Assessing the Promise of a Supplemental Reading Intervention for At-Risk First Grade Students in a Public School Setting

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Abstract

In this exploratory quasi-experimental case study, we assessed the promise of a yearlong supplemental reading intervention with a small pilot group of at-risk first grade readers in an elementary school setting. Using standardized measures of reading proficiency, we found that after 47 hours of one-on-one tutoring instruction, students read significantly more proficiently than did non-tutored students in a matched group of first grade peers in the same school. These results are encouraging in light of literacy research documenting the impact of one-on-one tutoring by qualified tutors of at-risk early grade readers. We used lessons learned from this pilot study to help inform and direct the necessary revisions and refinements of future reading interventions with the goal of building the school's capacity to support the literacy development of at-risk readers so that they can catch up with their typically developing peers.

Keywords: Response to intervention, early literacy instruction, one-on-one tutoring, at-risk readers

Introduction

Students arrive at school around 7:00 a.m. Parents drop them off by the cafeteria, where they get breakfast and meet their tutors.

Denica waits for six-year old Keyonte each tutoring day (names are pseudonyms). Keyonte usually runs 10-15 minutes late. When she picks him up from the cafeteria, they

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usually talk about his morning or the books he read the night before. These conversations help set the stage for the daily tutoring lessons. Denica intentionally asks open-ended questions to help engage Keyonte in purposeful and meaningful conversations. Most morning conversation starters are centered on breakfast or his clothes (he often has on matching sneakers and jackets, or new jeans with cool logos). Gradually, their conversation becomes more centered on books and characters that are interesting to him.

Once upstairs in the school library, they would settle in for their daily literacy lesson. Keyonte often works best when seated side by side at a table with Denica. Working on the floor proved to be too much of a distraction. Sitting beside him allows Denica to easily see how he is reading and point out key words and phrases during picture walks.

Students like Keyonte are often regarded as "struggling" or "at-risk" readers. Most enter first grade with low literacy skills, and are therefore considered unprepared to fully engage in formal school-based literacy activities. On the other hand, these students come to school with an array of talents and home experiences that are critically important for their school success. In our study of what works for struggling first grade readers, we show how schools can bring about significant improvements in reading performance outcomes among these students, by catching them before they fall, providing them with intensive one-on-one instruction, and expert teaching will be necessary. For many of these students, as Marie Clay (2005) observed: "It is the individual adaptation made by the expert teacher to that child's idiosyncratic competencies and history of past experiences that starts him on the upward climb to effective literacy performances." (p. 63).

What research says about how to effectively reach and teach at-risk early grade readers

When it comes to what works when teaching children to read in the early grades, we know one thing for certain: There are no silver bullets. On the other hand, a review of several decades of reading research and long-term data give us a better sense of what works — and, for the most part, it's what we're not doing, which, according to reading experts, includes early detection of reading difficulties, intensive instruction, and expert teaching for all children, especially for those who come from ethnically diverse and/or low-income families (e.g., Au, 2011, Clay, 2005; Taylor, 2007).

For purposes of this article, we will focus on two main lines of literacy research and instruction. The first one examines the characteristics of effective reading instruction programs that have been shown to help at-risk readers catch up to their grade levels. The second line of research examines the degree to which these programs are similarly effective for all children, including those who come from ethnically diverse and economically disadvantaged backgrounds.

What does it take to effectively reach and teach early grade at-risk readers?

Literacy researchers and practitioners generally agree that it is possible to prevent reading problems for most children when they are provided with supplementary instructional support in the form of effective early and intensive literacy interventions (e.g., Clay, 2005; Snow, Burns, & Griffin, 1998; Wasik & Slavin, 1993). Some researchers have shown that almost all first grade children can learn to read, including those who enter school with low levels of literacy and who in the past would have failed to learn to read in first grade (e.g., Taylor, Critchley, Paulsen, MacDonald, & Miron, 2002). A recent U.S. Department of Education report concluded, after a review of evidence from available randomized controlled studies, that one-on-one tutoring by qualified tutors for at-risk readers in Grades 1–3 is effective (Institute of Education Sciences, 2003, p. iii). The report authors further noted "one-on-one tutoring of at-risk readers by a well-trained tutor yields an effect size of about 0.7. This means that the average tutored student reads more

proficiently than approximately 75 percent of the untutored students in the control group." (p. 19).

The above findings appear at odds with students' reading performance in many United States schools as revealed by state and national tests of reading proficiency. Report cards such as the National Assessment of Educational Progress (NAEP) indicate that since 2007, nearly two out of three 4th grade students in the U.S. have had reading proficiencies below the level needed to do grade level work adequately (National Center for Educational Statistics [NCES], 2011). State assessments consistently show that as many as 30% of first grade students, on average, enter school with low levels of reading and writing. The number of students in need of reading assistance is much greater for students of low-income families, students with disabilities, and students representing culturally, linguistically, and racially different backgrounds.

So why are there such high numbers of underachieving readers when the research evidence shows that reading problems are preventable for the majority of young children? The answer to this question is complex but depends, to a great extent, on what schools are doing or not doing to prevent and address students' reading difficulties. In our work with struggling readers in school settings, we often find that there is a gap between what is known about best practices in literacy instruction and what happens daily in practice, particularly in classrooms that have a high percentage of underachieving readers. The answer also depends on whether schools have the means and expertise to put in place systems for identifying children at-risk of reading difficulties, providing effective literacy instruction in the preschool and early grades, and supporting the professional learning and development of teachers. Consistent with these observations, literacy researchers have argued for several decades that "few students in the United States regularly receive the best reading instruction we know how to give" (Allington, 2011), and that classroom literacy instruction seldom reflects best practices as identified in the research (Taylor, Peterson, Pearson, & Rodriguez, 2010).

Richard Allington, a leading literacy researcher who has spent many years studying exemplary elementary classroom teachers, has argued that as a literacy community, we know how to teach nearly every child to read by first grade. Unfortunately, few schools are doing what they need to do to help students most at-risk of reading failure. In an article published in *Educational Leadership*, Allington and Gabriel (2012) outline six elements of effective reading instruction that they assert "do not require much time or money—just educators' decision to put them in place" (p. 1). The key to reaching the goal of teaching every child to read by first grade depends on providing opportunities for every child to experience these research-based elements of reading instruction every day. According to Allington and Gabriel (2012), in order to help all students become competent, independent readers and writers, classroom teachers should (a) give students an opportunity to read something that appeals to their interests and needs, (b) read something they can accurately read and understand, (c) write something that is meaningful to them, (d) talk about what they read or write with someone, and (e) hear a fluent adult reader read aloud every day.

Drawing from research on effective reading instruction during the last four decades, as well as her own research examining the "how" as well as the "what" of effective elementary reading instruction practices, Taylor and colleagues concur that many of the classroom literacy instruction practices she observed in thousands of classrooms over a period of several years are inconsistent with research-based instruction practices (Taylor, 2007; Taylor et al., 2010). They argue that to reach the goal of helping all children in the elementary grades succeed in reading to their fullest potential, teachers and administrators within schools should make a concerted effort to work together to develop

and deliver a sound school-wide reading program. She further notes that while schools know that a wealth of information is available to help them move closer to helping every child become a reader, putting all the relevant pieces together remains a challenge. Moreover, she points out that ongoing professional development in which teachers work together within their buildings to reflect on their practices is an important first step in achieving this goal.

Researchers, policy makers, and practitioners generally agree that the first three years of classroom instruction are critically important for preventing students from falling behind and preventing reading failure. During these critical years, schools lacking the expertise and/or the resources to put in place a system for providing expert reading instruction for all students are likely to create a pool of students who will become struggling readers. By and large, during the past several decades, schools have made substantial progress in addressing reading difficulties by designing effective early reading intervention programs. One of the most notable examples of successful early intervention programs is the *Reading Recovery* model, which uses one-to-one tutoring for struggling readers in grades 1-3 (Clay, 2005, Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994; Pinnell, Fried, & Estice, 1990). Another successful program is *Success for All*, which has a track record of providing successful school-wide tutoring interventions for students at-risk of reading difficulties (Slavin, Madden, Karweit, Livermon, & Dolan, 1990).

Programs such as these, and others, use literacy practices that are supported by research evidence and that have been shown to work well for at-risk readers. Additionally, with new initiatives such as Response to Instruction (RTI), which is a part of the 2004 reauthorization of the Individuals with Disabilities Act, research indicates that it is possible to substantially reduce the number of students classified as learning disabled. This legislation, according to Johnston (2011) and Allington (2010) enables schools to (a) provide increasingly intensive tiered instruction to help ensure that students having difficulty learning to read are provided with the requisite expert instruction, and (b) identify students who continue to have reading difficulties after receiving intensive reading instruction. The most commonly used form of RTI has three tiers of instruction ranging from conventional classroom reading instruction (Tier 1), to supplementary expert instruction delivered in small group settings (Tier 2), to targeted instruction provided in one-on-one tutorial settings for students most in need of reading assistance.

Since the enactment of the IDEA legislation, there has been a great deal of interest within schools and districts to put in place tiers of instruction systems aimed at significantly reducing the number of students experiencing reading difficulties. To address the needs of students who are most at-risk of reading difficulties (i.e., those who are in the third tier of instruction), many schools have put in place various types of extended-day programs depending on their needs and resources. Allington (2012) describes four of the most commonly used extended school-day designs as follows:

1) *School-based remedial assistance with expert reading instruction*. In this design, eligible students work with reading and/or special education teachers for an hour or more after school to accelerate literacy development.

2) *School-based tutoring with trained community volunteers, high school, or college students*. Designs such as this often consist of only once or twice weekly sessions, although some do provide daily instructional support.

3) *School-based homework help/child care/recreation with paraprofessional or volunteer support*. In this design, eligible students receive mostly homework assistance with corresponding recreational activities.

4) *Community-based homework help/child care/recreation*. There are actually fewer school-based than community-based after school programs currently operating. These programs, which are similar to school-based programs, are sponsored by organizations such as YMCA, Boys and Girls Clubs, churches, and other community groups (Allington, 2012, pp. 179-180).

These designs vary in terms of target audience, staffing expertise, instructional focus, and intensity of instruction. Research on the effectiveness of these program designs is rather mixed. For instance, in one study, Wasik and Slavin (1993) found that programs using certified teachers resulted in significantly higher gains than programs using non-certified staff. However, other researchers (e.g., Davidson & Koppenhaver, 1993; Inverzini Rosemary, Juel, & Richards, 1997; Wasik, 1998) found that programs using non-certified personnel were as effective as those using certified teachers. The key to success in these programs, according to Allington (2012), appears to be related to "providing non-certified personnel with strong training, structured tutorials, and ongoing supervision" (p. 181).

Have reading programs been equally effective for nearly all at-risk readers?

Looking beyond the reading programs that have been shown to be effective in helping at-risk readers catch up to their grade level, a growing number of literacy researchers and teacher educators have expressed concern that effective programs have not always been comparably successful for all at-risk readers, especially for those children who come from ethnically diverse and economically disadvantaged backgrounds (e.g., Au, 2011; Cochran-Smith, 2004; Compton-Lilly, 2007, 2009, 2011; Gorski, 2013; Ladson-Billings, 2009). These children, they argue, are often overrepresented among at-risk readers in schools. They bring a vast range of abilities, practices and life experiences that are often quite different from the practices and experiences they encounter at school.

In light of these circumstances, one should not assume that a program or intervention that proves to be effectiveness for one group of students will be equally effective for other groups of readers. While serving as a Reading Recovery teacher trainer in a high-poverty school in Wisconsin, Compton-Lilly (2011) examined how well the program serves African American children, including children who did not complete the 20-week interventions or who were otherwise hindered by policies, which disadvantaged children who bring diverse life experiences to Reading Recovery classrooms. She found that there was a 20% difference in success rates between African American children and European American children when we considered all the children served in Reading Recovery. These authors argue that recognizing the funds of knowledge these children bring to school is an important first step to helping them become successful readers and writers. In his book, *Reaching and Teaching Students in Poverty: Strategies for Erasing the Opportunity Gap*, Gorski (2013) provides an insightful review of the research and instructional practices that hold promise for working with these children around literacy, an excellent analysis of why economic inequities exist and persist among public school students, and an overview of practical classroom-tested guidance for teachers and leaders who care enough to make a difference.

The Present Study

We collaborated with an elementary school on the design of a supplemental or tier 3 before-school tutoring program, with the goal of enhancing the reading skills of a small pilot group of at-risk, first-grade students. Our proposed supplemental reading intervention program is fairly similar to the second program design described above in that it uses trained pre-service teachers and provides a highly structured and closely supervised reading intervention program.

The overall purpose of the study was to evaluate the effectiveness of this supplemental reading intervention on students' reading achievement outcomes. Specifically, we were interested in finding out whether participation in this supplementary tutoring program results in significant improvements in students' reading achievement as measured by scores obtained on nationally normed measure of reading proficiency.

Instructional/Research Setting

We conducted the pilot study in a local area elementary school located in a mid-size city in the southwestern United States. Opened in 2000, the target school is a Fine Arts magnet school operating within a large Independent School District (approximately 18,000 students) in the southwestern United States. The school has 675 students in kindergarten through 5th grade. Student population is 36% African American, 32% Hispanic, and 27% White with an Economically Disadvantaged rate of 65%. Forty-two full-time teachers and 20 support staff serve these students. The school has five first grade classrooms with an average of 24 students per classroom. Of the 120 or so students in first grade, about 30-40% were designated as needing assistance in reading.

Study Participants

Participants in this case study consisted of 12 first grade at-risk readers who entered first grade with low levels of reading and writing skills. Students were selected for participation in the study based on teacher recommendations and student performance on district benchmark assessments data using the Texas Primary Reading Inventory test battery, which placed them in the lowest performing quartile among all first grade students in the school. Of the 12 students identified for tutoring, 5 were Hispanic (4 males, 1 female) and 7 were African American (6 males, 1 female). Although none of the students were identified as having a reading or learning disability, one student repeated first grade, one was identified as having attention deficit hyperactivity, and one was an English learner. Additional information about student demographics is provided in Table 1. In the section below, we provide a brief profile of each of the student participants.

J.A. is seven years old. He likes to draw and enjoys spending time with his family. His mother works at a day care, and he spends a lot of time with his Granny. He enjoys mysteries and scary stories with monsters, and he likes playing math games at school. In his tutoring sessions, it is often difficult for him to focus and he gets off-task easily if he is not actively engaged in an activity. Initially, he had low confidence in his reading ability, but has visibly gained confidence through this program.

Six-year-old **V.A.** enjoys playing at the playground. She lives at home with her mom, dad, and sisters. V.A prefers short, funny books, particularly about animals. At home, she does not have any books in her room but her sisters read chapter books so they have a few books around. During her tutorial sessions, V.A struggles to read fluently. She began tutoring with low confidence in reading and was very shy, but quickly gained confidence through her reading and enjoys choosing the book she would like to read during tutoring sessions.

L.B. is six years old. She spends a great deal of time drawing, playing games on the computer, and socializing with her siblings. She currently lives with her grandmother and aunt and is the youngest of her many siblings. L.B says she enjoys reading, particularly animal books, picture books, and funny stories. At school, she enjoys playing games, especially math games. At home, her grandmother occasionally reads to her before bedtime. During tutoring sessions, L.B struggles to stay engaged. Her confidence level in reading is high during familiar reading, and is hesitant to attempt reading through more difficult texts.

E.C. is seven years. He loves playing soccer. At school, E.C enjoys learning, playing with his best friend at recess, learning math, and participating in science activities. He says he likes to read about mysteries, and books about super heroes, animals, sports, and cars. At home, he reads mostly with his Granny but there aren't any books at his house. E.C struggles mainly with phonemic awareness skills such as blending sounds. Overall, E.C has a desire to learn and finds reading enjoyable.

Seven-year-old **N.C**. enjoys playing with his friends, and playing games on the computer. He claims that he loves to read, no matter the genre, and likes to write stories. At home, there aren't many books to read except in his Mimi's room. During his tutoring sessions, it is evident that he struggles to read words and sentences at age-appropriate levels fluently, which poses problems for him when trying to understand what he reads.

H.C. is seven years old. His favorite activities include going to waterparks, watching T.V. and playing video games. H.C lives with his mom but visits his dad (non-English speaking) on the weekend. He also has an older brother who is at the same elementary school. He likes to be able to read books that are funny. H.C says that his mother sometimes reads to him at home on occasion. In tutoring sessions, H.C requires glasses to read, which he often forgets, and he struggles with word decoding and reading fluency. His confidence in his reading is low.

J.H. is seven years old. He likes playing on the computer and with video games. His favorite character is the Hulk. J.H prefers reading non-fiction and books about superheroes and he reads with his mom in the evening with the few books he has at home. He gets easily distracted during tutoring sessions and finds it hard to focus on what he is reading.

Six-year-old **M.J**. enjoys football, Spiderman, and playing with his younger siblings. He lives with his mom, who is an accountant, and his dad, a policeman, and has an older brother in 3rd grade and a newborn brother. In his tutoring sessions, M.J. has trouble making connections between letter sounds in words longer than five letters and struggles with comprehension when reading grade level materials.

J.M. is eight years old. He likes watching T.V. and drawing, and has interests in bugs and animals. He lives with his mom and has older sisters who are also in elementary school. J.M. rides the bus to school and is sometimes late to school because of it. He likes his tutor and looks forward to coming to school as a result.

I.O. is seven years old. He likes playing on the playground, tag, and soccer. He lives at home with his parents and two brothers. I.O. prefers to read books about spiders, soccer, animals, cars, and super heroes. At home, he reads with his parents and brothers and has several Dr. Seuss books in the house. I.O. often arrives late to his tutoring sessions, which reduces the amount of time his tutor gets to spend with him.

C.R. is six years old who enjoys drawing pictures and learning about fish. At home, he reads mostly with his mother. While they do not have books in his house, his mother frequently reads magazines and his grandmother reads newspapers. C.R. prefers to read books about sports and super heroes. He has excellent attendance at school and likes getting help in reading.

E.S. is a six-year-old boy who struggled with reading but has made great progress throughout the year. He enjoys engaging in literacy conversations and reading books at home with his siblings, parents, aunts, uncles, and grandparents. He reports that his living room only has two or three books, although he has access to magazines at home and he like computer-reading games. He also likes math and science because he thinks they are cool and with reading, the pictures in the books let him know what he is reading. During

tutoring sessions, he especially likes to read about sports, superheroes, animals, car and trucks, book in series, and funny stories.

Instructional Framework

For purposes of this study, we developed a research-based instructional framework to help us organize and manage instruction. Our literacy instruction framework incorporates established instructional design characteristics in terms of content, organization, and management of literacy instruction. It also takes into account student needs as well as the needs of our tutors. For instance, we wanted to design a framework that incorporates the literacy needs of our target group of students with respect to early language and literacy skills. In addition, we developed a flexible the framework to enable our tutors to adapt lessons that are relatively easy to implement and evaluate, and to enables us to closely supervise and monitor the degree to which components of the framework are implemented as intended to the extent possible.

Our instructional framework includes three key components including (a) a 20-minute reading or re-reading of an easy or familiar text, (b) a 20-minute shared or interactive reading of a self-selected text, and (c) a 20-minute interactive writing segment targeting specific writing skills and strategies. Together, the three components of the framework take approximately 50-55 minutes to complete. Appendix A provides a descriptive outline of the key components of the framework with sample activities.

Consistent with the recommendations delineated in the newly developed Publishers' Criteria for the Common Core State Standards in English Language Arts and Literacy, Grades K–2 (Coleman & Pimentel, 2012), all curriculum materials used when tutoring our target students have three important characteristics: first, students have access to a mix of literary and informational texts that vary in terms of topics, length, complexity, and genres. We wanted to help ensure that students have opportunities to read texts that are rich and accessible on their own and with others in order to help build their knowledge, experience, and enjoyment of reading. Second, we made a concerted effort to select materials that appeal to students' interests and needs. We wanted to provide students access to interesting reading materials that motivate them to read so that they can do so independently in and outside of school. Third, we provided a sufficient number of leveled reading materials during each tutoring session so as to enable students to read texts they can read on their own as well as texts that are more complex that they may be able to read with tutor guidance. Tutors introduce higher-level texts and present them through read-alouds, shared readings, and other tutor-assisted strategies.

Instructional Delivery

Pre-service teachers pursuing degrees at a local university received training as literacy tutors and delivered the tutoring lessons three times a week for a period of 10 weeks during the regular fall and spring semesters of one school year. Tutor training took place as a part of a semester-long reading assessment and instruction course that pre-service teacher candidates complete in partial fulfillment of the requirements of a Bachelor's degree in elementary education. This course is designed to help pre-service teachers strengthen expertise in identifying students' reading difficulties and designing instruction aimed at helping students improve their early grade reading skills. The course includes a supervised field experience, which requires teacher candidates to apply what they learn about reading assessment and instruction in a local elementary school setting.

Tutor Training

Our approach to preparing effective tutors is guided by the ecological context of our at-risk participating readers. We challenge our tutors to think critically and reflectively about

productive ways of supporting the reading and writing development of these students, many of whom come to school with low levels of literacy. We want our tutors to think carefully about why they do what they do before rather than after thinking about what they do and how they do it. When tutors explore the underlying reasons why a particular child entered first grade with lower than expected reading skills, for instance not knowing all the letters of the alphabet, they are more likely to be constructively responsive to the needs of that child. They are also likely to become more thoughtful and reflective about their teaching.

We planned and implemented our tutor training in three closely integrated steps. These steps include an initial training phase during the first four weeks of the semester, a 30-minute debriefing phase, which takes place immediately following each tutoring session, and an individual consultation phase, which takes place throughout the semester depending on the needs of individual tutors.

During the first four weeks of the semester, tutors receive instruction in approximately 1.5 hours twice a week for four weeks. During this time, tutors also learn about the school setting in which tutoring takes place, meet with the school principal and teachers, and learn about the students they will be assigned to tutor.

During the tutor training sessions, instruction and coaching typically consists of close reading and discussion of evidence-based literacy practices, using assessment data to inform instruction, and organizing instruction in tutorial settings using a common instructional framework. Supporting materials for the first component include a mix of readings such as *"What at-risk readers need"* (Allington, 2011),*"FAD: Filtering, analyzing, and diagnosing reading difficulties"* (Mokhtari, Niederhauser, Beschorner, & Edwards, 2011), and "*What's a tutor to do?* (Roller, 2006). During the debriefing sessions, tutors engage in a guided tutoring lesson study and reflection with a focus on what worked well, and what needs improvements, as well as sharing of ideas and resources. Individual consultation is initiated either by the instructor or by the student depending on perceived needs. Tutors keep a reflective journal, which often serves as a source for identifying challenges, questions, or issues for discussion.

Research Design

Doing research in real-world school settings is complex. Our study takes place in a school setting with ecological constraints, which makes it not feasible or ethical to conduct randomized controlled experiments, the 'gold standard' for establishing what works. For purposes of our study, because our target student participants were identified as at-risk readers with a unique set of needs and backgrounds, we were not interested in just finding out whether our intervention generally works for these students as a group, for doing so does little to tell us under what circumstances it does or does not work. More importantly, our goal was to use the data obtained from the intervention to better understand the conditions under which individual children, not just groups, succeed or fail to learn to read.

We collected student and tutor assessment data at various times during the year to help us determine the promise of the literacy tutoring intervention for producing the outcomes it is intended to produce. We collected pre- and post- assessment data for all first grade students in the school. Doing so enabled us to make comparisons in reading achievement outcomes across three groups of students: At-risk readers who needed and received reading assistance (At-Risk Tutored), at-risk readers who needed but did not receive supplemental reading instruction (At-Risk Non-Tutored), and typically developing readers who did not need nor receive supplemental reading assistance (Typically Developing Peers). Because we combined two approaches in our research design, (we

collected data multiple times and examine student performance across groups), our design can best be described as a quasi-independent group design with one equivalent group and one non-equivalent group design.

When selecting our non-tutored comparison group, we used propensity score matching, a quasi-experimental technique, recommended by Guo & Fraser (2010) to find students similar to the intervention students in terms of their background characteristics, using information from school databases such as gender, ethnicity, school-administered reading benchmark test scores, participation in free or reduced lunch, and other demographic characteristics. We also randomly selected a group of typically developing readers from the rest of first grade students who did not need assistance in reading.

Data Collection

We assessed students' reading achievement outcomes at the beginning and end of the school year using the *Gates-MacGinitie Reading test* (MacGinitie & MacGinitie, 2004). This test is a standardized nationally norm-referenced, general reading ability test, which assesses foundational literacy skills including vocabulary and reading comprehension skills. It is commonly used test of reading ability with adequate technical adequacy as measured by reported reliability (reliability coefficients range from .89 to .93 for vocabulary and .87 to .94 for comprehension) and validity data (high correlations reported for studies correlating Gates reading tests with other tests of reading comprehension).

In order to determine the extent to which tutors adhered to the key elements of the instructional framework, we collected fidelity of implementation data in two ways. First, tutors completed a fidelity of lesson implementation protocol for each of the lessons they delivered (See Appendix A). Fidelity of lesson implementation consisted of checking off lesson components completed as-is, modified, or not completed. Second, two members of our team observed each tutor for at least one lesson on two occasions during the school year using a lesson observation protocol (See Appendix B). These data helped us monitor and assess the functioning of the tutoring lessons in action, collect implementation fidelity data, and make the necessary adjustments in the design of the intervention so as to enhance its overall functioning. We reviewed 100% of the lesson implementation fidelity forms completed by tutors and sought reliability for coding the observation protocols made by two members of our team for each tutor observed. An examination of the tutor fidelity of lesson implementation indicated that our tutors implemented lessons as intended or with slight adaptations about 85% percent of the time. Inter-rater reliability between two lesson observers was 89%.

Data Analysis

We collected student and tutor assessment data throughout the year to help us determine the promise of the literacy tutoring intervention for producing the outcomes it is intended to produce. In an attempt to determine whether the reading intervention had an impact on at-risk tutored students, we analyzed the data obtained in three different yet complementary ways. First, we examined the amount of tutoring time each student received over the course of the school year, and we analyzed the progress in reading proficiency achieved by students individually and as a group from fall to spring taking into account the total tutoring time invested.

Second, we examined the progress achieved by tutored students in comparison to a matched group of at-risk non-tutored peers and in comparison to all typically developing first grade peers in the same school. We analyzed the data obtained by using Analysis of Covariance (ANCOVA), which enabled us to control for students' initial level of reading

ability using students' Gates-MacGinitie Fall semester scores as a covariate, and provided us with a cleaner measure of effect of our instructional intervention.

Finally, with a relatively small number of students in our study, and in light of the fact that students' reading development changes over time, but not necessarily in the same way or at the same rate, we reviewed each student's growth individually, and examined student performance in relation to national proficiency standards so as to determine whether the student is on track to reach proficiency, or remains at-risk of reading failure.

Results

The results obtained are presented in three complementary ways: As the amount of tutoring time each student received over the course of the school year, the progress in reading proficiency achieved by students individually and as a group from fall to spring taking into account the total tutoring time, the progress achieved by tutored students in comparison to a matched group of at-risk non-tutored peers and typically developing first grade peers in the same school. Please note that our data analyses are based on a total of 10 participating at-risk students since one of the students moved in the middle of the year, and one student completed the program but did not participate in all assessments. These results are presented in Tables 1-2 and Figures 1. Table 1 presents group demographics as well as the amount of time spent by the at-risk first grade students who received tutoring the fall and spring semesters of the school year.

Table 1. *Student Demographic Profiles*

	At-Risk Tutored (*n*=12)	At-Risk Non-Tutored (*n*=11)	Typical Peers (*n*=10)
Mean Age (SD)	6.67 (.65)	6.72 (.64)	6.5 (.53)
Gender			
Male	8	7	6
Female	4	4	4
Ethnicity			
African-American	7	6	2
Caucasian	0	1	6
Hispanic	5	4	3
Special Need			
English Learner	1	1	0
Special Needs	1	1	0

How much one-on-one instructional time did each at-risk student receive over the course of the school year?

As Table 1 shows, the ten first graders received an average of 17.85 hours of instructional time during the fall semester and 28.95 hours of tutoring during the spring semester for a total average of 47.33 hours (SD=4.58) of tutoring or roughly 2840 minutes. Individual tutoring time ranged from a low of 42 hours (2520 minutes) to a high of 53.95 (3195 minutes). The average tutoring time our students received falls within the recommended 44-80 hours range of instruction needed to substantially reduce the incidence of reading failure in a school system by accelerating at-risk students' reading proficiency to average levels of performance (Allington, 2012; Clay, 2005).

What proportion of tutored students made sufficient progress in reading proficiency after 47 hours of one-on-one reading instruction?

An examination of the students individual reading progress data show that 9 out of 10 of the at-risk tutored students achieved significantly higher extended scale scores on the

Gates-MacGinitie test in the spring 2013 when compared to their performance on the same test in the fall 2012. These data are fairly consistent with literacy tutoring research suggesting that when tutored by a well-trained tutor, the average at-risk reader should be expected to read more proficiently than approximately 75 percent of the untutored students in the control group (Institute of Education Sciences, 2003).

Are at-risk tutored first graders learning beginning reading skills at about the growth rate one would expect?

At the end of first grade, the main concern is whether each student has developed adequate beginning reading skills to get a good start in reading. To determine whether a student has made good gain during grade 1, assessment experts recommend using National Curve Equivalents (NCEs), which are normalized standard scores with a mean of 50 and a standard deviation of 21.06. NCEs measure progress in reading by describing a student's position within the norming group at successive times during the year or grade levels. As a general rule of thumb, experts agree that a student who maintains about the same NCE from fall to spring or earns a total score on a test level less than 7 NCEs has not changed relative to the achievement of students in the norming group. A student with an NCE score of 50 is roughly at grade level. Table 2 displays the average NCE scores of students in our three groups. An examination of these data indicates that at-risk students made gains of nearly 20 NCEs between fall and spring semesters while the scores of at-risk non-tutored students actually declined by nearly two points from 30.1 to 28.6. Typically developing first grade peers gained nearly 18 points from fall to spring. While it is evident that the NCE growth scores of the at-risk group of students were lower than typically developing peers, the reading progress made provide evidence that the reading intervention has made a significant difference in the reading skills of at-risk tutors.

Table 2. *Comparison of Reading Growth Rate of At-Risk Tutored, At-Risk No-Tutored, and Typically Developing Non-Tutored First Grade Peers*

Measures	Fall M (SD)	Winter M (SD)	Spring M (SD)
Gates-MacGinitie Reading Test (NCE)*			
At-Risk Tutored Peers	21.75 (14.0)	37.9 (14.36)	40.3 (18.7)
At-Risk Non-Tutored Peers	30.1 (15.7)	30.8 (19.8)	28.6 (19.3)
Typically Developing Peers	60.0 (26.6)	78.4 (22.19)	77.67 (21.2)

* NCE= National Curve Equivalent

How proficiently did at-risk tutored students read when compared to at-risk non-tutored peers and to typically developing first grade students in the same school?

Table 3 presents the means and standard deviations pertaining to the reading progress made by the three groups of students at three points in time during the school year (i.e., Fall, Winter, & Spring). Table 3 also includes the means that were adjusted for the effects of the covariate. Following Field (2009), we used these means rather than the original means to more accurately interpret the group differences reflected in our ANCOVA analysis.

Table 3. *Comparison of Reading Proficiency of At-Risk Tutored, At-Risk Non-Tutored, and Typically Developing Non-Tutored First Grade Peers*

Measures	Fall M (SD)	Winter M (SD)	Spring M (SD)	
Gates-MacGinitie Reading Test (ESS)*			**Original Means**	**Adjusted Means****
At-Risk Tutored Peers (12.6)	288.3 (22.6)	343.0 (24.9)	371.7 (43.5)	393.83
At-Risk Non-Tutored Peers (11.1)	306.4 (28.2)	329.1 (35.5)	342.3 (43.9)	351.09
Typically Developing Peers (14.8)	367.3 (56.7)	433.1 (54.8)	456.6 (50.3)	421.19

Notes: *ESS=Extended Scale Score; ** Means Adjusted For The Effect Of The Covariate

Using a test of Between-Subject effects, we found an overall significant group effect of our reading intervention after controlling for initial group differences in reading ability, $F(2,26) = 8.002$, $p = .002$. An examination of the adjusted means (and contrasts) for the three groups shows that the at-risk tutored students had higher adjusted means after 47 hours of one-on-one reading instruction ($M= 393.83$; $SD= 12.6$) than did their at-risk matched peers who did not receive any tutoring ($M= 351.09$; $SD= 11.1$). However, as Table 2 shows, the adjusted means of the typically developing peers ($M= 421.19$; $SD= 14.8$) was higher than both the at-risk tutored non-tutored. We verified these results using the Sidak Corrected post hoc pairwise comparisons among the three group means and found that the at-risk tutored students outperformed the at-risk non-tutored students, ($p = .04$). The post hoc tests further showed that the typically developing students outperformed the at-risk non-tutored students ($p = .001$) but not the at-risk tutored students ($p = .218$) although they had a higher adjusted mean score. Figures 1 provide a visual depiction of these differences.
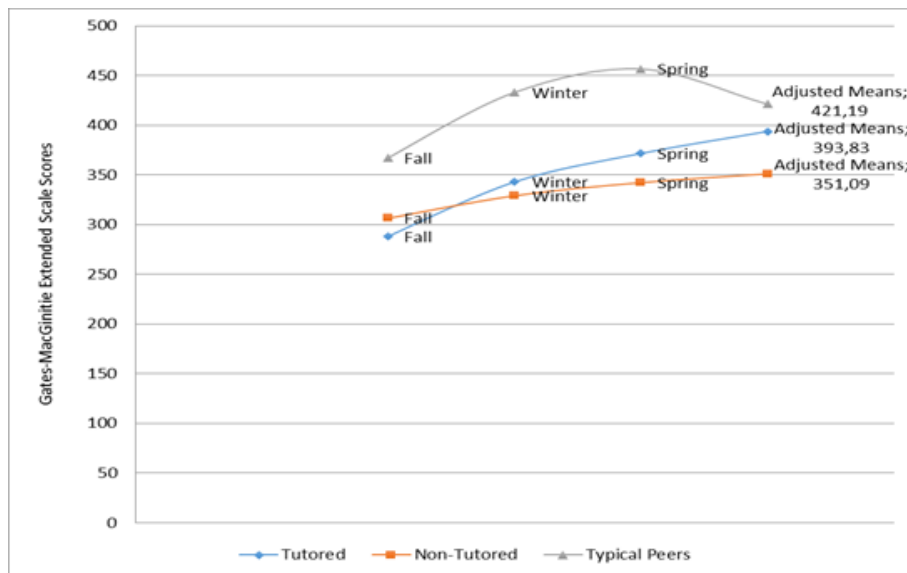
F**igure 1.** *Comparison of Reading Growth of At-Risk Tutored, At-Risk Non-Tutored, & Typically Developing Non-Tutored Peers*

Discussion

The findings of this study are encouraging. Our pilot quasi experiment generally shows that it is indeed possible to significantly advance the early grade reading achievement

outcomes of at-risk first grade students when we provide them with a sufficient amount of individualized instruction by well-trained tutors. We analyzed the results using a suite of procedures to determine whether our pilot intervention achieved its intended outcomes, and functioned well in a local area school setting.

Taken together, our findings revealed several promising outcomes. First, we found that 9 of 10 of the at-risk tutored students achieved significantly higher extended scale scores on the Gates-MacGinitie test at the end of the intervention when compared to their performance on the same test before the intervention. These data are consistent with literacy tutoring research suggesting that when tutored by a well-trained tutor, the average at-risk reader should be expected to read more proficiently than approximately 75 percent of the untutored students in the control group (Institute of Education Sciences, 2003).

Second, we found that students who received tutoring read more proficiently after 47 hours of instruction when measured by Gates-MacGinitie, a standardized norm-referenced test of reading ability. These students read more proficiently at the end of the intervention than did non-tutored students in a matched group of first grade peers in the same school. However, when compared with the performance of typically developing readers, we found that these students received lower average reading proficiency scores than typically developing peers in the same school, although this difference was not significantly different.

Third, we examined student performance to determine whether at-risk tutored first graders' beginning reading skills were at or about the growth rate one would expect. Using average NCE scores of students in our three groups of readers, we found that at-risk students made gains of nearly 20 NCEs between fall and spring semesters while the scores of at-risk non-tutored students actually declined by nearly two points from 30.1 to 28.6. Typically developing first grade peers gained nearly 18 points from fall to spring of the same year. While it is evident that the NCE growth scores of the at-risk group of students were lower than typically developing peers, the reading progress made provide evidence that the reading intervention has made a significant difference in the reading skills of at-risk tutors.

When considering all aspects of this pilot study, we find that while these results are quite encouraging, especially in light of literacy research documenting the impact of one-on-one tutoring by qualified tutors of at-risk readers in grades 1-3, an achievement gap remains when comparing the reading proficiency of tutored students to that of their typically developing first grade peers who did not need extra assistance in reading. This is not too surprising since our students entered first grade with a significantly larger gap in literacy achievement than did typically developing peers. Closing this reading achievement gap will take additional instructional time in the form of one-on-one and/or small group instruction, which will help accelerate to average levels of performance the progress of children who show early signs of reading difficulty. Some of these children's reading progress typically falls within the lowest 20% of the enrollment in similar school settings.

In light of these findings, it is worth noting that in order to help maintain the progress at-risk students made during the school year, opportunities need to be provided for them to read and write during the summer months. Research has shown that students in primary and elementary grades lose much of their reading ability when they do not read during the summer months when school is not in session. This reading loss has been shown to affect these students' reading performance when they return to school in the fall. Research has also shown that students from lower socio-economic backgrounds suffer greater summer reading loss than do students from upper socio-economic levels. The

likelihood of summer reading loss is therefore more real for students who are poor and who have poorly developed language skills (Allington & McGill-Franzen, 2003).

Taking a rearview mirror look at our yearlong journey, we learned valuable lessons from this pilot study that helped inform and direct the necessary revisions and refinements of the intervention with the goal of building the school's capacity to support the literacy development of at-risk readers so that they can catch up with their typically developing peers. We are eager to share these lessons with primary and elementary grade reading teachers and school leaders, who may be interested in putting in place reading intervention programs aimed at improving reading performance among underachieving students in the early grades.

Lessons Learned

In assessing what worked well for us in this pilot program, we attribute the improvement in reading proficiency among our target students to five closely inter-related contributors. First, we wanted to identify students who entered school with low literacy skills fairly early during the year and in first grade. Even though the school had underachieving readers in second through fifth grade, we wanted to design a reading intervention program that specifically targets students entering first grade. Investing in first grade reading development will is more likely to have an impact on reducing the incidence of reading failure in subsequent grades.

Second, drawing from research and practices documenting what has worked particularly well in tutoring programs such as Reading Recovery, Success for All, and others, we wanted to provide these students with a sufficient dose of intensive instruction that is likely to result in improved reading achievement outcomes for these students. Although we know that the amount of instructional time needed to help close the achievement gap varies a great deal depending on student needs, we used the recommended margin of 44-80 hours of instruction as a general target (e.g., Allington, 2012) in designing our reading intervention for these at-risk students.

Third, we worked conscientiously to help ensure that our tutors, who were pre-service teacher candidates, were effectively prepared for their tutoring roles and responsibilities. As we indicated in the tutor training section above, our training focused on the challenges, issues, and questions that our target students were experiencing at that time. Tutors received intensive training during the first four weeks of the semester on evidence-based literacy practices, using assessment data to inform instruction, and organizing instruction in tutorial settings using a common instructional framework. This training was followed by daily debriefing sessions, which took place immediately following each tutoring session, and individual consultation, which took place throughout the semester depending on the needs of individual tutors. This model of tutor preparation was experiential and focused primarily on the school context in which tutoring took place.

Finally, we attribute the impact of this pilot reading intervention to our school-university collaborative relationship, which proved essential in terms of identifying students in need of reading assistance, access to pertinent assessment data, providing an environment conducive to tutoring sessions, and enabling excellent communication among tutors, parents, and the first grade teachers of these students.

Acknowledgement

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APPENDIX A

LITERACY LESSON FRAMEWORK

Lesson Component	Description	Time Frame
Reading Familiar Text	Session begins by having the child re-read a familiar text with the goal of building reading fluency and boosting self-confidence (Clay, 1995; Pinnell, Fried, & Estice, 1990). Tutor conducts a running record as the child reads.	15 minutes
2.5 Minute Break		
Interactive Reading	Shared book reading and writing is interactive experience whereby the child participates in guided reading and writing activities, thus allowing them to learn about how language works and to see themselves as readers and writers (Snow, Griffin, & Snow, 1998; Holdaway, 1979).	20 minutes
2.5 Minute Break		
Interactive Writing	Session concludes with the tutor modeling reading of (and writing about) a challenging new text. This is an opportunity for the child to read and write about texts that are rich and accessible in terms of content so as to help build their knowledge, experience, and enjoyment of reading and writing (Trelease, 2006).	20 minutes

APPENDIX B

TUTOR SELF-RATING OF LESSON IMPLEMENTATION FIDELITY PROTOCOL

Please take a few minutes following each lesson to share insights regarding lesson implementation.

Tutor: _____   **Start Time:**   _____   a.m.   p.m.

Tutee:_____   **End Time:**   _____a.m.   p.m.

	Implemented	**Comments**
Familiar Reading (15 Minutes)	As is / Modified / No	
2.5 Minute Break		
Interactive Reading (20 Minutes)	As is / Modified / No	
2.5 Minute Break		
Interactive Writing (20 Minutes)	As is / Modified / No	

Open-Ended Comments:

1. Please describe aspects of this lesson that worked particularly well.

2. Please describe aspects of this lesson that did not work well.

3. Please describe what you will do next to address the aspects of the lesson that did not work as planned.

APPENDIX C

LESSON FIDELITY OF IMPLEMENTATION OBSERVATION PROTOCOL

Observer: _____

Tutor: _____	**Start Time:** _____ a.m. p.m.
Tutee: _____	**End Time:** _____ a.m. p.m.

	Implemented	**Comments**
Familiar Reading (15 Minutes)	As is / Modified / No	
2.5 Minute Break		
Interactive Reading (20 Minutes)	As is / Modified / No	
2.5 Minute Break		
Interactive Writing (20 Minutes)	As is / Modified / No	

Overall Lesson Quality: ☐
    3= Outstanding
    2= Fair
    1= Needs improvement

Overall Lesson Pacing: ☐
3= Too fast
2= About right
1= Too slow

Open-Ended Comments:

    1. Describe aspects of the lesson observed that are particularly strong.

    2. Describe aspects of the lesson observed in need of improvement.

    3. Describe recommendations for improvement.