrics platform was anonymous. All K-1 general and special education teachers of reading were asked to participate in the survey given a two-week

completion timeframe. The email to teachers included a link that took them to the survey in Qualtrics which included the purpose of the survey, a brief explanation of the types of questions, and statements about the anonymous and voluntary nature of the survey. If the teacher agreed to participate in the survey, he/she was taken to the first survey question. I monitored survey returns and sent a personalized email reminder to each teacher after one week. Prior to the survey closure, I sent an email to the teachers as a reminder to complete the survey and included the number of participants who completed the survey to date, which was taken from Qualtrics.

Classroom observations. The observations were conducted using the COSTI which is an observation system designed to measure the quality of literacy. A sample of 10-12 classrooms (5-6 K and 5-6 Grade 1) were selected through a multi-stage process, although only 8 actually ended up participating. First, all 12 elementary schools were sorted into one of the 3 sections of the school system (north, south, central) with approximately four schools in each section. I then randomly selected two schools in each section of the district, although one school had no teachers volunteer to participate, five schools had volunteers. The goal was to conduct a K and a grade 1 observation in each school; however, two schools only had one volunteer participate. When I was unable to get at least 10 teachers total, at least 2 per school, to participate I considered attempting to add another teacher from one of the six selected schools, but given the difficulty getting volunteers, the multiple efforts to get the volunteers and the timeframe to complete the study, I did not attempt this. With three observations, in most cases of different areas of reading, being conducted within the literacy block for 10-12 teachers, a total of 30 -36 twenty-minute observations were anticipated to be completed, although only 8 teachers participated with a total of 24 observations being completed.

In order to recruit teacher participation for observations, I sent an email to the principals of the 6 elementary schools identified to participate explaining the study and requesting permission to observe instruction in their K and 1 classroom (See Appendix D). Once the principal gave permission for participation, I asked the principal to share that he/she has agreed to participation in the study and that teachers will be receiving an email from me asking for their voluntary participation. I then emailed the general education K-1 teachers about the classroom observation portion of the study, asked for their voluntary participation and explained the voluntary nature and that there would be no consequences if they did not agree to participate (See Appendix E). The email included a link to a video recording of me explaining the study purpose, overview and benefits which were also written in the email. I shared that participation in the observations would not only provide valuable information for driving professional development for K-1 teachers but would allow for the teacher to get specific confidential feedback on their literacy instruction. For participation in the three observations, teachers were provided a small token of appreciation of a gift card and were entered into a drawing for a larger gift card. Teachers were asked to reply to my email to let me know if they were volunteering to be observed. Since each school had an insufficient number of teachers respond with a yes, I asked the principal to recommend a teacher(s) who may agree if asked personally and I then asked the teacher(s) to consider volunteering. I only had one teacher who volunteered without being personally asked.

The COSTI can be used to provide teachers feedback on their instruction in basic skills and for research on effective instructional practices and to document teacher interactions and response to student actions. It is important to reliably measure teacher interactions with students during instruction and demonstrate the teacher's ability to provide sufficient and timely

interactions which the COSTI is designed to capture (Smolkowski & Gunn, 2012). Because feedback on instruction is important for teachers, following the completion of the third classroom observation, a summary of the results of all three observations were shared with the teacher in written form and a review via verbal conversation was offered. For the five teachers who accepted the verbal feedback offer, this conference was held confidentially about a week following the third observation on a mutually agreeable date and time.

The classroom observations were conducted by 6 trained observers who are current employees of District C. They were experienced in supervising or delivering instruction in reading/English language arts. They included special education specialists and reading specialists. In order to be trained in the COSTI, I consulted with the authors from a large local mid-Atlantic university who have training and experience utilizing the COSTI and have a related study submitted for publishing (Kelly, Cummings, Silverman, Taboada Barber, & Espinas, 2020). The first authors agreed to train the observers on the COSTI for this study which involved an online training with a Power point presentation on the system and the codes, an overview of the observation of the observation codebook, as well as watching two instructional videos and practicing use of the COSTI which was approximately 2 hours in length. There was also a follow-up session held to view videos and practice coding with the trainer. The observers then engaged in watching instructional videos on their own and completing the COSTI until at least 80% reliability was achieved. All observers spent many hours watching videos and comparing coding to go through a gold standard setting process.

Three observations were conducted in each classroom in order to get samplings across the five areas of reading. To obtain interrater reliability among observers, at least 30% (8 out of the

24) of the observations were conducted by two observers. They each separately completed the COSTI during the observations, one observation of the same teacher and compared coding with later watching the video and coming to 100% consensus as a gold standard. The observation procedures were similar, but on a much smaller scale, to the observation procedures implemented in the study conducted by Smolkowski and Gunn (2012) on the reliability and validity of the COSTI for kindergarten reading instruction. The mean observation duration using the COSTI was 23.5 minutes in Smolkowski and Gunn's study which involved collection of 66 observations on 22 teachers in 2005, 115 observations on 39 teachers in 2006 and 54 observations on 18 teachers in 2007.

The observations were coordinated directly between the observer(s) conducting the classroom observation and the teacher. When scheduling each observation, the teacher let the observer(s) know which area(s) of reading would be addressed during that timeframe of the reading/literacy block. All observations were conducted virtually, where the observer joined via link to the classroom provided by the teacher with camera turned off. Teachers were asked to record the lessons and give access to the observer(s) following.

E. Data analysis.

Survey responses were analyzed using the basic descriptive statistics through use of the Qualtrics platform. Analysis consisted of simple item response frequencies. he data from the observations included frequency of observed occurrence of a specific interaction (explicit teacher

demonstrations, student independent practice, student errors, and teacher corrective feedback) and sequence of interactions, number of students included, duration of the observation, reading area addressed, instructional grouping and level of student engagement. In addition, because the COSTI is norm referenced, Smolkowski and Gunn (2012) established percentile ranks associated with each of the four interaction variables, which are also reported in my study results. This tells us which percentile the mean of observation frequencies falls in for each interaction.

Teacher responses to survey items and the observation frequency data from the COSTI are presented visually as well as summarized to include a discussion of identified patterns. See appendix F for Example coding form cover sheet and COSTI code sheet for research.

Protection of human subjects. To protect District C and the University of Maryland, I adhered to the following procedures to ensure that no identifiable subject data was used. There was not a need for parental permission for students in the classrooms being observed as the COSTI focuses on teacher actions and interactions in the classroom and does not record any individual data on students.

- All participants who received the survey link received in an email a description and nature of the survey.
- Participants were asked to complete consent forms: for the survey in Qualtrics prior to survey completion and before the initial classroom observation.
- Teacher names were not reported in order to maintain confidentiality.
- Final documents only report results in aggregate forms.
- Individual teacher data from observations was only shared with that teacher and no one else.

- The observers delivered the data they recorded on the hard copy teacher observation to me in a sealed envelope and I gave each teacher an alpha numeric code when compiling the data. The coding was kept confidential on my password protected computer. After the 3 observations, the teacher confidentially got their own compiled data summary in written form from me and was offered a verbal review by me as well. I was the only one compiling data, the only one who knew the overall performance of the individual teachers (other than that teacher), and the only one to give the teacher feedback. No one saw how teachers compared to each other, except for me, and only aggregated data was reported in the study. The staff conducting the observations, including myself, have no supervision over these teachers as their principal is their supervisor and evaluator. The observers simply served as data collectors working under my direction as the researcher.
- Study participants were told that they can have a copy of results once study is completed.
- Data from surveys and observations will be saved for 3 years on a passcode protected computer and will not be shared with anyone. After 3 years all data will be erased.

F. Summary

A descriptive quantitative study was conducted in order to gain information through a teacher survey and classroom observation samplings of the extent to which evidence-based early literacy instruction is being delivered in K-1 classrooms as well as existing barriers and challenges for teachers to implement evidence-based early literacy instruction in K-1.

Determining the status of evidence-based practices literacy instruction in early primary grades (K-1) will help to inform District C by identifying current practices in place to develop and provide teacher professional development and improve core instructional practices to ensure implementation of high quality early evidence-based core literacy instruction which is the foundation of reading instruction. Once the status of implementation of evidence-based early literacy in District C is determined and targeted professional development, resources and coaching are provided to all K-1 teachers, then all K-1 teachers will have the knowledge and skills needed to provide early evidence-based instruction and all students will be provided access to evidence-based early literacy instruction. Strong evidence-based core literacy instruction in grades K-1 will increase reading achievement of all kindergarten and first grade students, including struggling readers and students with disabilities. If a strong foundational reading base is established in grades K-1, then students will be on a path for a successful reading trajectory.

Section 3: Results and Conclusions

The previous sections of this dissertation communicate the problem of low reading achievement and the severity of the reading achievement gap, as well as the importance of learning to read in the early grades. High quality early literacy instruction is imperative in order to increase reading achievement for all students, especially students with disabilities. Although there are many causal factors relating to low reading achievement and achievement gaps for students with disabilities, I chose to focus on the need for high quality evidence-based early literacy instruction and focused the study on determining the status of literacy instruction in primary grades in District C. This section includes the findings from the descriptive quantitative study which involved a teacher survey and classroom observations of literacy instruction. The section is organized into three parts: results, conclusions, and implications for District C. The results provide the findings from both the teacher survey and the classroom observations. The quantitative data for the survey results and classroom observations is aligned to the research questions. Followed by the results are the conclusions derived from the quantitative data. Limitations of the study are also included. The final part of this section presents implications for District C.

A. Results.

Teacher survey results. At the time of this study, District C had a total of 1227 classroom teachers (teachers who provide direct service to students) with the following demographics obtained from the district database: 1.39% American Indian/Alaskan, 0.73 % Asian, 6.03% Black/African American, 0.41% Hawaiian/Pacific Islander, 91.44% White, and 1.55% Hispanic or Latino. District C also had a high percentage of experienced classroom teachers (n=1227). Only 12% of the teachers reported having 1-5 years of experience, while 14%reported 6-10 years, 34% reported 11-19 years and 40% reported having 20 or more years. The survey I created for this study has two sections with a total of 9 items. The first section of the survey contained 3 items describing the survey participants (e.g, teacher role, K, grade 1 or special education teacher), number of years teaching and number of years teaching primary grades. The second section of the survey had 6 Likert scale items addressing Research Questions *1. To what extent do teachers in grade K-1 classrooms report having the knowledge and skills to teach all students using evidence-based early literacy practices in the five areas of reading?* and *2. What challenges to implementing evidence-based early literacy practices do K-1 teachers report?*

Response rate and characteristics of survey respondents. A total of 114 surveys were sent to K-1 classroom teachers. Of this number 62 were returned; 6 surveys were partially completed (Part 1 only) and 56 surveys had responses to all items in both Parts 1 and 2. The 56 usable surveys represented a 49% return rate. Table 7 below presents the teaching assignments of the 56 respondents.

Table 7

Survey Response Rate

Teaching assignment	Number of Surveys Completed	Percent of Surveys Completed
K	19	33.93
1	23	41.07
Special Education	14	25
	N= 56	

The survey asked respondents to indicate the number of years teaching experience as well as the number of years teaching primary grades (k-2). Table 8 represents the number of years of teaching experience of the respondents and Table 9 represents the number of years teaching primary grades. District C has a high level of experienced teachers teaching in k and grade 1. The highest percentage of teachers have 20+ years of experience teaching, 26 (46.43%). The majority of teachers, 38 out of 56 surveyed (67.86%), have 11 or more years' experience teaching. There is a more even distribution of the percentage of teachers falling in each band of years of experience for teaching primary grades, with the highest percentage also at 20+ years, 17 (30.36%). In addition to looking at the aggregate survey item responses, I felt it was important to also consider the responses of the highly experienced teachers (11+ years) since they represent the majority and have the most experience from which to draw.

Table 8

Respondent Years of Teaching Experience

Number of Years Teaching	Total Number	Percent of Respondents
1 – 5	8	14.29
6 – 10	10	17.86
11- 19	12	21.43
20+	26	46.43
Total	56	100

Table 9

Respondent Years of Teaching Primary Grades (k-2)

Number of Years Teaching k-2	Total Number	Percent of Respondents
1 - 5	15	26.79
6 - 10	13	23.21
11 - 19	11	19.64
20+	17	30.36
Total	56	100

Response to level of knowledge and skills. The second part of the survey first asked teachers to rate on a 1-5 Likert scale the extent of their knowledge and skills to provide evidence-based early literacy instruction in each of the five areas of reading. Teachers were also asked to rate the frequency of their use of specific instructional and grouping approaches, as well as a set of challenges impacting literacy instruction. With respect to ratings of knowledge and skills, the majority of respondents reported having above average to a high level of knowledge/skills (4 or 5) about providing instruction in each of the five areas of reading: 46 (82.15%) for phonemic awareness and phonics, 34 (60.71%) for vocabulary, 41 (73.21%) for comprehension, and 34 (75.00%) for fluency. The area of reading with the highest mean is

phonemic awareness (mean=4.20) followed by phonics (mean=4.18). When looking at the responses of 4 or 5 for this item for the 38 most experienced teachers, 35 (92.11%) of them rated for phonemic awareness and phonics, 33 (86.84%) for vocabulary, 31 (81.58%) for comprehension, and 29 (76.32) for fluency. Teachers were also asked to rate the level of their knowledge and skills in providing instruction to struggling readers and students with disabilities in the five areas of reading. While the ratings were lower than those pertaining to all students, phonemic awareness and phonics again had the highest ratings among the five areas (mean=3.93 and mean=3.82). The teachers' ratings of their levels knowledge/skills for teaching struggling readers and students with disabilities in all five areas of reading were lower than their ratings pertaining to teaching typical students. The number of responses of ratings of 4 or 5 are as follows: 40 (71.43%) for phonemic awareness, 37 (66.07%) for phonics, 26 (46.43%) for vocabulary, 32 (57.14%) for comprehension, and 25 (44.64%) for fluency. Responses from the 38 teachers with 11 or more years of experience are also overall lower and in some areas of reading significantly lower with the number of teachers rating a 4 or 5. The data is as follows: 33 (86.84%) for phonemic awareness, 30 (78.95%) for phonics, 20 (52.63%) for vocabulary, 25 (65.79%) for comprehension, and 20 (52.63%) for fluency. See Table 10 for respondent ratings of their level of knowledge and skills in providing instruction in each of the five areas of reading and Table 11 for respondent ratings of their level of knowledge and skills in providing instruction to struggling readers and students with disabilities in each of the five areas of reading.

Table 10

Respondent ratings of knowledge/skills in providing instruction in each area of reading

Survey item/ Reading Area	Total	1 No knowledge/ skills	2 Some knowledge/skills	3 About average knowledge/skills	4 Above average knowledge/skills	5 High level of knowledge /skills	Mean (SD)
Phonemic Awareness	56	0 (0.00%)	1 (1.79%)	9 (16.07%)	24 (42.86%)	22 (39.29%)	4.20 (0.77)
Phonics	56	0 (0.00%)	3 (5.36%)	7 (12.50%)	23 (41.07%)	23 (41.07%)	4.18 (0.85)
Fluency	56	0 (0.00%)	0 (0.00%)	22 (39.29%)	19 (33.93%)	15 (26.79%)	3.88 (0.80)
Comprehension	56	0 (0.00%)	0 (0.00%)	15 (26.79%)	27 (48.21%)	14 (25.00%)	3.98 (0.72)
Vocabulary	56	0 (0.00%)	3 (5.36%)	19 (33.93%)	21 (37.50%)	13 (23.21%)	3.79 (0.86)

Table 11

Respondent ratings of knowledge/skills to provide instruction to struggling readers and students with disabilities

Survey item/ Reading Area	Total	1 No knowledge/ skills	2 Some knowledge/skills	3 About average knowledge/skills	4 Above average knowledge/skills	5 High level of knowledge /skills	Mean (SD)
Phonemic Awareness	56	0 (0.00%)	3 (5.36%)	13 (23.21%)	25 (44.64%)	15 (26.79%)	3.93 (0.84)
Phonics	56	0 (0.00%)	4 (7.14%)	15 (26.79%)	24 (42.86%)	13 (23.21%)	3.82 (0.87)
Fluency	56	0 (0.00%)	7 (12.50%)	24 (42.86%)	18 (32.14%)	7 (12.50%)	3.45 (0.86)
Comprehension	56	0 (0.00%)	6 (10.71%)	18 (32.14%)	25 (44.64%)	7 (12.50%)	3.59 (0.84)
Vocabulary	56	0 (0.00%)	9 (16.07%)	21 (37.50%)	19 (33.93%)	7 (12.50%)	3.43 (0.90)

Response to frequency of instructional practices and grouping methods. Teachers were also asked to report the frequency of use (ranging from 1-never to 5-every day) of four instructional practices: teacher demonstrations/modeling, guided practice, independent practice, and teacher corrective feedback following student errors. (See Table 12). Teacher demonstrations/modeling (mean=4.80) and guided practice (mean=4.84) were the most frequently used practices, meaning that 48 (85.71%) of the respondents indicated that they used these two practices every day. However, teacher corrective feedback following student errors was almost as frequently used (mean=4.77) with 47 (83.93%) of the teachers indicating daily use. The least frequently used daily practice was student independent practice (mean=4.63) with

38 (67.86%) indicating daily use. Each of the four practices were used at some time by every teacher.

When isolating the responses from the 38 most experienced teachers (11 or more years teaching) their ratings for every day use of the 4 evidence-based instructional practices were as follows: teacher demonstrations/modeling 32 (81.58%), guided practice 34 (89.47%), independent practice 30 (78.95%), and teacher corrective feedback following student errors 35 (92.10%) which indicates that experienced teachers use guided practice, independent practice and teacher corrective feedback more frequently than less experienced teachers.

Table 12 also presents the teachers' ratings for their frequency of use of four instructional grouping approaches using the same 5-point Likert scale. The four grouping approaches were: whole class, ability or achievement groups, mixed ability groups and individualized instruction. Of the four types of instructional groupings, whole class instruction was used daily (mean=4.61) by 43 teachers (76.79%). This was followed by ability or achievement groupings (mean=4.38) which was reported to be used daily by 31 (55.36%) of the teachers, then followed individualized instruction with daily use reported by 30 (53.57%) teachers. Mixed ability grouping was the least frequently used (mean=3.64) with only 14 (25.00%) of the teachers rated using this grouping practice daily and 4 (7.14%) indicated that they never used mixed ability grouping method.

When examining the responses from the 38 most experienced teachers (11 or more years teaching) their ratings for daily use of the 4 instructional groupings are as follows: whole class 31 (81.58%), ability or achievement groups 20 (52.63%), mixed ability groups 11 (28.95%) and individualized instruction 20 (52.63%), which represents a higher percentage (4.79% higher) for

whole class grouping and for mixed ability grouping (3.95% higher) which indicates that experienced teachers use these two grouping approaches on a daily basis more often.

Table 12

Respondent ratings of frequency of use of approaches to providing instruction and grouping students

Survey Item/ Instructional or grouping approach	Total	1 Never	2 About once or twice a month	3 About once a week	4 No more than twice a week	5 Every day	Mean (SD)
Teacher demonstrations/modeling (teacher demonstrating a task for students and describing exactly what is being done as it is being done; teacher explicitly states the what, why, how, when and where of what they are doing):	56	0 (0.00%)	1 (1.79%)	1 (1.79%)	6 (10.71%)	48 (85.71%)	4.80 (0.55)
Guided Practice (directed practice, opportunity to try the tasks that were modeled, with support from teacher and ensures that student receives feedback, may include cooperative group work):	56	0 (0.00%)	0 (0.00%)	1 (1.79%)	7 (12.50%)	48 (85.71%)	4.84 (0.41)
Student Independent practice (student practices skill independently by applying what they have understood/been instructed on):	56	0 (0.00%)	0 (0.00%)	3 (5.36%)	15 (26.79%)	38 (67.86%)	4.63 (0.58)
Teacher corrective feedback following student errors (teacher monitors student understanding, following student error(s), teacher provides correction by demonstrating the skill, giving correct answer, or	56	0 (0.00%)	0 (0.00%)	4 (7.14%)	5 (8.93%)	47 (83.93%)	4.77 (0.57)

part of the correct answer):							
Whole class grouping (i.e., all students taught the same thing at the same time:	56	1 (1.79%)	0 (0.00%)	6 (10.71%)	6 (10.71%)	43 (76.79%)	4.61 (0.82)
Ability or achievement grouping (i.e., most proficient readers in one group, next most proficient in a second group, and the rest in a third group):	56	1 (1.79%)	1 (1.79%)	5 (8.93%)	18 (32.14%)	31 (55.36%)	4.38 (0.86)
Mixed ability grouping (i.e., students are grouped according to interest/genre, cooperative-learning groups):	56	4 (7.14%)	7 (12.50%)	8 (14.29%)	23 (41.07%)	14 (25.00%)	3.64 (1.19)
Individualized instruction (e.g., students work individually on learning assignments specifically tailored to their achievement or interest):	56	1 (1.79%)	3 (5.36%)	6 (10.71%)	16 (28.57%)	30 (53.57%)	4.27 (0.97)

Response to frequency of resources for planning and delivering instruction. Using the same Likert scale of 1-5, survey participants were asked to rate their frequency of use of 5 resources for planning and delivering literacy instruction: state standards framework, district curricular resources/materials, teacher made resources/materials, teacher websites (i.e. Teachers Pay Teachers, Lesson Planet, Scholastic.com), and other resources. Teachers reported using teacher made resources/materials most often (mean=4.77) followed by the district curricular resources (mean=4.63). Ratings of daily use ranges from ratings for teacher made resources/materials at 45 (80.36%) being highest to teacher websites at 22 (39.29%) being lowest. State standards were reported to be used daily by 39 (69.64%; mean=4.48) respondents. The resources with the lowest reported daily use were teacher websites with 22 teachers

(39.29%; mean 4.0) reporting daily use and 23 (41.07%; mean 3.88) reporting use of other resources daily. (See Table 13).

Teachers with 11+ years of experience (38 teachers) also indicated the highest daily use for teacher made resources/materials 31 (81.58%) followed by district curricular resources/materials 26 (68.42%).

Table 13

Respondent ratings of how often they use specific resources for planning/delivering literacy instruction. (1-Never to 5- Daily)

Survey Item/Resource	Total	1 Never	2 About once or twice a month	3 About once a week	4 No more than twice a week	5 Every day	Mean (SD)
State Standards Framework:	56	1 (1.79%)	2 (3.57%)	5 (8.93%)	9 (16.07%)	39 (69.64%)	4.48 (0.93)
District Curricular Resources/Materials:	56	0 (0.00%)	2 (3.57%)	4 (7.14%)	7 (12.50%)	43 (76.79%)	4.63 (0.77)
Teacher Made Resources/Materials:	56	0 (0.00%)	0 (0.00%)	2 (3.57%)	9 (16.07%)	45 (80.36%)	4.77 (0.50)
Teacher Websites(i.e., Teachers Pay Teachers, Lesson Planet, Scholastic.com):	56	1 (1.79%)	3 (5.36%)	13 (23.21%)	17 (30.36%)	22 (39.29%)	4.00 (1.00)
Other Resources:	56	2 (3.57%)	5 (8.93%)	14 (25.00%)	12 (21.43%)	23 (41.07%)	3.88 (1.15)

Response to challenges impacting literacy instruction. The survey also asked teachers to indicate the level of challenge impacting their ability to provide literacy instruction across the 5 areas of reading on a Likert scale 1 to 5. The challenge with the highest mean is planning time with a combined number of 42 (75%; 4.00 mean) rating a 4 -considerable challenge or 5 extremely challenging. The resource with the second highest mean for challenges identified is a

wide range of literacy skills among children in the class with a combined number of 37 (66.07%; 3.75 mean) rating a 4 -considerable challenge or 5 extremely challenging and the third highest mean for challenge is time allotted for literacy instruction 36 respondents (64.28; 3.45 mean) rating considerable to extremely challenging. Availability of a comprehensive literacy curriculum materials and resources (2.89 mean) and easy access to comprehensive curriculum materials (2.86 mean) each had 26 respondents (46.43%) rate a 3- not particularly challenging, with a slightly higher number of teachers rating a 1 or 2 than 4 or 5. See Table 14 for respondent indication of level of challenge impacting literacy instruction. 20 respondents identified an "other challenge" with many of the comments focusing on the virtual and/or hybrid setting challenges/constraints due to the COVID-19 pandemic. Additionally, a summary of other challenges indicated by teachers includes: materials for specialized instruction, scheduling, lack of an instructional assistant and lack of time to support small group/individualized instruction for those with varying needs, finding and using challenging materials for above level students, district requirements that take away from good teaching, the curriculum moves too fast to allow for mastery, and collaboration with co-teachers.

Consideration of the most experienced teachers (38 with 11 or more years), yielded similar results with the following items rated as a 4 or 5 (highest levels of challenge) were: planning time 27 (71.05%), time allocated for literacy 25 (65.79%) and wide range of literacy skills among children in class 25 (65.79%).

Table 14

Respondent indication of level of challenge impacting ability to provide literacy instruction (1-no challenge to 5- extremely challenging)

Survey Item	Total	1 No challenge	2 Minimal or occasional challenge	3 Not particularly challenging	4 Considerable challenge	5 Extremely challenging	Mean (SD)
Time Allotted for literacy instruction:	56	4 (7.14%)	9 (16.07%)	7 (12.50%)	30 (53.57%)	6 (10.71%)	3.45 (1.10)
Availability of comprehensive literacy curriculum materials and resources:	56	5 (8.93%)	13 (23.21%)	26 (46.43%)	7 (12.50%)	5 (8.93%)	2.89 (1.03)
Easy access to comprehensive literacy curriculum materials:	56	5 (8.93%)	14 (25.00%)	26 (46.43%)	6 (10.71%)	5 (8.93%)	2.86 (1.03)
Planning Time:	56	2 (3.57%)	6 (10.71%)	6 (10.71%)	18 (32.14%)	24 (42.86%)	4.00 (1.13)
Wide range of literacy skills among children in my class:	56	2 (3.57%)	4 (7.14%)	13 (23.21%)	24 (42.86%)	13 (23.21%)	3.75 (1.00)
Other, please specify below :	24	15 (62.50%)	0 (0.00%)	2 (8.33%)	3 (12.50%)	4 (16.67%)	2.21 (1.63)

Response to requested professional development. Teachers were asked to indicate areas in which four areas they would like professional development (PD). A total of 84 items were checked; the highest area rated was 34 (40.48%) for strategies for teaching various learners, including students with disabilities and other struggling readers as the highest rated area for PD. The second highest area was reading areas: phonemic awareness, phonics, fluency, comprehension, vocabulary 17 (20.24%). A count of 15 (17.86%) was checked for instructional

practices in literacy: teacher modeling/demonstration, practice opportunities, and corrective feedback and 16 (19.05%) responses indicated no professional development requested. Two respondents checked other with a request for PD to challenge very high students and a comment relating to an interest in any available PD on current research and materials and a wish for the reading and social studies curriculum to be more integrated. See Table 15 for responses for requested PD.

The results of the 38 teachers with the highest experience (11+ years) follow in order of highest to lowest percentage requested: strategies for teaching various learners, including students with disabilities and other struggling readers 14 (36.84%); no professional development 11(28.95%); reading areas: phonemic awareness, phonics, fluency, comprehension, vocabulary 7 (18.42%). instructional practices in literacy: teacher modeling/demonstration, practice opportunities, corrective feedback 2 (5.26%).

Table 15

Respondent selection of areas of professional development requested (all that apply checked)

Survey item/Area of PD	Total
Reading Areas: phonemic awareness, phonics, fluency, comprehension, vocabulary	17 (20.24%)
Instructional practices in literacy: teacher modeling/demonstration, practice opportunities, corrective feedback	15 (17.86%)
Strategies for teaching various learners, including students with disabilities and other struggling readers	34 (40.48%)
Other	2 (2.38%)
No Professional Development Requested	16 (19.05%)
Total count	84 (100%)

Classroom Observation Results. In order to address Research Question 3, *To what extent do a sample of K-1 teachers demonstrate evidence-based literacy practices, in the five areas of reading and aligned with key components of structured literacy?*, a sampling of classroom observations were conducted of 8 general education k and grade 1 teachers across 5 schools in District C. Six schools were requested to participate and all 6 principals gave permission; however, at one school there were no volunteers for participation in the observation portion of the study. Attempts were made to recruit one k and one first grade teacher from each of the 6 schools. Participants included teachers from two schools in the northern section of the county, one in the central section and two in the southern section of the district. There were two teachers who originally agreed to participate who changed their minds. See Table 16 for teacher observation participation.

Table 16

Teacher Participation in Observations

Section of the District	Number of Schools	No. of K Teachers	No. of Gr. 1 Teachers
Northern	2	1	2
Central	1	1	0
Southern	2	2	2
Total	5	4	4

Observation details. A total of 24 observations were completed with each teacher being observed 3 times. All observations were conducted virtually due to the restrictions as a result of the COVID-19 pandemic. The observer(s) were sent a link by the teacher to join the class virtually. The instructional delivery model varied with some lessons being all virtual (teacher

and all students online, some concurrent with students in the classroom while other students were participating online, and some were in-person only). Teachers were asked to record their lessons and give access to the recording to the observer(s). Recordings were viewed by observers to verify coding. 8 out of 24 observations (33.33%) were conducted by two observers who coded separately on the Classroom Observations of Student-Teacher Interactions (COSTI) forms during the observation and then the 2 observers viewed the lesson recording, compared coding and came to consensus. Following the training session on the COSTI, the team observers watched and coded multiple videos of literacy lessons. Because it was difficult for all six observers to code the sequence exactly the same the team used a gold standard setting model by coding multiple lesson videos independently and then viewing and coding the video together and establishing a gold standard with 100% agreement.

The observers used the COSTI observation system and coded the frequency and sequence of four instructional interactions: teacher demonstration, practice opportunities (guided/independent), student error, and teacher correction. Observers also rated the student engagement level as high (80% or more students engaged in lesson), medium (21-79% of students engaged in lesson), or low (20% or fewer students engaged in lesson). Teachers were asked to schedule the three 20-minute observations in different areas of reading. In some cases, only two different areas of reading were observed. Observations were conducted in phonemic awareness (4 lessons), phonics (7 lessons), comprehension (9.5 lessons), fluency (1.5 lessons) and vocabulary (2 lessons). Although it was requested that the lesson observed only focus on a single area of reading, one of the 20 -minute observations combined two areas (fluency and

comprehension). Fluency was addressed for half of that lesson and comprehension for half, but only one COSTI sheet was coded for the observation.

Overall observation results. Three quarters of the 24 observed lessons (18; 75%) were whole group instruction and 6 (25%) were small group. The mean length of time for observations was 20.38 minutes. Ratings for student engagement in the lesson were as follows:13 (54.16%) observations were rated as high engagement (at least 80% of students actively engaged), 8 (33.33%) of observations were rated as medium engagement (21-79% of students engaged), and 3 (12.50%) rated as low engagement (20% or fewer of students engaged).

There was a mean of 4.26 total interactions per minute. The mean rates of interaction per minute are as follows: 1.56 teacher demonstrations per minute, 2.23 practice opportunities per minute, 0.26 errors per minute, 0.15 corrections per minute. In comparison to percentile ranks established by Smolkowski and Gunn (2012) in their paper, the mean rate of teacher demonstrations per minute falls above the 75th percentile (1.2), practice opportunities per minute falls below the 25th percentile (2.4), errors per minute falls just above the 50th percentile (0.2), and teacher corrections per minute falls just above the 50th percentile (0.1). Of individual observations, the teacher demonstrations all fell above the 25th percentile and 22 out of 24 fell above the 50th percentile with 19 of 24 (79.16%) falling above the 75th percentile. Percentile rankings for practice opportunities were much lower with 18 out of 24 (75%) falling below the 25th percentile, 6 falling above the 25th percentile, 2 falling above the 50th percentile and 0 falling at or above the 75th percentile.

The sequence of instruction is important in delivery of high quality evidence-based instruction, specifically explicit instruction which is key to structured literacy. The instructional sequence of structured literacy is an on-going and circular sequence that should start with teacher demonstration, then practice, and the teacher monitors the instruction so that when student errors occur the teacher corrects the error. Observations indicated that teacher demonstrations were followed by a practice opportunity 547 out of 762 times (71.78%). 75 of 129 errors (58.14%) of errors were followed by a teacher correction and 35 of 129 errors (27.13%) were followed by a practice opportunity. See Table 17 for observation occurrence data.

Table 17

Descriptive Statistics for Observation Measures for Observation Occurrences

	Full Sample	
Measure	M	N
Observation Duration	20.38	24
Number of Students	14.75	24
Teacher Demonstrations	31.75	24
Practice Opportunities	44.92	24
Student Errors	05.37	24
Teacher Corrections	03.17	24
Teacher demonstrations followed by practice	22.79	24
Errors followed by teacher correction	03.13	24
Interactions per minute	4.26	24
Demonstrations per minute	1.56	24
Practices opportunities per minute	2.23	24
Student Errors per minute	0.26	24
Teacher Corrections per Minute	0.15	24
Student engagement	2.42	24

Observation results by area of reading. The rates of interactions were calculated by reading area. The highest number of observations occurred in phonics instruction and the lowest in fluency. Although a total of 24 observations were conducted, only 23 are included in the breakdown by reading area due to the fact that one observation combined fluency and comprehension and the two areas were not coded separately. The highest rate of teacher demonstration was in the area of phonemic awareness with a rate of 1.82 per minute. The highest rate of practice was in the area of fluency (3.2 per minute); however, this is only representative of one observation. The second highest practice rate per minute was in phonics (2.49 per minute). The highest rate of errors per minute was in fluency (0.55 per minute), and the second highest rate of errors was in fluency (0.55) followed by phonics (0.34 per minute). The highest rate of corrections per minute was in fluency (0.50) followed by phonemic awareness (0.18). Table 18 presents the interaction rates by area of reading.

Based on Smolkowski and Gunn's (2012) established percentile ranks for the four explicit instruction interactions, the rate per minute for teacher demonstrations for all five areas of reading exceeded the 50th percentile (0.6), with all areas except for fluency exceeding the 75th percentile (1.2). For practice opportunities per minute, the two areas that exceeded the 25th percentile (2.4) were fluency and phonics, with no area of reading reaching the 50th percentile (5.4).

Table 18

COSTI Rates per Minute of Instruction Across Observation Occurrences by Reading Area

Area of reading	# of observations	Rates Per Minute			
		TD	P	E	C
Phonemic Awareness	4	1.82	2.26	0.21	0.18
Phonics	7	1.62	2.49	0.34	0.17
Fluency	1	0.7	3.2	0.55	0.50
Comprehension	9	1.28	1.54	0.22	0.11
Vocabulary	2	1.69	1.85	0.23	0.15
Total	23				

Note: TD = Teacher Demonstration; P = Practice (guided or independent); E = Student Error; C = Teacher Correction

B. Conclusions

The purpose of this research was to determine the status of evidence-based literacy instruction in the primary grades, specifically in kindergarten and first grade. The goal is to use the results to inform the district in developing and delivering targeted professional learning initiatives and other resources to K- 1 classroom teachers in order to build their capacity to deliver structured literacy in the early grades. My theory of improvement rests on improving early literacy instruction to increase reading achievement among K-1struggling readers. The results which are presented in the previous section, including both a teacher survey and classroom observations in a sample of 8 classrooms in 5 schools in District C, provide some key findings regarding early literacy instruction.

Survey results indicate that the majority of K-1 teachers rated having about average to high levels of knowledge/skills with teaching the 5 areas of reading but rated lower their knowledge/skills teaching reading to struggling readers and students with disabilities. Teachers

rated highest their knowledge/skills in teaching phonemic awareness and phonics and rated lowest for vocabulary for all students and for struggling readers. Results also indicate that teachers feel they have much less knowledge and skill for teaching struggling readers and students with disabilities in the areas of vocabulary, fluency, and comprehension. Results were relatively comparable for all teachers regardless of experience.

While it is not surprising that these teachers expressed more confidence in providing instruction in phonemic awareness and phonics, the fact that they rated themselves lower in critical areas such as vocabulary, fluency and comprehension and in instructing struggling readers is problematic. Ideally, according to the National Reading Panel (2000) all K-1 teachers should have high levels of knowledge and skills in teaching struggling readers in all five areas. In particular, while the teachers overall rated their skills and knowledge at least average to above in most of the areas of literacy, it is concerning that even in the areas of phonemic awareness and phonics, which is where the majority of skill deficits occur in struggling readers, teachers are not as confident teaching these readers. Although I expected lower ratings for teaching reading to struggling readers and students with disabilities, I was surprised how much lower ratings were for fluency, comprehension and especially vocabulary compared to phonemic awareness and phonics.

In terms of using the evidence-based practices and various instructional groupings on a regular basis during reading instruction, teachers reported using teacher demonstrations/modeling and guided practice most as well as whole class instruction. Less experienced teachers reported using ability or achievement groupings less often while experienced teachers indicated using guided practice, independent practice, and teacher

corrective feedback more frequently. Given that the teachers who completed the survey were predominantly general education classroom teachers, it is not surprising that they use whole group instruction most frequently. However, I expected to see higher ratings for daily use of small group instruction, as this is the best way to differentiate the reading instruction tailored to student needs. Ability grouping and individualized instruction, as well as independent practice being implemented less frequently than whole group is a key finding which aligns with the research findings presented earlier (Vaughn & Wanzek, 2014) that students who are struggling readers frequently do not have sufficient time to engage in practicing reading and do not get the individualized instruction needed in the early grades.

When planning for and delivering literacy instruction, teachers reported using teacher made resources/materials most often followed by the district curricular resources. Given the density of District C's literacy curriculum and the multitude of places to access the curriculum and materials, it is not surprising that teachers are utilizing teacher made resources more frequently. The district expectation is to use the curriculum daily for the planning/delivery of instruction and only 76.79% of respondents and 68.42% of respondents with 11+ years of experience indicate daily use of the district curriculum and resources indicating this is an area to focus on, especially considering that teachers report insufficient time for planning for literacy instruction. There are risks in teachers using their own resources as the resources may not reflect evidence-based practices, may not align to standards, may not be aligned with systematic and cumulative literacy instruction and may contain inaccurate content.

Teachers were asked to rate the level of challenge associated with providing evidence-based instruction. Surprisingly, the availability and access to a comprehensive literacy

curriculum and resources were rated as not particularly or minimally challenging. I expected the curriculum to present a higher level of challenge as it is not systematic and the navigation requires accessing many different electronic folders, documents and resources. Although the teachers did not rate this as a high challenge the implications are that teachers are using their own materials and resources and are not using the curriculum as expected and believe they are using evidence-based practices which may or may not align with structured literacy.

If the curriculum is redesigned in overall structure to be more systematic, streamlined and to include tips on differentiating and scaffolding literacy instruction for struggling readers, this would reduce the time it is taking teachers to plan. While there are several possible reasons for the rating, it is important to determine reasons for this response. It may be accessibility to the curriculum; it may be that they are comfortable with what they teach and with utilizing teacher made resources and materials most frequently.

Not surprisingly, the highest rated challenges were time allotted for literacy instruction, planning time, and having a wide range of literacy skills among children in the class. Sufficient time to teach literacy and enable students to engage in practicing reading is imperative, especially for struggling readers (Rasinski, 2017; Vaughn & Wanzek, 2014; Smolkowski & Gunn, 2012; Stanovich, 2009). These challenges are of concern if we are going to improve instruction for all students but specifically struggling readers and students with disabilities. It takes more time to plan for differentiated instruction to meet a wide variety of learning needs. If there is an insufficient amount of time in the literacy block to offer the small group tailored instruction while covering the literacy curriculum, then this needs to be further investigated. One

possibility is that the teachers also spend too much time in whole group or don't know how to set up small group differentiation.

Part of the challenge of lack of time could be related to the organization of the K-1 curriculum. In District C there are identified time allocations for the literacy block for reading and writing (140 minutes total), as well as time allocations for all other content area subjects such as math, science, and social studies. These content areas are taught separately and literacy instruction is not specifically integrated into other areas. The 140-minute literacy block for grades k and 1 is divided to address the 3 areas in the curriculum: word study, reading workshop, and writing workshop. Word study, which is 70 minutes of the literacy block, is focused on building knowledge through phonological awareness, alphabet knowledge, handwriting, word sorts/word building, dictation and decodable text. Reading and writing workshop are covered in the other 70 minutes of the block. Reading workshop is focused on building a community of readers through read alouds, shared reading, targeted reading practice and independent daily reading. The focus of writing workshop is to explore the writing process through modeled writing, shared writing, study of language and grammar and independent daily writing. This area needs to be probed further.

As discussed earlier in the results section, teachers reported other challenges, many related to the COVID-19 pandemic closures and the impact on instructional delivery models. Teachers reported most challenges implementing virtual/online instruction, providing concurrent instruction, and insufficient instructional time.

Finally, the survey asked teachers to identify areas of professional development they would like related to providing evidence-based literacy instruction. The most popular request by

all teachers, (over 40%), including the most experienced teachers, was for professional development in strategies for teaching various learners, including students with disabilities and other struggling readers. Three other areas were basically even in terms of request: five reading areas, instructional practices in literacy, and no PD. Given their rating of their knowledge and skills, I was not surprised that there was such a high request for professional development for teaching struggling readers. In addition, their ratings of knowledge teaching some areas, such as vocabulary, fluency, and comprehension also indicate that the teachers do not necessarily have or are using specific strategies to focus in all 5 areas of literacy, nor are they regularly using strategies for differentiated instruction.

Classroom observations were conducted in order to determine the extent K-1 general education teachers were implementing evidence-based literacy practices. The COSTI was used for completing the observations across the five areas of reading measuring the frequency and sequence of the four instructional interactions which align with key practices of structured literacy: teacher demonstration, practice opportunities (guided/independent), student error, and teacher correction. In addition, the instructional grouping and the level of student engagement was recorded. The classroom observations revealed some key findings regarding the implementation of evidence-based practices. The observation data indicate that teacher modeling/demonstrations are clearly an area of strength, while providing student practice opportunities, which includes both guided practice and independent practice, needs to increase. According to Smolkowski and Gunn (2012), the importance of independent practice is supported by decades of research and practice is the main vehicle which young children learn to decipher new words and sounds on their own which further supports that teachers need to increase the

independent practice opportunities to help solidify student learning. It was also not surprising, given the teachers' ratings of their knowledge and skills, that across the 5 areas of reading phonemic awareness had the highest mean rate of instructional time for teacher demonstrations and phonics had the highest mean rate for practice opportunities.

The observations also revealed that the literacy instruction was sequential with high levels of teacher demonstrations/modeling (71.78%) being followed by a practice opportunity and 85.27% of errors followed by a teacher correction or practice opportunity. However, in observations it was noted that when students made errors teachers often asked the students questions rather than explicitly correcting the error. Finally, of the twenty-four observations, just over half were rated with the COSTI as having high student engagement and a third were rated as medium engagement. I found it interesting that the engagement was mostly rated high to medium even with three quarters of lessons delivered as whole group instruction; this may speak to the general experience and teaching skills of the teachers.

Limitations. A limitation of this study is that the survey is based on teacher self-report. It could be that their perception of their knowledge/skills is higher than it actually is, dependent on their knowledge and training on the science of reading. Another limitation is that the observations are only representative of a relatively small number of classrooms (8 classes; 4 kindergarten and 4 first grade). Using the COSTI in a greater number of classes and expanding to second grade may be a consideration for the district in the future. Expanding the use of the COSTI to include more observations to include an equal number of observations in each area of reading would also be useful. Although observations using the COSTI provides reliable and valid data on the instructional practices, a limitation is that the quality and the specific content

being taught are not recorded. Given the circumstances surrounding the COVID-19 pandemic, instructional delivery models have changed throughout the year, as well as schedules. There has been less instructional time overall for students this year due to virtual instruction and the hybrid model and some teachers struggled to schedule small group instruction. Teachers have also had to make many adjustments and learn new technology and application of instructional practices. These factors may have impacted survey responses as well as instructional delivery in observations. The observations had to be conducted virtually due to COVID-19 restrictions, which at times made things harder for the observer to see and hear in the classroom. There were two observations where the teacher either forgot to record or the recording did not turn out, although I do not believe this was impactful.

C. Implications for District C.

Based on the findings from this study**,** District C should consider a number of strategies for increasing the implementation of of evidence-based literacy instruction in K and Grade 1. First, it is important that the District dig deeper into the findings of this study particularly in light of the findings from the MAP skill deficit analysis. Teacher professional learning that is focused on both the importance and interconnectedness of the 5 areas of reading is necessary. An particular area of focus should be on vocabulary development as this is a significant issue with struggling readers and needs special attention in explicit instruction. Shannahan (2005) notes that vocabulary impacts all language related activities and is used as a component of intelligence measures and measures of cognitive functioning. Furthermore, vocabulary instruction has been found to increase reading performance, specifically comprehension. Stanovich (2009) also notes

that vocabulary is a very important part of reading because vocabulary knowledge increases comprehension which is the ultimate goal of reading. Stanovich argues that as students increase comprehension, they read more and further increase their reading proficiency. Comprehension is also related to fluency. Reading fluency is fundamental for academic development overall and is an indicator of basic reading skills. Considering the findings of the new Stanford study on the lost oral reading fluency skills during to the pandemic (Spector, 2021), special attention should be given to examine fluency of District C students across the primary grades.

Another area that should be further investigated and discussed is the design of professional learning for teachers. District C should examine the newly revised Standards for Professional Learning as well as other resources from Learning Forward to guide the professional learning for the K-1 teachers in order to develop professional learning that leads to educator effectiveness and results for all students (Learning Forward, 2021). Professional learning should include coaching to provide teachers feedback to enhance their instruction through explicit modeling, practice and feedback. Further investigation of K-1 teachers' knowledge regarding the science of teaching the five areas of reading needs to be done so that professional learning activities can be differentiated. Given different levels of skills and knowledge, District C should provide differentiated PD where teachers can attend based on their skill level and knowledge, in particular areas of reading, as well as their implementation of key instructional practices aligned with structured literacy. Professional learning communities focused on evidence-based literacy instruction should be formed to enhance deep teacher learning and District C should include classroom walkthroughs with teachers focused on early literacy instruction as part of the professional learning.

Professional learning topics should include guidance on effective grouping methods, increasing practice opportunities and differentiating literacy instruction in the five areas of reading.

Instructional strategies including how to differentiate within the literacy block and specifically how to provide explicit instruction, increase practice opportunities and provide corrective feedback should be provided as should strategies to increase student engagement. The survey and observations using the COSTI should then be repeated in a sampling of K-1 classrooms in order to monitor progress and provide teachers with necessary PD and support in order to ensure evidence-based literacy instruction is provided in all K-1 classrooms which will increase achievement of struggling readers, including students with disabilities.

In addition to professional learning for teachers, further investigating some of the other factors and challenges identified in the survey would be beneficial. Specifically, it is important to examine how teachers are using the literacy curriculum and district resources and their own teacher made materials to determine if there is alignment. It would be beneficial for District C to investigate why teachers are utilizing the various resources and materials for teaching literacy. For one, District C may need to determine how to make the curriculum more accessible for teachers. It is especially important to determine if the materials and resources are supporting instruction in the five literacy areas. My study observed instructional practices but not the specific content or the quality of the literacy content.

Examination of time for planning for teachers and for the time allocated for literacy instruction are also needs. Streamlining the ease of curriculum access would be helpful as there

is a very dense curriculum that involves use of many resources which is time-consuming to plan. Enhancing the curriculum to provide prompts, scaffolds and strategies for addressing varying levels of readers, especially struggling readers and students with disabilities is also recommended. Adjustments to the curriculum should also be considered to increase student engagement. District C should consider teacher input through a survey on what would be some of the most helpful changes to the curriculum to enhance the efficiency of planning evidence-based literacy instruction.

District C should consider ways to provide increased planning time and processes for more of a focus on struggling readers including more flexible use of staffing, structuring use of instructional time (Rasinski, 2017; Levenson & Cleveland, 2016; Vaughn & Wanzek, 2014) and to deliver intensive instruction in areas matching student difficulties such as phonemic awareness and phonics (Spear-Swerling, 2015; Fuchs & Fuchs, 2009). Three quarters of the teachers reported planning time presents a high level of challenge to delivering evidence-based literacy instruction.

The time allocated for literacy presents as a high challenge for teachers. District C should analyze time allocations within the instructional day for k and 1 in order to provide ample time for evidence-based literacy instruction. Whole group instruction is the most prevalent grouping method used which is efficient for covering a high volume of content and teaching to the average students but does not allow for differentiation of literacy instruction nor does it allow for sufficient practice for struggling learners. District C should require small ability grouping and individualized instruction daily in order to tailor instruction and differentiate to meet student needs and increase independent practice opportunities and teacher feedback. In alignment with

the survey results and classroom observation data, the majority of instruction is being provided whole group, a high level of teacher modeling/demonstrations occur, but insufficient practice opportunities are provided for students. Much of the practice was guided practice, which teachers report utilizing frequently with less independent practice.

In summary, this study has provided District C with a baseline for understanding early literacy instruction. Using the results to identify areas needing further examination and to increase teacher involvement in understanding of best practices in literacy instruction is important. So also will be using the results to better understand and address the challenges faced by the teachers and the importance of evidence-based literacy instruction to all young children. Only through such focused effort, will District C begin to see progress in children's learning to .to read

Appendices

Appendix A: Teacher Survey

Part 1

Which of the following describes your primary role:

- ○ General Education Teacher- Kindergarten
- ○ General Education Teacher- Grade 1
- ○ Special Education Teacher

I have been teaching for a total of:

- ○ 1-5 years
- ○ 6-10 years
- ○ 11-19 years
- ○ 20+ years

I have been teaching primary grades (K-2) for a total of:

- ○ 1-5 years
- ○ 6-10 years
- ○ 11-19 years
- ○ 20+ years

Part 2

The questions in this section are intended to get a picture of how k-1 teachers view their knowledge and skills in teaching the 5 areas of reading as well as their current instructional practices. The results will inform future professional learning and support initiatives.

Following are the definitions of the literacy areas used in this survey:

Phonemic awareness - phonemes are the smallest unit of *spoken* language, examples "What word is /s/ /k/ /u/ /l/?" (school); or asking students to break the spoken word 'cat' into its 3 sounds.

Phonics - letter-sound correspondences and spelling patterns and learning how to apply this knowledge in their reading.

Fluency - reading text with speed, accuracy, and proper expression

Vocabulary - word knowledge, understanding word definitions, word reasoning & context use; mapping oral vocabulary to reading text

Comprehension - making meaning/understanding what is read

For each of the 5 reading areas below, rate your level of knowledge/skill to provide instruction. (No knowledge/skills to high level of knowledge/skills)

	No knowledge/skills	Some knowledge/skills	About average knowledge/skills	Above average knowledge/skills	High level of knowledge/skills
Phonemic Awareness	○	○	○	○	○
Phonics	○	○	○	○	○
Fluency	○	○	○	○	○
Comprehension	○	○	○	○	○
Vocabulary	○	○	○	○	○

For each of the 5 reading areas listed below, rate your level of knowledge/skill to provide instruction to ***struggling readers and students with disabilities***. (No knowledge/skills to high level of knowledge/skills)

	No knowledge/skills	Sime knowledge/skills	About average knowledge/skills	Above average knowledge/skills	High level of knowledge/skills
Phonemic Awareness	○	○	○	○	○
Phonics	○	○	○	○	○
Fluency	○	○	○	○	○
Comprehension	○	○	○	○	○
Vocabulary	○	○	○	○	○

Rate how often you use the following approaches to providing instruction and to group students for reading instruction. (Never to Daily)

	Never	About once or twice a month	About once a week	No more than twice a week	Every Day
Teacher demonstrations/modeling (teacher demonstrating a task for students and describing exactly what is being done as it is being done; teacher explicitly states the what, why, how, when and where of what they are doing)	○	○	○	○	○

Guided Practice (directed practice, opportunity to try the tasks that were modeled, with support from teacher and ensures that student receives feedback, may include cooperative group work)	○	○	○	○	○
Student Independent practice (student practices skill independently by applying what they have understood/been instructed on)	○	○	○	○	○
Teacher corrective feedback following student errors (teacher monitors student understanding, following student error(s), teacher provides correction by demonstrating the skill, giving correct answer, or part of the correct answer)	○	○	○	○	○
Whole class grouping (i.e., all students taught the same thing at the same time	○	○	○	○	○
Ability or achievement grouping (i.e., most proficient readers in one group, next most proficient in a second group, and the rest in a third group)	○	○	○	○	○
Mixed ability grouping (i.e., students are grouped according to interest/genre, cooperative-learning groups)	○	○	○	○	○
Individualized instruction (e.g., students work individually on learning assignments specifically tailored to their achievement or interest)	○	○	○	○	○

Rate how often you use the following resources for planning/delivering literacy instruction. (Never to Daily)

	Never	About once or twice a month	About once a week	No more than twice a week	Every Day
State Standards Framework	○	○	○	○	○
District Curricular Resources/Materials	○	○	○	○	○
Teacher Made Resources/Materials	○	○	○	○	○
Teacher Websites(i.e., Teachers Pay Teachers, Lesson Planet, Scholastic.com)	○	○	○	○	○
Other Resources	○	○	○	○	○

The following questions ask you to indicate the level of challenge impacting your ability to provide literacy instruction across the 5 areas of reading created by each of the following. (No Challenge to Extremely Challenging)

	No challenge	Minimal or occasional challenge	Not particularly challenging	Considerable challenge	Extremely challenging
Time Allotted for literacy instruction	○	○	○	○	○
Availability of comprehensive literacy curriculum materials and resources	○	○	○	○	○
Easy access to comprehensive literacy curriculum materials	○	○	○	○	○
Planning Time	○	○	○	○	○
Wide range of literacy skills among children in my class	○	○	○	○	○
Other, please specify below	○	○	○	○	○

Please specify other challenges to providing literacy below.

- [ ] Other challenge
- [ ] Other challenge

Please indicate if you would like professional development in any of the following areas: Check all that apply.

- [ ] Reading Areas: phonemic awareness, phonics, fluency, comprehension, vocabulary
- [ ] Instructional practices in literacy: teacher modeling/demonstration, practice opportunities, corrective feedback
- [ ] Strategies for teaching various learners, including students with disabilities and other struggling readers
- [ ] No Professional Development Requested
- [ ] Other

Thank you for completing this survey. Your responses will help to influence professional learning and support for teachers in effort to help all students learn foundational reading skills in grades k and 1.

If you would you like to be entered into a raffle for a chance to win one of two $50.00 gift cards (Amazon or Walmart) please indicate Yes below. You will be directed to another page to provide your contact information.

- ○ Yes
- ○ No

Teacher survey raffle entry (if yes above)

To be entered into a raffle for a chance to win one of two $50.00 gift cards, please enter the information below.

Name	
Email Address	

Appendix B: Email to ELA Supervisor

Email to Elementary English/Language Arts Supervisor informing of study

Dear ELA Supervisor,

I would like to share information about the study that I am conducting as part of my Doctorate in Education in order to complete my dissertation, "Increasing Reading Achievement and Narrowing the Reading Achievement Gap for Students with Disabilities Through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions". Early evidence-based literacy instruction implemented in kindergarten and first grade is critical for providing the necessary foundation for learning to read. The status of kindergarten and first grade literacy instruction impacts the goal of ensuring students are reading by grade three and sets the trajectory for future academic success. The focus of my study, which involves two parts, is to determine the status of evidence-based early literacy instruction in K-1 classrooms through surveying all teachers of reading of K-1 students regarding their classroom instructional practices and their knowledge and skills in regard to teaching reading and conducting observations during literacy instruction in a sampling of K-1 classrooms in the district to focus on implementation of student-teacher interactions encompassing of key components of structured literacy.

Investigating teacher application and knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms, including key practices of structured literacy will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades (k and 1st) which will improve reading achievement for all students, including students with disabilities.

Survey information: The survey I created for this study has two sections with a total of 9 items. The first section of the survey asks 3 items regarding teacher role (K, grade 1 or special education teacher), number of years teaching and number of years teaching primary grades. The second section of the survey consists of 6 Likert scale items for teachers' self-report on the extent of their knowledge and skills related to providing instruction in each of the five areas of

reading (phonemic awareness, phonics, fluency, comprehension, vocabulary). The next questions ask the teacher to rate how often he/she uses instructional and grouping approaches as well as resources for planning and delivering as well as asking about the level of challenge faced in implementing evidence-based early literacy instruction. The final item asks teachers about areas of literacy instruction they would like to have professional development. An email will be sent to all of the K-1 teachers of reading explaining the study and requesting their participation in the survey, along with a link for survey completion. Attached is a copy of the survey questions.

Classroom observation information: There will be a sampling of classroom observations of one k and one grade 1 classroom in 6 different schools, each in a different section of the district (north, south, central). The observations will be during the reading/ literacy block, and will be conducted by observers who are district employees (which may include special education and ELA specialists) who have received training in the Classroom Observations of Student-Teacher Interactions (COSTI) observation tool which contains evidence-based literacy practices. The (COSTI) documents the frequency of four student-teacher interactions during beginning reading instruction: explicit teacher demonstrations, student independent practice, student errors, and teacher corrective feedback. Following the completion of the 3 classroom observations (20 min. each observing different areas of reading instruction), the data will be compiled and shared with that teacher only and a confidential conference to review their data with me will be offered. Once all observations are completed, the data will be compiled and analyzed. Confidentiality of all participants will be protected. Individual teacher/classroom data will not be reported in the study and will not be used as an evaluation of any type of the teacher. This study has been approved in accordance with district policy and procedures.

I look forward to sharing the study results with you once completed. The information gathered from the survey and observations, as well as skill isolated student MAP data will enable us to work collaboratively to plan and develop targeted professional development to further strengthen reading instruction in kindergarten and first grade and help ensure we are teaching all students to read in grades k and 1. Please contact me with any questions.

Sincerely,

Christina M. Harris, Doctoral Candidate
Doctorate in Education

Appendix C: Emails to K-1 Teachers about Study/Survey

Email to all teachers of K-1 reading requesting participation in survey

Dear Teacher of K-1 Reading,

I am requesting your assistance with participation in a survey as part of a study that will provide information to help us to teach all students to read in k and grad 1, including struggling readers and students with disabilities. I am conducting this study as part of my Doctorate in Education in order to complete my dissertation, "Increasing Reading Achievement and Narrowing the Reading Achievement Gap for Students with Disabilities Through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions". I am requesting that you complete a brief survey (approximately 10 minutes max) on your classroom instructional practices and your knowledge and skills in regard to teaching reading. This information will be used to inform professional development and other supports on reading instruction for grade k and 1teachers.

As you know, early evidence-based literacy instruction is critical for providing the necessary foundation for learning to read. The status of kindergarten and first grade literacy instruction impacts the goal of ensuring students are reading by grade three and sets the trajectory for future academic success. The focus of my study, which involves two parts, is to determine the status of evidence-based early literacy instruction in K-1 classrooms through surveying all teachers (general and special ed.) of reading of K-1 students regarding their classroom instructional practices and their knowledge and skills in regard to teaching reading and conducting observations during literacy instruction in a sampling of K-1 classrooms in the district to focus on implementation of student-teacher interactions encompassing of key practices of structured literacy. Investigating teacher application and knowledge of and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades (k and 1st). This will improve reading achievement for all students, including students with disabilities. This study has been approved in accordance with district policy and procedures.

Please participate in this study by completing this Qualtrics Survey (insert link) by DATE.

By clicking on the survey link and participating in the survey you are granting consent to participate. The survey will only take approximately 10 minutes max and will provide valuable information to help inform decisions about literacy instruction and future professional development. The survey is voluntary, anonymous, and individual respondents will not be reported. Survey results may be presented at professional conferences or published in professional journals. I have attached a copy of the the survey so you know which questions will be asked. At the conclusion of the survey you will be asked if you would like to be entered into a drawing for a $50.00 gift card for Walmart or Amazon (2 gift cards). If so, you will be taken to another section to enter your name and email.

If your school is selected for participation in the second part of the study which involves a sampling of classroom observations, I ask that you please consider participation in this as well.

Thank you in advance for considering this request to complete the survey. If you have questions or would like additional information on the study, please reply to this email or call me at 443-550-8344.

Sincerely,

Christina M. Harris, Doctoral Candidate
Doctorate in Education

Personalized teacher emails for survey request

Dear (TEACHER NAME):

I am Christy Harris, Director of XXX. I am reaching out because I am in the process of finishing my dissertation and need some help with data collection which will help to inform our district about the implementation of evidence-based literacy practices in the five areas of reading. This information will be used to inform systemic decisions including designing and delivering future professional development for grade k and 1 teachers as well. I would greatly appreciate if you would complete this survey as you have the most knowledge about the practices in place in your classroom. The survey is anonymous, can be completed electronically via computer or on your phone and will only take about 10 minutes. Your school may also be selected for the other component of my study which will involve classroom observations. Please consider volunteering for the observations if you get this opportunity.

Survey Link: Click Here

By clicking on the survey link you grant consent to participate in the survey. I recently sent you, along with all other teachers of reading of grades K-1, an email about this study/survey which included more information on my research (See email dated DATE). I have attached a copy of the survey so you know which questions will be asked. At the conclusion of the survey you will be asked if you would like to be entered into a drawing for a $50.00 gift card for Walmart or Amazon (2 gift cards). If so, you will be taken to another section to enter your name.

Thank you for considering participating in this survey. The survey will remain open until DATE. The information you provide will be used to help further improve reading instruction for all students, including struggling readers and students with disabilities.

Feel free to contact me by reply of this email or call me at 443-550-8344 with any questions.

Christina Harris, Doctoral Candidate
Doctorate in Education

Reminder email to teachers for survey request

Dear k and 1 Teachers,

This is a **reminder to please complete the survey** via link below to share information about your literacy instruction. If you have already completed the survey, Thank you! If not, please do so by DATE. It will only take about 10 minutes and will provide very valuable information to help us to further improve literacy instruction for students. To date __/__ surveys have been completed. Please take the opportunity to provide your input about literacy instruction to help inform our school system. I really need your response.

Survey Link: Click Here

The information you provide will be used to help further improve reading instruction for all students, including struggling readers and students with disabilities. As a reminder, this survey is part of a study that I am conducting for my Doctorate in Education in order to complete my dissertation, "Increasing Reading Achievement and Narrowing the Reading Achievement Gap for Students with Disabilities Through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions".

Feel free to contact me by reply of this email or call me at 443-550-8344 with any questions.

Sincerely,

Christina Harris, Doctoral Candidate
Doctorate in Education

Appendix D: Email to Principals

Email to principals requesting participation in observation portion of study

Dear Principal,

I am requesting your assistance with your school's participation in a current study I am conducting as part of my Doctorate in Education in order to complete my dissertation focused on early literacy instruction. In short, I am requesting permission to observe a small number of teachers during their literacy instruction (ideally one k and one grade 1 volunteer).

My dissertation is titled "Increasing Reading Achievement and Narrowing the Reading Achievement Gap for Students with Disabilities Through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions". Early evidence-based literacy instruction implemented in kindergarten and first grade is critical for providing the necessary foundation for learning to read. The status of kindergarten and first grade literacy instruction impacts the goal of ensuring students are reading by grade three and sets the trajectory for future academic success. The focus of my study, which involves two phases, is to determine the status of evidence-based early literacy instruction in K-1 classrooms through surveying all teachers of reading of K-1 students regarding their classroom instructional practices and their knowledge and skills in regard to teaching reading and conducting observations during literacy instruction in a sampling of K-1 classrooms in the district to focus on implementation of student-teacher interactions encompassing of key components of structured literacy. Investigating teacher application and knowledge of evidence-based literacy instructional practices and the status of implementation of evidence-based literacy instruction in grades k and 1 classrooms, including key components of structured literacy will help to inform teacher professional development so that early evidence-based literacy instruction is implemented in core instruction in the most critical grades (k and 1st) which will improve reading achievement for all students, including students with disabilities. This study has been approved by in accordance with district policy and procedures as well as through the University of Maryland IRB.

I am requesting permission from you to conduct observations of a minimum of two teachers (one k and one Grade 1) in your school who are willing to participate in this voluntary study. There will be 3 observations of each teacher for 20 minutes during the reading/ literacy block in order to get a sampling of different areas of reading, and will be conducted by an observer who may include special education specialists, ELA specialists or former principals with a literacy background and has received training in the Classroom Observations of Student-Teacher Interactions (COSTI) observation tool which contains evidence-based literacy practices. At least one of the observations of each teacher will be conducted by two of the observers for reliability purposes. The COSTI is a valuable tool for providing teachers with specific feedback on their instruction in basic skills as this instrument was originally developed to give student teachers concrete feedback. Teachers will be provided the results of their observations in writing after the data is compiled from the 3 observations and will be offered a confidential conference with me to review. Information will be kept confidential and only the teacher will receive his/her feedback. Teachers will be able to use this information to reflect on and adjust their literacy instruction which serves as professional growth opportunity in alignment with Domain 4 of the Danielson model.

With your permission, I would like to email your K-1 classroom teachers about the study and to ask for volunteers for participation for the observations, which should occur within a month. Individual teacher data, school data and district data will be kept confidential. Only aggregate data will be reported in the study. It will be greatly appreciated if you let your teachers know that you have agreed to participation in this study and encourage their voluntary participation. **Please reply to this email to let me know if you agree to participation**.

Thank you in advance for considering this request. If you have questions or would like additional information on the study, please contact me via email or call me at 443-55-8344.

Sincerely,

Christina M. Harris, Doctoral Candidate
Doctorate in Education

Appendix E: Email to K-1 Teachers about Observations

Email to K-1 classroom teachers requesting participation in observation portion of study

Dear K-1 classroom teacher,

You are invited to participate in an important study that will provide our district with information to help inform decisions so that all students, including struggling readers and students with disabilities, learn to read in kindergarten and first grade. Your voluntary participation in the study would involve your literacy instruction being observed on three occasions (20 min. each) in order to provide data on the status of evidence-based literacy practices in place. The data collected from this study (the survey and observations) will be used to design and provide professional development in early literacy instruction to k and 1st grade teachers as well as to offer other helpful information for systemic planning. Only a limited number of teachers will be selected to participate so please consider this exclusive opportunity. You will **reply to this email to volunteer**. Please click the link below to view a brief video of me explaining key information about the observation portion of this study and/or read the information below.

I recently reached out to you and requested your participation in a survey as part of the current study I am conducting for my Doctorate in Education in order to complete my dissertation titled "Increasing Reading Achievement and Narrowing the Reading Achievement Gap for Students with Disabilities Through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions" and I explained that the second component to my study involves a sampling of classroom observations at select schools. Your school has been selected and your principal has agreed to participation. Please consider allowing me and/or someone on my study observation team to conduct classroom observations during your literacy block during within the month in order to help our district to strengthen reading instruction for all of our students.

Below is additional information about the classroom observation:

- observations will be during the reading/ literacy block
    - 3 observations on different dates during different parts of the reading block to observe different areas of reading
- will be conducted by observers who are district employee (special education/ELA specialists) and has received training on the COSTI
    - three observations, with a minimum of one of the observations by two observers (for data reliability purposes)
- Classroom Observations of Student-Teacher Interactions (COSTI) observation tool will be used which contains evidence-based literacy practices aligned to structured literacy.
    - COSTI documents the frequency of four student-teacher interactions during beginning reading instruction: explicit teacher demonstrations, student independent practice, student errors, and teacher corrective feedback.
- Following the completion of the 3 classroom observations, your compiled data will be shared in writing (with you only) and I will offer a confidential conference with me if you would like a verbal review.
    - Once an observation is completed the data will be provided to me only and I will compile it. There will not be any reporting of individual teacher data or names of teachers or schools. All data will be reported in aggregate only. Confidentiality will be protected. Individual teacher/classroom data will not be reported in the study and will not be used as an evaluation of any type of the teacher.
- Teachers will be able to use this information to reflect on and adjust their literacy instruction which serves as a professional growth opportunity in alignment with Domain 4 of the Danielson model. Teachers may also choose to use their COSTI observation data focused on evidence-based practices as a strategy for Student Learning Outcomes (SLO) in literacy.

Determining the status of evidence-based literacy instruction in early primary grades (K-1) will help to inform our district by identifying current practices in place to develop and provide teacher professional development and improve core instructional practices to ensure

implementation of high-quality early evidence-based core literacy instruction which is the foundation of reading instruction. A strong core instructional early literacy program is important for all students, especially struggling readers and students with identified disabilities. As K-1 teachers you have a significant influence on setting students up for a success by teaching all students to read.

Please let me know by responding to this email if you are willing to participate in the classroom observation, as participation is voluntary. Upon agreement to participate I will send a consent form for you to sign and will then reach out to coordinate your observations. In order to complete the study, I need 2 teachers, one k and one first grade, per school (6 schools) to participate. Observations can be done in person or virtually, dependent on the instructional model that is in place. In addition to receiving non-evaluative specific instructional feedback (which is amazing in itself!), as a small token of appreciation for your participation in the classroom observations you will be provided a $10 gift card to Panera or Starbucks and your name will be entered into a drawing for a $50.00 Visa gift card.

Feel free to email me with questions or call me at 443-550-8344. Thank you for your consideration.

Sincerely,

Christina M. Harris, Doctoral Candidate
Doctorate in Education

Appendix F: COSTI Codesheet Example

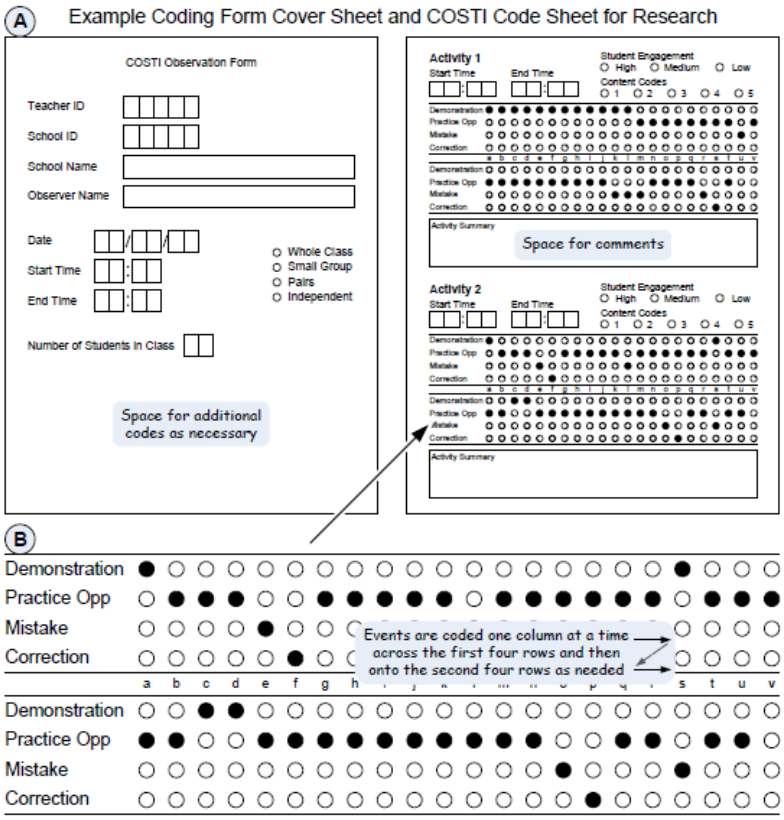

Exhibit 2. **Part A** shows the first two pages of a COSTI coding form. The cover page is used to code information about the observation (e.g., ID numbers, date and time) and classroom features. The second and subsequent pages are used to code student-teacher instructional interactions. This example also shows (optional) codes for student engagement and instructional content. **Part B** shows an excerpt of the COSTI section, which has two sets of rows. Coders begin with the top set of rows, using one column at a time and continue to the second four rows as needed. The letters printed between the two sets of rows are provided for reference. In this completed example, the coder began at the top left and observed a teacher demonstration (column a), three opportunities for independent practice (b–d), a student mistake (e), a teacher correction (f), and so on. After completing the first set of rows, the coder moved to the second set. If more space were needed, the coder would have continued into another section of the form for the same activity.

Appendix G: UMD IRB Approval

UNIVERSITY OF MARYLAND
INSTITUTIONAL REVIEW BOARD

1204 Marie Mount Hall
College Park, MD 20742-5125
TEL 301.405.4212
FAX 301.314.1475
irb@umd.edu
www.umresearch.umd.edu/IRB

DATE:	February 9, 2021
TO:	Christina Harris, EdD
FROM:	University of Maryland College Park (UMCP) IRB
PROJECT TITLE:	[1685501-1] Increasing Reading Achievement and Narrowing the Gap for Students with Disabilities through Effective Evidence-based Core Instruction, Early Identification & Prevention and Tiered Interventions
REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	February 9, 2021
EXPIRATION DATE:	February 8, 2022
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Expedited review category # 7. Waiver of Written Consent, 45CFR46.117(c)(1).

Thank you for your submission of New Project materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Prior to submission to the IRB Office, this project received scientific review from the departmental IRB Liaison.

This submission has received Expedited Review based on the applicable federal regulations.

This project has been determined to be a MINIMAL RISK project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of February 8, 2022.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Unless a consent waiver or alteration has been approved, Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Please note that all research records must be retained for a minimum of seven years after the completion of the project.

If you have any questions, please contact the IRB Office at 301-405-4212 or irb@umd.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Maryland College Park (UMCP) IRB's records.

Appendix H: District IRB Approval

December 16, 2020

Ms. Christina Harris
757 Monarch Lane
Huntingtown, MD 20639

Dear Ms. Harris:

Thank you for submitting a request to do research in [redacted] Your request has been approved with the following stipulations:

- All staff participation in the study is voluntary. This is for both the surveys and observations. Please make sure that this information is communicated clearly to all potential subjects for your study.
- It is important to minimize teacher time to do surveys and work on this study. Be aware of the time that you are asking the participants.
- Confidentiality is extremely important. All names/identifying information must be confidential throughout and after the study has been complete.
- Once completed, please make sure that you provide me, Jonathan McClellan a summary of your results.
- Any changes to your research design or survey must be communicated to me for review and consideration of approval.

If you have any questions, please feel free to contact me.

Sincerely,

Jonathan McClellan
Director of Information Technology

Bibliography

Austin CR et al. 2019. “The Relationship between Study Quality and the Effects of Supplemental Reading Interventions: A Meta-Analysis.” *Exceptional Children* 85(3):347–66.

Arnbak, E. (2004). When are poor reading skills a threat to educational achievement? *Reading and Writing : An Interdisciplinary Journal, 17*(5), 459-482. doi:10.1023/B:READ.0000044595.76174.cc

Baker, S. K., Simmons, D. C., & Kameenui, E.J. (1995). Vocabulary acquisition: synthesis of the research. *Educational Resources Information Center (U.S.).*

Bennett, K., Brown, K., Boyle, M., Racine, Y., & Offord, D. (2003). Does low reading achievement at school entry cause conduct problems? *Social Science & Medicine. 56*(12), 2443-2448.

Birsh, J.R. (2019) What is multisensory structured language? *Perspectives on Languae and Literacy.* 45(2), 13-18.

Blankenship, T., Slough, M., Calkins, S., Deater-Deckard, K., Kim-Spoon, J., & Bell, M. (2019). Attention and executive functioning in infancy: Links to childhood executive function and reading achievement. *Developmental Science, 22*(6). doi:10.1111/desc.12824

Bratsch-Hines, M.E., Vernon-Feagans, L., Varghese, C., & Garwood, J. (2017) Child skills and teacher qualifications: Associations with elementary classroom

teachers reading instruction for struggling readers. *Learning Disabilities Research & Practice 32(4)*, 270-283.

Brizzolara, D., Gasperini, F., Pfanner, L., Cristofani, P., Casalini, C., & Chilosi, A. (2011). Long-term reading and spelling outcome in Italian adolescents with a history of specific language impairment. *Cortex; a Journal Devoted to the Study of the Nervous System and Behavior*, *47*(8), 955-73. doi:10.1016/j.cortex.2011.02.009

Bryk, A. S., Gomez, L. M., Grunow, A., & LeMahieu, P. G. (2015). *Learning to improve: how America's schools can get better at getting better*. Harvard Education Press.

Bureau of Labor Statistics. (2019, September 4). Unemployment rates and earnings by educational attainment. Retrieved from https://www.bls.gov/emp/chart-unemployment-earnings-education.htm

Claessens, A., Duncan, G., & Engel, M. (2009). Kindergarten skills and fifth-grade achievement: Evidence from the ecls-k. *Economics of Education Review*, *28*(4), 415-427. doi:10.1016/j.econedurev.2008.09.003

Coyne, M.D., Simmons, D.C., Hagan-Burke, S., Simmons, L.E., …Rawlinson, D.M. (2013) Adjusting beginning reading intervention based on student performance: An experimental Evaluation. *Exceptional Children*. 80(1), 25-44.

Coyne, M.D.,Oldhm, S., Dougherty, S.M., Leonard, K., ... Gillis, M. (2018) Evaluating the effects of supplemental reading intervention within an MTSS or RTI reading reform initiative using a regression discontinuity design. *Exceptional Children*. 84(4), 350-367.

Creswell, J. W., & Creswell, J. D. (2018). *Research design : qualitative, quantitative, and mixed methods approaches* (Fifth). SAGE Publications.

Daniel, S., Walsh, A., Goldston, D., Arnold, E., Reboussin, B., & Wood, F. (2006). Suicidality, school dropout, and reading problems among adolescents. *Journal of Learning Disabilities, 39*(6), 507-514.

De Vaus, D. A. 2001. *Research Design in Social Research*. London: SAGE.

Dominigue, B. (2021, April 1) Has the COVID-19 crisis affected reading development? Retrieved from https://bold.expert/has-the-covid-19-crisis-affected-reading-development/

ESSA. 2015. Found at https://www.govinfo.gov/content/pkg/BILLS-114s1177enr/pdf/BILLS-114s1177enr.pdf

Foorman, B., Beyler, N., Borradaile, K., Coyne, M., Denton, C. A., Dimino, J., Furgeson, J., Hayes, L., Henke, J., Justice, L., Keating, B., Lewis, W., Sattar, S., Streke, A., Wagner, R., & Wissel, S. (2016). Foundational skills to support reading for understanding in kindergarten through 3rd grade (NCEE 2016-4008). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Retrieved from the NCEE website: http://whatworks.ed.gov

Francis, D., Caruana, N., Hudson, J., & McArthur, G. (2019). The association between poor reading and internalising problems: A systematic review and meta-analysis. *Clinical Psychology Review, 67*, 45-60. doi:10.1016/j.cpr.2018.09.002

Frazier, T., Youngstrom, E., Glutting, J., & Watkins, M. (2007). ADHD and achievement. *Journal of Learning Disabilities, 40*(1), 49-65.

Frey, N. & Fisher, D. (2017). Quality core instruction and differentiation: dispositions and effective practices. *Perspectives on Language and Literacy, 43(3),* 29-31.

Fuchs, Douglas & Fuchs, Lynn & L. McMaster, Kristen & J. Lemons, Christopher. (2018). Students with Disabilities' Abysmal School Performance: An Introduction to the Special Issue. Learning Disabilities Research & Practice. 33. 127-130. 10.1111/ldrp.12180.

Fuchs, L., & Fuchs, D. (2009). Creating opportunities for intensive intervention for students with learning disabilities. *Teaching Exceptional Children, 42*(2), 60-62.

Gilmour, A., Fuchs, D., & Wehby, J. (2019). Are students with disabilities accessing the curriculum? a meta-analysis of the reading achievement gap between students with and without disabilities. *Exceptional Children, 85*(3), 329-346. doi:10.1177/0014402918795830

Greenwood, C., Carta, J., Schnitz, A., Irvin, D., Jia, F., & Atwater, J. (2019). Filling an information gap in preschool mtss and rti decision making. *Exceptional*

Children, 85(3),

271-290. doi:10.1177/0014402918812473

Guang, Y., Masood, B., Asma, A., & Karima, A. (2018). The role of reading motivation, self-efficacy, and home influence in students' literacy achievement: A preliminary examination of fourth graders in abu dhabi. *Large-Scale Assessments in Education, 6*(1),

10-10. doi:10.1186/s40536-018-0063-0

Harvey, J. (2018). The problem with "proficient". *Educational Leadership.* 75(5),

64-69.

Hayiou-Thomas, M., Carroll, J., Leavett, R., Hulme, C., & Snowling, M. (2017). When does speech sound disorder matter for literacy? the role of disordered speech errors, co-occurring language impairment and family risk of dyslexia. *Journal of Child Psychology and Psychiatry*, *58*(2), 197-205. doi:10.1111/jcpp.12648

Hernandez, D.J., & Annie E. Casey, F. (2011). Double jeopardy: how third grade reading skills and poverty influence high school graduation.

Horowitz, S. H., Rawe, J., & Whittaker, M. C. (2017). The State of Learning Disabilities: Understanding the 1 in 5. New York: National Center for Learning Disabilities.Found at http://www.ncld.org/wp-content/uploads/2017/03/Executive-Summary.Fin

Individuals with Disabilities Education Improvement Act (IDEA) of 2004, PL 108-

466, 20 U.S.C. §1400 et. seq.

International Dyslexia Association (IDA) (2017). *Dyslexia in the classroom: what every teacher needs to know*. Baltimore, MD. www.DyslexiaIDA.org

International Dyslexia Association (IDA) (2018, March). Knowledge and Practice Standards for Teachers of Reading. Retrieved from https://dyslexiaida.org/knowledge-and-practices/

Johnson, D. R., Thurlow, M. L., & Schuelka, M. J. (2012). *Diploma options, graduation requirements, and exit exams for youth with disabilities: 2011 national study* (Technical Report 62). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Jones, R. E., Yssel, N. & Grant, C. (2012). Reading instruction in tier 1: bridging the gaps by nesting evidence-based interventions within differentiated instruction. *Psychology in the Schools 49(3),*210-218.

Judge, S., & Bell, S. (2011). Reading achievement trajectories for students with learning disabilities during the elementary school years. *Reading & Writing Quarterly, 27*(1-2), 153-178.

Kelly, J.H.*, Cummings, K.D., Silverman, R.D., Taboada Barber, A., & Espinas, D*. (2020). *Investigating the impacts of integrated curricula on literacy instruction.* Manuscript submitted for publication.

Learning Forward. (2021). Learningforward.org. Retrieved from https://learningforward.org/standards-for-professional-learning/

Lemons, C.J., Otaiba, S., Conway, S.J. & Mellado De La Cruz, V. (2016). Improving professional development to enhance reading outcomes for students in special education. In B. Foorman (Ed.), *Challenges to implementing effective reading intervention in schools, New Directions for Child and Adolescent Development, 154,* 87-104.

Levenson, N. & Cleveland, C. (2016). Improving special education: DMC's best practices for cost effectively raising achievement. *The District Management Journal.* 20, 12-23.

Lewis, B., Avrich, A., Freebairn, L., Hansen, A., Sucheston, L., Kuo, I., . . . Stein, C. (2011). Literacy outcomes of children with early childhood speech sound disorders: Impact of endophenotypes. *Journal of Speech, Language, and Hearing Research, 54*(6), 1628-1643. doi:10.1044/1092-4388(2011/10-0124)

Loewenberg Ball, D., Cohen, D.K., and Rowan, B. (2010) Study of Instructional Improvement (SII). Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. https://doi.org/10.3886/ICPSR26282.v1

Lubell, S. (2017) *Readiness starts with reading.* National Council on Teacher Quality. Found at https://www.nctq.org/blog/Readiness-Starts-with-Reading

Lyon, G. R., Fletcher, J. M., Shaywitz, S.E., Shaywitz, B.A., Torgesen, J.K., Wood, F.B, … Olson, R. (2001) Rethinking learning disabilities. Retrieved from https://www.researchgate.net/publication/242685581

Marinak, B. (2013). Courageous reading instruction: the effects of an elementary

motivation intervention. *The Journal of Education Research, 106*, 39-48

Maryland Public Schools (2017), 2017 Maryland Report Card. Retrieved from http://reportcard.msde.maryland.gov/ParccResults

Mascheretti, S., Andreola, C., Scaini, S., & Sulpizio, S. (2018). Beyond genes: A systematic review of environmental risk factors in specific reading disorder. *Research in Developmental Disabilities, 82*, 147-152. doi:10.1016/j.ridd.2018.03.005

McIntosh, Kent, and Steve Goodman. *Integrated Multi-Tiered Systems of Support: Blending RTI and PBIS*. The Guilford Press, 2016.

McLaughlin, M. J., Speirs, K. E., & Shenassa, E. D. (2014). Reading Disability and Adult Attained Education and Income: Evidence From a 30-Year Longitudinal Study of a Population-Based Sample. *Journal of Learning Disabilities*, *47*(4), 374–386. https://doi.org/10.1177/0022219412458323

McNamara, J., Scissons, M., & Gutknecth, N. (2011). A longitudinal study of kindergarten children at risk for reading disabilities: The poor really are getting poorer. *Journal of Learning Disabilities, 44*(5), 421-30. doi:10.1177/0022219411410040

McNulty, R.J. & Gloeckler, L.C. (2011). Fewer, Clearer, Higher Common Core State Standards: Implications for Students Receiving Special Education Services. *International Center for Leadership in Education.*

Moats, L. (2019) Structured Literacy ™: effective instruction for students with

dyslexia and related reading difficulties. *Perspectives on Languae and Literacy*. 45(2), 9-10.

Maryland State Department of Education (MSDE) (2019). Maryland Early Intervention and Special Education Services Census Data & Related Tables October 1, 2018.

Maryland State Department of Education (MSDE) website (2019) Maryland Public Schools Report Cards. Found at https://reportcard.msde.maryland.gov/

Molfese, V., Modglin, A., & Molfese, D. (2003). The role of environment in the development of reading skills. *Journal of Learning Disabilities, 36*(1), 59-67.

National Academy of Sciences (2000). *From neurons to neighborhoods: the science of early child development Free executive summary. Found at http://www.nap.edu/catalog/9824.html*

National Center for Education Statistics, Retrieved from https://nces.ed.gov/ccd/tables/ACGR_RE_and_characteristics_2013-14.asp

National Center for Education Statistics, Retrieved from https://nces.ed.gov/ecls/kindergarten.asp

National Center for Education Statistics (2019) The condition of education. Retrieved from https://nces.ed.gov/programs/coe/indicator_cgg.asp

National Center on Educational Outcomes, (2018) *Data Analytics (7)* Retrieved from https://tableau.ahc.umn.edu/t/ICI/views/Dataanlytic7APR2015-16/

National Reading Panel. (2000). *Teaching children to read: An evidence-based*

assessment of the scientific research literature on reading and its implications for reading instruction. Bethesda, MD: Author.

O'Connor, J. L. (2010). *Students with disabilities can meet accountability standards A road map for school leaders.* Lanham, MD: Rowman & Littlefield Education

Olson, R. (2001) Rethinking learning disabilities. Retrieved from https://www.researchgate.net/publication/242685581

Otaiba, S. A., Allor, J. H., Baker, K., Conner, C., Stewart, J., & de la Cruz, V. M. (2019). Teaching phonemic awareness and word reading skills. *Perspectives on Languae and Literacy.* 45(3), 11-16.

Rasinski, T. (2017). Readers who struggle: Why many struggle and a modest proposal for improving their reading. *The Reading Teacher, 70*(5), 519-524. doi:10.1002/trtr.1533

Rickenbrode, R., Drake, G., Pomerance, L. & Walsh, K. *2018 Teacher Prep Review.* 2018. Washington, D.C.: National Council on Teacher Quality. Found at www.nctq.org

Riley, B. (2020). Drawing on reading science without starting a war. *Educational Leadership, 77*(5), 16-23.

Russell, G., Ukoumunne, O., Ryder, D., Golding, J., & Norwich, B. (2018). Predictors of word-reading ability in 7-year-olds: Analysis of data from a u.k. cohort study. *Journal of Research in Reading, 41*(1), 58-78.

doi:10.1111/1467-9817.12087

Sabatini, J., Wang, Z., & O'Reilly, T. (2018), Relating reading comprehension to oral reading performance in the NAEP fourth-grade special study of oral reading. *Reading Research Quarterly, 54(2).* 253-271. Doi: 10.1002.rrq.226.

Sailor, W. (2015) Advances in schoolwide inclusive school reform. *Remedial and Special Education.* 36 (2), 94-99. https://doi.org/10.1177/0741932514555021

Shannahan,T. (2005). The national reading report. Practical advice for teachers. Naperville, IL: Learning Point Associates.

Smolkowski, K. and Gunn, B. 2012. "Reliability and Validity of the Classroom Observations of Student-Teacher Interactions (COSTI) for Kindergarten Reading Instruction." *Early Childhood Research Quarterly* 27(2):316–28

Snowling, M., & Hulme, C. (2012). Annual research review: The nature and classification of reading disorders - a commentary on proposals for DSM-5. *Journal of Child Psychology and Psychiatry, 53*(5), 593-607. doi:10.1111/j.1469-7610.2011.02495.x

Solari, E., Denton, C., & Haring, C. (2017). How to reach first-grade struggling readers: An integrated instructional approach. *Teaching Exceptional Children, 49*(3), 149-159.

Sonnenschein, S., Stapleton, L., & Benson, A. (2010). The relation between the type and amount of instruction and growth in children's reading competencies. *American Educational Research Journal, 47*(2), 358–389.

Spear-Swerling, L. (2019). Structured literacy and typical literacy practices:

understanding differences to create instructional opportunities. *Teaching Exceptional Children*, *51*(3), 201–211.

Spear-Swerling, L. (2015). Common types of reading problems and how to help children who have them. *The Reading Teacher. 69(5).* 513-522.

Spector, C. (2021). New Stanford study sheds light on how much learning young students have lost during stages of the pandemic. Stanford Graduate School of Education. Retrieved from https://ed.stanford.edu/news

Stanovich, K. E. (2017). Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy. Journal of Education, 189(1–2), 23–55.

Stanovich, K. E. (2009). Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy. Journal of Education, 189(1–2), 23–55.

Stanovich, K. E. (1986). Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy. Reading Research Quarterly, 21(4), 360–407. https://doi.org/10.1177/0022057409189001-204

The Annie E. Casey Foundation (2014). *Kids count data snapshot: Early reading proficiency in he United States.*

The Gateway School. www.thegatewayschool.com

Thurlow, M. L. & Wu, Y.-C. (2018). *2015-2016 APR snapshot #16: State assessment*

participation and performance of students receiving special education services. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Found at https://nceo.info/Resources/publications/APRsnapshot/brief19

Thurlow, M. L., Albus, D. A., Lazarus, S. S., & Vang, M. (2014). Graduation policies for students with significant cognitive disabilities who participate in states' AA-AAS (Synthesis Report 97). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved from https://nceo.umn.edu/docs/OnlinePubs/Synthesis97/SynthesisReport97.pdf

Torppa, M., Poikkeus, A., Laakso, M., Eklund, K., & Lyytinen, H. (2006). Predicting delayed letter knowledge development and its relation to grade 1 reading achievement among children with and without familial risk for dyslexia. *Developmental Psychology, 42*(6), 1128-1142. doi:10.1037/0012-1649.42.6.1128

Trzesniewski, K., Moffitt, T., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development, 77*(1), 72-88. doi:10.1111/j.1467-8624.2006.00857.x

USDOE. Archived Executive Summary No Child Left Behind Act of 2001, retrieved January 25, 2020, from https://www2.ed.gov/nclb/overview/intro/execsumm.html

USDOE. About IDEA. From https://sites.ed.gov/idea/about-idea/

U.S. Department of Education, National Center for Education Statistics. (2019). *Public high school 4 year adjusted cohort graduation rate (ACGR), by race/ethnicity and selected demographic characteristics for the United States, the 50 states, and the District of Columbia: School year 2016-2017.*

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP). (1998-2017 Reading Assessments) Retrieved from www.nationsreportcard.gov/ndecore/xplore/NDE

U.S. Department of Education, Institute of Education Sciences (2017) What Works Clearinghouse WWC Intervention Report Success for All. Retrieved from https://ies.gove/ncee/wwc/Docs/InterventionReports/wwc_sfa_

Vaknin-Nusbaum, V., Nevo, E., Brande, S., & Gambrell, L. (2018). Developmental aspects of reading motivation and reading achievement among second grade low achievers and typical readers. *Journal of Research in Reading, 41*(3), 438-454.

Vaughn S & Wanzek, J. (2014) Intensive interventions in reading for students with reading disabilities: Meaningful impacts. *Learning Disabilities Research & Practice*, 29(2), 46-53.

Voyager Sopris. Found at https://www.voyagersopris.com/professional-development/letrs/letrs-K-12

Wei, X., Blackorby, J., & Schiller, E. (2011). Growth in reading achievement of

students with isabilities, ages 7 to 17. *Exceptional Children, 78*(1), 89-106.

Wu, Y.-C. & Thurlow, M. L. (2019). *2016-2017 APR snapshot #19: State assessment participation and performance of students receiving special education services.* Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Wu, Y.-C., Thurlow, M. L., Albus, D.A., Lazarus, S.S., Moore, M. & Liu, K. (2018). *State assessment participation and performance of students with IEPs 2015-2016 (Data Analytics #7).* Minneapolis MN: University of Minnesota, National Center on Educational Outcomes. Found at https://tableau.ahc.umn.edu/t/ICI/views/Dataanlytic7APR2015-16/Story1?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no

Ysseldyke, J. & Algazzine, B. (1979) Perspectives on assessment of learning disabled students. *Learning Disability Quarterly.* 2, 3-13.