

**Union County Public Schools Action Research:
Comparing Early Literacy Interventions Used in Union County Public Schools;
Reading Recovery vs. Leveled Literacy Intervention**

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ABSTRACT

Union County Public Schools Action Research: Comparing Early Literacy Interventions Used in Union County Public Schools; Reading Recovery vs. LLI

School systems across the country continuously seek to find ways to increase academic achievement at all grades. Possessing the ability to read is one of the keys to academic success; not being able to presents many challenges. Union County Public Schools and the state of North Carolina expect students leaving their kindergarten year to be able to decode and comprehend simple text. The compulsory attendance law in North Carolina allows students to enter kindergarten at the age of five. Typically, by the end of their kindergarten year a majority of these students have turned six or will turn six in the early parts of their first grade school year. As Morris states, the readiness of these five and six year olds for reading is varied. Morris further stated: “Beginning readers who progress at a slower pace can fall dangerously behind their faster-achieving classmates, even by the end of first grade” (2009, p. 24). Furthermore, those that finish more than a year behind in third grade have a higher risk for achieving success in an educational system that requires being on grade level in reading from the fourth grade until graduation (Morris, 2009). This study is designed to provide evidence on the differences between two early literacy interventions present in Union County Public Schools-- LLI as well as Reading Recovery. Students enrolled in Reading Recovery had greater text level reading gains than students enrolled in LLI.

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Chapter 1: Introduction

Union County is located on the southern border of North Carolina and the northern border of South Carolina. The closest major metropolitan city is Charlotte. The school system currently serves 39,900 students (UCPS, 2010). There are 53 schools in total, 30 of which are designated as elementary. Each of the elementary schools in Union County is identical in design; all serve students in kindergarten through fifth grade. Of these 30 schools, nine are currently implementing the early literacy intervention known as Reading Recovery. Seven of the nine schools that are implementing Reading Recovery are also using Fountas and Pinnell's Leveled Literacy Intervention (2008), herein referred to as LLI. The leadership of Union County Public Schools has formally submitted a request for doctoral candidates to conduct action research comparing each of these early literacy interventions. The goal is to identify which early literacy intervention provides the greatest acceleration in text level reading scores.

Background

“Despite society’s wishes, five- and six- year old children learn to read at different rates, particularly when they are taught in a classroom with 20 students and 1 teacher” (Morris, 2009, p. 24). The compulsory attendance law in North Carolina allows students to enter kindergarten at the age of five. Typically, by the end of the kindergarten year the majority of these students have turned six or will turn six in the early parts of their first grade school year. As Morris states, the readiness of these five- and six-year-olds for reading is varied. Morris further stated that “beginning readers who progress at a

slower pace can fall dangerously behind their faster-achieving classmates, even by the end of first grade” (2009, p. 24). Furthermore, those that finish more than a year behind in third grade have a higher risk for achieving success in an educational system that requires being on grade level in reading from the fourth grade until graduation (Morris, 2009).

The Observation Survey of Early Literacy Achievement (Clay, 1993, 2002) is an early literacy assessment that is used by all elementary schools in Union County and also used by Reading Recovery teachers as a pre- and post-test measure of effectiveness. The assessment provides teachers with stanine levels for students in six subtests of the survey. These six subtests include Letter Identification, Concepts about Print, Ohio Word Test, Writing Vocabulary, Hearing and Recording Sounds in Words, and Text Reading Level (Gomez-Bellenge, 2005). “In 2002-03 the National Data Evaluation Center conducted a study to develop new norms for the US” (Gomez-Bellenge, 2005, p. 68). These new stanine levels are used in Union County Public Schools to identify students that are at risk of falling behind their peers in first grade classrooms. In schools that implement Reading Recovery as an early literacy intervention, the students that possess the lowest stanine average are selected to participate in the Reading Recovery intervention. Reading Recovery teachers work one-on-one with these students for an average of fourteen to twenty weeks for thirty minutes a day. A Reading Recovery teacher carries a caseload of four students, and in many schools is asked to take on other interventions with students throughout the school building (Reading Recovery Council, 2002, p. 17). Reading Recovery will serve two waves of students in every school. In 2001 The Reading

Recovery Council reported that the intervention was available in about 20% of U.S. public schools and was available in 49 states (Reading Recovery Council, 2002, p. 15).

LLI is an intervention that is designed to work with struggling students in grade kindergarten through second. The format of a LLI lesson is similar in design to a Reading Recovery lesson. The major difference in the two programs is the student to teacher ratio. In LLI it is strongly recommended that the student to teacher ratio remain 3:1 throughout the length of the intervention. Interestingly, the authors of this program are both trained Reading Recovery teachers.

One teacher in Leveled Literacy can work with up to three students at a time for 30 minutes and carry a caseload well above the number Reading Recovery teachers can carry. Reading Recovery teachers only serve 4 students in a 1:1 capacity during the first and wave of implementation. After the first wave is completed four more students are selected based on Observation Survey scores who are also served 1:1. Reading Recovery teachers can then pick up other struggling students or groups of students to provide further intervention at other grade levels. Reading Recovery teachers can then pick another wave of struggling students; however, primary focus is spent working with identified students in first grade. Leveled Literacy teachers work with students in grades kindergarten through second grade. A Reading Recovery teacher will typically spend 16 – 20 weeks working with a struggling student. At the end of that period, the student they are working with achieves one of two outcomes; recommended or discontinued.

LLI students can work in the program continuously for upwards of 54 weeks. Students in this intervention that do not experience acceleration into the average instructional group in their classroom continue in the intervention. Currently, Fountas

and Pinnell publish three levels of intervention: one for kindergarten-aged students, one for first grade-aged students, and one for second grade-aged students. It should be known that several students are moved into the lower grade intervention kit to find the appropriate starting point. Elementary school principals are forced to find what intervention provides the students in their building with the greatest opportunity to join the average instructional group in each classroom where students are being served.

At the National Reading Recovery Conference in Columbus Ohio, Professor Linda Dorn, Director, Center for Literacy at the University of Arkansas at Little Rock, shared that 75% of students who are poor readers in third grade will remain poor readers in high school (Dorn, 2011). The National Research Council reported that high school graduation can be predicted (with reasonable accuracy) by knowing someone's reading skill at the end of third grade (Dorn, 2011). Dorn also shared that the Organization for Economic Cooperation and Development (OECD) reported that the United States will need 60% of its population to possess a post-secondary degree or credential by 2025 to remain globally competitive (Dorn, 2011). This is a frightening statistic when compared to the current national high school graduation rate which is approximately 68%, as reported by Bill Dagget at this year's National Title One Conference in Tampa, Florida (Dagget, 2011). All this surmounts to elementary school principals and primary grade teachers providing school environments that promote literacy in all students, but more importantly providing appropriate interventions for students that fail to demonstrate appropriate proficiency at early stages in their literacy development.

Purpose

Union County Public Schools uses early intervention programs to advance the literacy skills of struggling students in grades kindergarten through third. Several schools within the system provide remedial programs for students who struggle beyond the third grade as well. Leveled Literacy and Reading Recovery are two early literacy intervention programs that are present in several schools. In seven elementary schools in Union County, both programs are in place. Union County Public Schools reports that 75.6% of third grade students passed the third grade End of Grade Test in reading in the 2009-2010 school year (NCDPI, 2010). This is the lowest reading proficiency score reported by Union County Public Schools in any grade levels that assess reading.

To date, very little research can be found directly comparing Reading Recovery and LLI. A plethora of research can be found on Reading Recovery due to the tenure of the program in public schools. This program has been widely researched from a variety of angles. Little research can be found on LLI and its effectiveness with struggling readers. According to several principals within Union County Public Schools, many have transitioned from using Reading Recovery to the Leveled Literacy program, citing the reduced cost of implementing LLI.

Problem Statement

This study was designed to determine which early literacy intervention yields the greatest acceleration of text level reading growth with first grade students. The two early literacy interventions that have been analyzed and compared are Fountas and Pinnell's (2008) LLI and the Reading Recovery intervention.

Significance

This study has produced some of the first comparative analyses of two early literacy interventions for struggling readers. Currently, limited research has been conducted on the LLI authored by Fountas and Pinnell, while Reading Recovery yields high numbers of qualitative and quantitative research that validate and advocate the implementation of Reading Recovery in schools. Consumers of this research must consider the impact, academic growth acceleration, and financial and human capital of each of the interventions compared in this study. While Reading Recovery may cost more human capital, Leveled Literacy may not produce the same acceleration. The questions that should then be considered are: 1) Does one intervention produce better results than the other, and 2) Can both interventions survive together under one school roof?

Design

This study was quantitative in design to determine if one early literacy intervention provides greater results than the other. A single factor ANOVA was used to compare the mean gains in text level reading using pre- and post-test scores from the observation survey subtest “text level reading”. Students enrolled in both interventions were placed in appropriate match pairs and then the means of these scores were compared to determine significance and effect size.

Population

First grade students from three of the seven elementary schools that use both Reading Recovery and LLI were selected to participate in the study. The implementation of the Reading Recovery program was taken into consideration when selecting from

which schools to draw the student sample. First grade students were the target grade level, as both interventions are present in first grade. Two of the three elementary schools are identified as Title One schools. Students were selected to participate in the study based on their pre-test scores from the Clay's Observation Survey (2001). Students participating in Reading Recovery were matched to students participating in LLI using the number of low stanines on subtests of the Observation Survey. All students had similar numbers of low stanine scores across the subtests of the Observation Survey. Students were assigned a number that designated the school at which they were enrolled, as well as a subject number to maintain confidentiality throughout the data collection period.

Setting

The action research project took place in Union County Public Schools, located in North Carolina. Union County is the sixth largest school district in the state of North Carolina (UCPS, 2010). Achievement data posted on Union County Public Schools' website indicates that achievement data in several categories is among North Carolina's best. Graduation rate and SAT scores in Union County Public Schools are among the highest in the state of North Carolina (UCPS, 2011). According to the North Carolina School Report Card (NCDPI, 2010), Union County Public Schools' district average is higher than the state average in every End of Grade Exam (K-8) and End of Course (9-12) Category.

Research Question

Which early literacy intervention provides the greatest acceleration in text level reading? Several schools are forced to make decisions for students who struggle with literacy skills. Furthermore, the state of North Carolina requires that each student not on grade level be provided with a Personal Education Plan and up to 30 hours of remediation or summer school. Union County Public Schools has used several approaches in reading and math to get as many students as possible on grade level. A focus on providing students early intervention has proven to be successful; however, with the current budget crisis, many schools will be forced to decide which intervention is most cost effective and provides the best results. This study sought to answer the question: *Is there a difference in the mean gains for students that participate in LLI when compared to the mean gains for students participating in Reading Recovery?* Literature that aligns identically with this type of study could not be found because of the infancy of the LLI. However, several studies were reviewed because of their similarity to the purpose of this study.

Summary

This chapter outlined the purpose, setting, design, population and significance of the study. This chapter also established the research question. The following chapter is a review of literature from similar studies.

Chapter 2: Review of Literature

Five studies were reviewed for the purpose of this literature review. These studies were carefully selected because of their similarity to the action research proposal submitted by Union County Public Schools. The first study, published by the Reading Recovery Council of North America in 2002, provides a comprehensive overview of the success of the program after serving over one million children. The second study compared the achievement of first-round Reading Recovery students vs. second-round Reading Recovery students when compared to high average and low average readers in the classroom. The third study focuses on closing the achievement gap with early interventions, specifically Reading Recovery. The fourth study focuses on the effectiveness of student teacher ratio and teacher training. The last study is a comprehensive study of students who participated in the LLI. Very little research on the effectiveness of the LLI could be found for review. This can be attributed to the infancy of the intervention.

The Reading Recovery Council published “*More Than One Million Children Served*” in 2002. Reading Recovery was introduced in the United States in 1984 (Reading Recovery Council, 2002). In the 2000-2001 school year, Reading Recovery teachers served 152,241 students across North America (Reading Recovery Council, 2002). When added to the 850,000 students that previously completed the program, the sum total of students served was over the one million mark. “A comparison of Reading Recovery students who successfully complete their lessons (known as discontinued) shows they gained nearly three more text reading levels than students in a random sample group of their peers” (Reading Recovery Council, 2002). The council further reported

that students who participated in their program “went from an average gap of four text reading levels in the fall to 1.6 reading levels in the spring” (Reading Recovery Council, 2002, p. 8). When compared to the initial gap that existed between the random sample and the students selected for Reading Recovery during the fall, the gap was significantly decreased between the students who had received Reading Recovery and the random sample for text reading level. Furthermore, the students that exited the program continued to make gains at nearly the same rate of the students who had no intervention (Reading Recovery Council, 2002). The sustained progress of Reading Recovery students was also reported by the council, citing two longitudinal studies that followed children through the fourth grade. The study reported that 80—85% of the children who were selected based on their stanines from Clay’s Observation Survey passed their fourth grade Texas Assessment of Academic Skills (Reading Recovery Council 2002). Similar studies in Indiana and California replicated the Texas study and found similar results. Students that successfully completed Reading Recovery were successful on their states’ year-end assessments in third, fourth and fifth grades (Reading Recovery Council, 2002).

In Robert Schwartz’s study “*Literacy Learning of At-Risk First –Grade Students in the Reading Recovery Early Intervention*” (2005) forty-seven Reading Recovery teachers from a variety of schools in fourteen states submitted the names of two at-risk students to participate in the study. The teachers were also asked to submit the names of two students who were considered low-average and high-average students from the same classrooms, and the names of students selected for first- and second-round Reading Recovery. The total sample included 148 first grade students (Schwartz, 2005). Students

in the sample were assessed at the beginning of the year, at the transition from first- to second-round transition for Reading Recovery students, and at the end of the year (Schwartz, 2005). Each student was assessed using *Clay's Observation Survey* (2002). Students in the study were also administered the YOPP Singer Phoneme Segmentation Task and the Slosson Oral Reading Test – Revised (Schwartz, 2005).

For the purpose of the study, each Reading Recovery teacher designated one of his or her four thirty minute blocks to serve identified students in the study (Schwartz, 2005). The fourth student who would have occupied the fourth slot for the Reading Recovery teacher was assigned to the second round. A student from the assigned second round of intervention provided by Reading Recovery teachers was given the fourth slot. The teachers identified the next lowest student eligible for service and the next lowest child from the same classroom; these students were assigned to the first or second round of Reading Recovery intervention (Schwartz, 2005). The classroom teacher also selected two additional students from the same classroom to participate in the assessment given; these two students were the high-average and low-average students after the Reading Recovery students were removed (Schwartz, 2005).

Schwartz reported the following findings:

“The at-risk students who received an intensive, one-to-one early intervention during the first half of the school year performed considerably better than similar students from the same classrooms randomly assigned to receive the intervention in the second half of the year. This is most apparent on measures taken at the transition between first and second round intervention service, with large effect sizes for Text Reading Level....” (Schwartz, 2005, p. 264)

Comparisons with the high-average and low average classroom groups at the transition period further confirm that the intervention goals were met. The at-risk students who received the intervention, the first round Reading Recovery group, scored between these two groups on all measures. There were no significant differences between the intervention group and the high-average group. The

intervention group scored higher than the students identified for the low-average group who were not anticipated to need intervention support. (Schwartz, 2005, p. 264)

When provided the opportunity to participate in the first round of Reading Recovery, at-risk students showed greater growth than students who received Reading Recovery in the second wave. The students selected for second-round interventions made less gain in Text-Reading Level than those who were not provided the same intervention in the first wave. Schwartz further shared “students who received the intervention closed the performance gap with their average peers” (Schwartz, 2005, p. 264).

Rogers, Wang, and Gomez-Bellenge studied the effectiveness of Reading Recovery with regard to closing the achievement gap. Their paper, published in 2004 and titled “*Closing the Literacy Achievement Gap with Early Intervention*”, studied students receiving Reading Recovery. The data was disaggregated along socio-economic lines; it compared the progress of the student to a random sample, in order to determine if the achievement gap closes or widens with students who participate in Reading Recovery versus the random sample (Rogers et. al, 2004).

Research was framed under years of investigation that “shows certain demographic groups academically under-perform relative to other groups along racial and economic lines” (Rogers et al., 2004, p.3). Understanding why certain demographic groups perform lower than others cannot be isolated to one specific factor. The most understanding educators must admit that “the achievement gap must be closed and that it will take more than a quick fix such as mandating a phonics program or emphasizing direct teaching to compensate for the differences that exist (Rogers et al., 2004, p. 4).

Researchers collected data for three groups of first grade students on three literacy measures from the *Observation Survey* (Clay, 2002). The results were disaggregated along two lines: race/ethnicity and economic status (Rogers et al., 2004). Data from three sets of students was collected: Students who had received a full treatment of twenty weeks, successfully or not, numbered 4,764. Students who successfully completed the Reading Recovery program numbered 3,499. Students who were randomly selected from schools that had Reading Recovery n = 1,038 (Rogers et al., 2004). “Independent t-tests were conducted to determine if fall and spring gaps for the three reading measures existed between relevant groups on each measure” (Rogers et al., 2004, p.6).

The researchers found evidence that “a literacy gap exists between children as early as their second year at school and that it exists along racial/ethnic and economic lines” (Rogers et al., 2004, p.9). The second question was then considered and researched: “Does intervening early with one-to-one teaching, using Reading Recovery...make a difference” (Rogers et al. 2004 p.9)?

An analysis of the Text-Reading Level measure indicates that a statistically significant gap still exists in spring between the Reading Recovery groups and the corresponding random sample groups; however, children in the disaggregated random sample groups experienced an opening of the gap on this measure. Results for the Reading Recovery groups counter the trends observed in the general population not served by Reading Recovery; instead of falling further behind, they tend to close the gap. (Rogers et al., 2004 p.10)

The researchers contend that a complex response is necessary in order to eliminate the existing gap along racial and socio-economic lines. Their suggestion is that a complex 1:1 intervention would help close the achievement gap which currently exists and continues to exist if no intervention or meaningless interventions are continuously used. Rogers et al. cited Juel’s (2004) research, finding “most children in her study who

were average in first grade remained average in fourth grade” (Rogers et al., 2004, p. 10), thus keeping the achievement gap narrower.

In “*Relationship of Teacher-Student Ratio to Early Intervention Outcomes*”

(2008) Robert Schwartz posed two research questions relevant to the literature review. 1. Do literacy achievement outcomes differ for highly-trained teachers working with at-risk students individually versus in small groups? 2. Do literacy achievement outcomes differ for highly-trained teachers depending on group size? (Schwartz, 2008).

Schwartz’s study involved a controlled trial that evaluated the differences between the academic gains of struggling students from three different categories.

Schwartz analyzed the effectiveness of using trained Reading Recovery teachers in four different ways. The first was a traditional 1:1 method of Reading Recovery; the remainder was classified as small group interventions of 1:2, 1:3, and 1:5 (Schwartz, 2008). Eighty-five Reading Recovery teachers and 170 at-risk first grade students participated. Each of the Reading Recovery teachers had at least one year of experience and was fully trained. Each teacher was charged with administering his or her own control group by administering two of the treatment conditions: traditional (1:1) or one of the small group formats (1:2, 1:3, 1:5). Schwartz (2008) also identified 208 others from among low readers who were performing slightly higher academically than the selected Reading Recovery service at the beginning of the year, and he assigned them to the small group intervention.

The Observation Survey of Early Literacy Achievement (Clay, 2002) and the Slosson Oral Reading Test were used as measures for the study. The treatment condition lasted 20 weeks with the traditional thirty minute lesson format for the Reading Recovery group.

Students in the small group intervention also used similar components of the Reading Recovery lesson; however the lesson format was flexible, as is characteristic of many school-based small group instruction models (Schwartz, 2008).

The data was collected in a website for each of the students in the study. The students were assessed pre- and post-intervention on the six tasks of the Observation Survey as well as on the Slosson Oral Reading Test. An independent assessor delivered the post-assessment, which follows the traditional method for post-assessment established by Reading Recovery (Schwartz 2008).

Schwartz's research yielded comparisons of the 1:1 treatment condition against the combined small group treatments. Schwartz's findings included:

The instructional context is an important factor with respect to the literacy outcomes for these students. The 1:1 instructional context provided the greatest support for their literacy learning. As shown in Table 4 and the Stage 1 analysis, the 1:1 condition resulted in significantly higher performance on eight of the nine outcome measures than the combined group treatments, the only exception being the Letter Identification measure, which reached ceiling levels by the posttest period. The effect sizes range from .6 for Text Reading to .19 for the Concepts About Print task. (Schwartz, 2008, p. 21)

Schwartz indicated that the findings from this study are very similar to the Pinnell, Lyons, Deford, Bryk and Seltzer (1994) study when group size was also studied.

In 2010 The Center for Research in Education Policy, herein referred to as CREP, published an executive summary titled "*An Empirical Study to Evaluate the Efficacy of Fountas & Pinnell's LLI Program (LLI)*" The research questions posed included: "What progress in literacy do students who receive LLI make compared to students who receive only regular classroom literacy instruction" (CREP, 2010, p. 1)? Nine elementary schools from two separate school districts volunteered to participate in the study. The

first school district was located in Tifton, Georgia and the other in Middleton, New York. Both school districts had high percentages of students qualifying for free or reduced price lunches-- 65% and 64%, respectively (CREP, 2010).

The study was constructed as a randomized controlled trial, mixed-methods design, including quantitative and qualitative data (CREP, 2010). Pre- and post-comparisons of student achievement in literacy were conducted using the Leveled Literacy Benchmarks, and DIBELS assessments. Students from kindergarten through second grade were selected by the districts to receive the intervention based on their own assessment of literacy skills (CREP, 2010). Students were provided ninety days of Leveled Literacy instruction. The control group and the LLI group did not receive any intervention during the study period (CREP, 2010).

CREP reported the following findings for each grade level. In kindergarten after thirty-eight days of Leveled Literacy instruction, students who received the intervention achieved a mean gain on the Benchmark Assessment of 1.56 compared to .78 from students who received no intervention (CREP, 2010). On the DIBELS assessment, “fewer significant gains were seen in the outcomes” (CREP, 2010, p. 3). CREP reports that students who received LLI exceeded those who received no interventions on “nonsense word fluency,” and English Language Learners who received LLI outperformed English Language Learners who did not receive any intervention on several of the subtests in the DIBELS (CREP 2010).

CREP (2010) shared first grade outcomes for the Benchmark Assessment after seventy-three days of Leveled Literacy instruction students participating in the intervention showed a mean gain of 4.46 levels, as compared to 2.63 levels for students in

the control group. CREP further stated: “1st graders in LLI finished their LLI session at the grade level mid-year goal in literacy, while the control group students were still slightly behind” (CREP, 2010, p. 3). On the DIBELS assessment CREP reported that similar significant differences between the treatment and control groups were found (CREP, 2010). “1st graders in LLI significantly exceeded those who were not in LLI on nonsense word fluency $m=22\%$ and $m=17\%$ respectively” (CREP, 2010, p. 4).

The second grade Benchmark Assessment yielded similar results to the first grade results. Students who received the LLI had a mean gain of 4.64, while those who did not receive LLI had a mean gain of 2.99 (CREP, 2010). The second graders who participate in the LLI also finished the intervention near the grade level goal for literacy (CREP, 2010). In the second grade DIBELS measure, no significant differences were found between the treatment and control group (CREP, 2010).

CREP stated the following in their conclusions:

“Across the three grade levels, the current study found that LLI positively impacts K-2 student literacy achievement in rural and suburban settings. Further, we determined that LLI is effective with ELL students, students with special education designation, and minority students in both rural and suburban settings.” (CREP, 2010, p. 6)

Research comparing the effectiveness between the LLI and the Reading Recovery program could not be found. Schwartz (2005, 2008) repeatedly found that the 1:1 intervention was more effective than any small group intervention; furthermore, students who participate in the Reading Recovery intervention continue to score at average levels in their classroom after completion of the intervention. CREP (2010) reported that LLI is more effective than no intervention. Rogers et al. (2004) reported that Reading Recovery

is effective in closing the achievement gap that exists between minority students and non-minority students.

Other factors of literacy development were also considered as part of this research. The researcher investigated the effect of gender, ethnicity, teacher certification, age, student/teacher ratio and school designation.

Jennifer Serravallo in her book *“Teaching Reading in Small Groups”* shared that there are five components to effective literacy instruction, they include “match the individual reader (to instruction), teach toward independence, teach strategies explicitly so that readers become proficient, value time spent, volume, and a variety of reading and follow predictable structures and routines” (Serravallo, 2010 p.5). LLI and Reading Recovery have similar components in their intervention time. Both interventions are geared to the individual reader; however Reading Recovery has a teacher to student ratio of 1:1 whereas LLI has a ratio of 3:1. Reading Recovery and LLI both use the text level reading assessment as part of their formative and summative assessment. This assessment is used to determine the independent and instructional reading level of the students they work with. Both programs teach strategies explicitly, however Reading Recovery is done through prompt and teacher choice and LLI is done through delivering the lesson as it is written. Reading Recovery and LLI both are structured programs that have established routines that are predictable.

In Clay’s (2001), *Change Over Time in Children’s Literacy Development*, she addresses second language learners and their participation in Reading Recovery. She shared that students who are second language learners “perform well in Reading Recovery where they are given 30 minutes every day with a teacher who increases their

time for talking and personalizes their instruction while teaching them to read and write” (Clay, 2001 p. 278) Students who are second language learners responded well to the intervention despite have less opportunity or previous experience with the English Language.

Alfred Tatum (2006) addressed issues regarding the engagement of African American Males in Reading. Tatum stated “All the proposed solutions emphasize a meaningful curriculum reflective of student experiences. Yet the most vulnerable African American adolescent males remain in public schools in which literacy instruction is not responsive to their needs” (Tatum, 2006 p. 44). Does Reading Recovery and LLI provide African American students with the skills necessary to be engaged in text? If African American students have challenges with literacy skill attainment at a young age engagement decreases.

Jonathan Kozol, leading researcher in educational advocacy, shares on his web page “two children under the age of seven when put together regardless of class, race, or sex, are nearly undistinguishable in terms of learning ability, (Kozol, 2011). Kozol argues that the socio economic make up or the population and the community the school serves influences the outcomes of literacy attainment. “Poorer children tend to have a lower score by the fourth grade than a wealthier counterpart. This creates, in effect, an educational system where the poor get poorer and learn less” (Kozol, 2011). Schools systems designed to serve large populations of “poor” students have larger populations of students that are not deemed proficient. Do schools with lower numbers of “poor” students get better results from either intervention?

Peg Tyre (2005) reported in “Boy Brains, Girl Brains” studies show that girls, have more active frontal lobes, stronger connections between brain hemispheres and language centers that mature earlier than male counterparts” (Tyre, 2005 p. 59) This research sought to identify if female or male students responded better to LLI or Reading Recovery.

This chapter provides a review of similar literature that has been published. The research included in this chapter outlined the effectiveness of the two interventions compared in this research. The next chapter will share the methodology used for this study.

Chapter 3: Methodology

This study analyzed the effectiveness of two early literacy interventions for first grade students enrolled in three elementary schools within Union County Public Schools. The researcher analyzed the mean gains in text level reading for students who participated in LLI or Reading Recovery. Pre- and post-test text level reading scores were taken from Clay's (2002) Observation Survey for every student selected to participate in this research.

Research Question

The research question analyzed in this study is:

- 1) Is there a difference in the mean gains for students who participate in LLI when compared to the mean gains for students participating in Reading Recovery?

Null Hypothesis: There is no difference in the mean gains achieved by students who participated in LLI when compared to the mean gains of students who participated in Reading Recovery.

Research Design

A single factor ANOVA was utilized because one independent variable existed within the study, LLI and Reading Recovery. The dependent variable in this research is the text level reading score. The independent variables in this study are the two different interventions. As stated by Creighton, the single factor ANOVA "allows us to look at the effects and interactions of two independent variables" (2007, p. 128). One independent variable interacted with the dependent variable therefore a Single factor ANOVA

provided an F ratio and determined if the “difference between the means in our sample is different enough to be considered statistically significant or if it could have occurred by chance” (Creighton, 2007, p. 127.).

Using more than one school with the same Reading Recovery implementation strategy provided the researcher with similar starting points for students. Using students who had higher stanine levels compared with students with low stanine levels across all of the subtests of the observation survey would not be an equal comparison when looking at text level reading gains. Students with higher subtest stanines progress at faster rates because of the individual resources and knowledge possessed as individual learners. Such learners have higher text knowledge. Educators can inherently agree that progress in text level reading would progress more rapidly than those students with less text-item knowledge.

A single factor ANOVA was run using numerical data obtained from the independent assessors. These independent assessors have been trained to administer the Observation Survey as part of their formal training in the Reading Recovery program. Using specifically trained teachers to administer the pre- and post-Observation Survey provides more standardization. As Clay states: “A standard task, which is administered and scored in a standard way, gives one kind of guarantee of reliability when we make such comparisons (2002, p. 12).” Data collected was entered into Microsoft Excel to calculate the F ratio for the single factor ANOVA.

One factor the researcher could not control was the teacher certification. This is further described as a limitation to the study. Each school not only chooses what intervention to use, but also who will administer each intervention. Several students

selected for participation in the research were administered the LLI by a trained Reading Recovery teacher. It is naïve to assume that the fully-trained Reading Recovery teacher would not fall back on the training as a Reading Recovery teacher while delivering the LLI. This is later discussed in “limitations” in this chapter.

Sample

There are currently nine schools within the Union County Public School system that have implemented Reading Recovery. Of these nine schools, six are implementing both Reading Recovery and LLIs. Three of the six schools have the same Reading Recovery implementation strategy. This strategy is known as a random classroom selection. Of the three schools chosen, two schools are Title One schools and one school is not. Union County Public Schools classifies a school as Title One when the percentage of students receiving free or a reduced lunch price lunch equals or exceeds 50%.

Student Selection

The random selection is based on the implementation level at each school. A school with only one Reading Recovery teacher would randomly select a set number of classrooms (not equaling the total number of classrooms) from which students are chosen. The students are selected by their observation survey scores. Reading Recovery teachers select the lowest performing students from the randomly selected classrooms.

Students selected for LLI who participated in this study were also selected from the randomly selected classrooms for Reading Recovery. Students who did not qualify for selection in the Reading Recovery program were selected for participation in the LLI. Using multiple schools allowed the researcher to use students who had similar stanine levels on the Observation Survey.

While the student data was kept confidential (meaning the researcher did not know from which school the child's data came or the student's name), the school information of the three selected schools was known. Each school is located in Union County, North Carolina.

School Selection

At the request of Superintendent Ed Davis school names were de-identified. School A was one of the schools selected to participate in the study. School A is a K-5 school with approximately seven hundred students. The school qualifies as one of Union County Public Schools Title One schools. The ethnographic data shows that 57% of students are Hispanic, 30 % are Black, 7% are Caucasian and 6% are Other (NCDPI, 2010). According to the North Carolina Schools Report Card (NCDI 2010), School A has 68% of their students on grade level. They are a high growth school under the ABCs of North Carolina. The School Report Card of School A indicates that the lowest performing subject area tested is reading, with third grade scores ranking as the lowest. This further indicates the need for early intervention programs within Union County Public Schools and for School A.

The second school participating in this research was School B. School B is a K-5 school within Union County Public Schools. School B also qualifies as a Title One School, having more than 50% of students qualifying for free or reduced price lunch (UCPS, 2010). According to School B's School Report Card, there are approximately 858 students enrolled. Twenty-eight percent of students at School B are Hispanic, 15% are Black, and 57% are Caucasian (Personal communication, Principal at school "B" (April 12, 2011). According to the North Carolina School Report Card, 59% of School

B's third grade students passed the North Carolina End of Grade test in reading last year (NCDPI, 2010). Similar to the results at School A, there is a need for early intervention at the primary grades to further advance the scores of third grade students in reading.

The final school used in the research project is School C. School C is a K–5 grade school also located in Union County, North Carolina, and is part of the Union County Public School System. School “C” does not qualify as a Title One school under the Union County Public School Board guidelines that designate Title One schools for the system. School C has approximately 724 students, according to the 2009-2010 School Report Card (NCDPI, 2010). According to the principal at School C, the following ethnic percentages are present: 2 % Black students, 9% of students are Hispanic and 86% of students are Caucasian. School C's End of Grade Testing data indicates that 3rd grade students were 69% on grade level for the North Carolina Reading assessment (NCDPI, 2010). The overall school performance for reading at School C is 80% (NCDPI, 2010). With increased performance in third grade, the overall percentage of students on grade level would increase significantly. Implementing both Leveled Literacy and Reading Recovery is another example of early literacy interventions to promote higher academic achievement in the third grade.

Intervention Selection

Reading Recovery teachers assess students in Union County Public Schools as part of the selection process. The selection process takes place at two different times during the traditional school year. The initial screening is done at the beginning of the year, and the second screening is done after the first wave of students is complete. The Reading Recovery intervention can only last for twenty weeks. Students enrolled in the

LLI can start a program at any time during the school year and typically building-level decisions are made as to when this happens. The LLI was written for grades K, 1 and 2. It is foreseeable that students could potentially be enrolled in this intervention for several years, although it would not be considered best practice. The Reading Recovery intervention focuses on the lowest students identified through the screening. When both programs exist in the same school, the LLI serves the next wave of students who were screened for Reading Recovery, but not served.

LLI serves students who are not on grade level. They serve students who are not served by Reading Recovery. The program is used as an early literacy intervention and authored by two formally trained Reading Recovery teachers. The lesson is scripted for the teacher, and the ratio is 1 teacher for 3 students. This allows more students not meeting benchmarks for literacy achievement to be served. Principals may choose the teacher who will deliver the program. In the sample some students received the LLI by K-6 Certified personnel, some were served by trained and certified Reading Recovery teachers, and some were served by non-certified tutors. LLI is a scripted program that provides teacher prompts and pre-selected texts for each student group.

Confidentiality and Protection

The selection of the three schools for this research was done carefully and intentionally to provide a common implementation program. The names of the three schools were fully disclosed by the researcher and the lead Reading Recovery teacher. Furthermore, the principals of all the schools were aware of their participation in the study. The researcher was granted an exemption to the RRB process. The research presented is in full compliance with the RRB process for Wingate University. The lead

Reading Recovery teacher uses independent Reading Recovery teachers to administer the observation survey at the end of the program cycle for Reading Recovery. Individual student data was kept confidential throughout the research by the lead Reading Recovery teacher. The Reading Recovery teacher decoded the data, providing confidentiality and protection for the students and schools. Each school was given a letter designation and each student was given a number designation.

Data Collection

At the beginning of the 2010 -2011 school year first grade teachers created a list of students in rank order of reading ability. The lowest students on each list were administered Clay's (2002) Observation Survey. The assessment was given by a trained Reading Recovery teacher. Using each school's implementation plan, the students who consistently scored the lowest across all subtests of the Observation Survey were selected for participation in the Reading Recovery intervention. The data from the initial screening was submitted to Union County's Reading Recovery Lead Teacher. Using the collection form (See appendix A) the lead Reading Recovery teacher decoded the data and assigned the school and student the proper identification code.

Students not selected for the Reading Recovery intervention were provided the LLI. This assessment was completed by a trained Reading Recovery teacher as part of the selection process for Reading Recovery. The lead reading recovery teacher also completed the data collection form for LLI students during the initial selection. Students enrolled in the Reading Recovery intervention are screened upon completion of the program. This occurs at different times for each student. Students who accelerated at a faster rate are released. A determining factor for completion is the independent

assessment of a student enrolled in Reading Recovery by another formally trained Reading Recovery teacher. Students who completed the program were given the observation survey and their data was submitted to the lead Reading Recovery teacher for the county. This data was decoded and submitted on the data collection form.

Students enrolled in the LLI were eligible for the Reading Recovery intervention upon completion of the first wave of students. However, not all students enrolled in Leveled Literacy during the first wave were selected for the second wave of Reading Recovery. Students enrolled in LLI were screened as part of the selection process for second wave students. These students were assessed by formally trained Reading Recovery teachers. The data was submitted to the lead Reading Recovery teacher who decoded it and added the text level reading scores to the data collection form.

Reading Recovery teachers submitted the data to the lead Reading Recovery teacher which provided pre- and post-test data. Each student screened for Reading Recovery during the initial screening at the beginning of the year was also screened during the second wave or were independently screened. Some students who accelerated or no longer fell at the bottom of the rank order sheets (see appendix B) were screened for second wave in Reading Recovery; however, all students were screened to complete post- testing requirements for this research.

Data collection was completed when the lead Reading Recovery teacher submitted the data collection form that included all students selected for participation in this study to the researcher. The data collection form also included demographic data for the researcher to consider during data analysis and possibly lead to further quantifying data on the effectiveness of each intervention.

The lead Reading Recovery teacher also submitted the teacher qualifications for each student involved in this study on the data collection form. This process was done through an informal personal communication between the lead Reading Recovery teacher and the Reading Recovery teachers assigned to the three schools used in this study, as well as the Leveled Literacy instructors.

Data Analysis

Microsoft Excel was used to run the Single Factor ANOVA. The results of the statistical tests applied together with the data are included in Chapter Four of this study. The researcher also shared the data analysis with the Superintendent of Union County Public Schools and his cabinet staff. During Union County's Summer Reading and Writing Institute the results were shared. Throughout the study the researcher met with Nancy Hess, Lead Reading Recovery teacher in Union County Public Schools, to triangulate analyses made on the data. Dr. Barbra Honchel, Regional Director of Reading Recovery, also consulted on the analysis of the data.

Instrumentation

Clay's (2002) Observation Survey was used as the instrument to collect pre- and post-data for the purpose of this research project. The survey is composed of six subtests: 1) letter identification, 2) hearing and recording sounds, 3) concepts of print, 4) word test, 5) writing vocabulary, and 6) text level reading. Of all the subtests the text level reading was chosen because, as Clay 2002 states,

To become observers of the early stages of literacy learning teachers will have to give up looking for a single shot assessment test for the acquisition states of reading and writing. Children move into reading by different tracks and early assessments must be wide-ranging. If there is a single task that stands up better than any other it is the running record of text reading. (p. 10, 2002)

The text level reading provides us with quantitative data which was used in comparison. Therefore, the nature of this research is quantitative in design. Text level gains from pre- and post-test data on the text level reading assessment as part of the Observation Survey were compared using a single factor ANOVA.

Independent assessors were used to administer post-test data as part of the governing procedures for the Reading Recovery program. These assessors were also used to complete post-assessments on students who received the LLI. Pre-test assessments were done randomly, as the instructor for the intervention was not yet selected. These assessments were all completed by Reading Recovery teachers as part of the screening process for selection of first wave students in the Reading Recovery program.

Reliability

Test-retest reliability measurement was used by Clay on the text level reading subtest of the observation survey (Clay, 2002). Clay reports “taped recordings of five year old children reading were taken for four children over the period of one year. These were used to check on the reliability of a trained observer’s recording and scoring of error rates and self-correction rates with two years’ interval between the two analyses ($r = .98$ for error scoring and $r = .68$ for self-correction rate” (p. 161). Clay reports Chi square tests yielded no significant differences at the .01 value for the raters recording errors or self-corrections. In an effort to mirror Clay’s reliability study, trained Reading Recovery teachers were used to administer pre- and post-test Observation Survey on all students in the sample population.

Reading Recovery teachers complete ongoing training on the running record or reading, which is the method used to gain the text level reading score. The training process involves ongoing development of skills used to analyze student reading. The running record is done frequently for both interventions. Specific training is required to gain certification in Reading Recovery; however, it is not required for Leveled Literacy. Using independent assessors with similar certification and training increased the reliability of the running record and the text level reading scores.

Limitations

Using formally trained Reading Recovery teachers as Leveled Literacy instructors presents as limitation to this research. Reading Recovery teachers go through extensive training to gain the certification. Implementing Leveled Literacy without falling back on Reading Recovery training and practice challenges the fidelity of how Leveled Literacy was implemented.

The text level subtest uses a method known as the running record of text reading as a means to gain the text level reading score. This method has been tested and re-tested for consistency in scoring. Reading Recovery teachers complete ongoing training on this process; they use it frequently in their study and check the accuracy of the reading levels they assign to children with their colleagues. Despite all these preventative measures there is still the opportunity for the text level reading to be less or more than what the students actual reading level is. This process is a common frustration to reading teachers and teachers of young children across Union County.

Having multiple levels of training for individuals that delivered LLI presented a threat to the internal validity of the research.

Summary

This chapter outlined the methodology or the action research completed for Union County Public Schools. This chapter also outlined the limitations of the study as well as the reliability of the administration of the text level reading assessment. The following chapter will demonstrate the analysis of data.

Chapter 4: Data Analysis

Early literacy interventions are used in the majority of elementary schools within the Union County Public School district. Currently nine schools are using Reading Recovery as an early intervention, while several others use Fountas and Pinnell's LLI. The question that leaders in the education field are asking themselves continues to be what intervention will provide the at-risk students with the greatest acceleration in literacy.

The Director of Exceptional Children in Union County Public Schools recently purchased every school the LLI (LLI) as a resource to help students that are, or have, fallen behind their peers in their literacy development. The director states that "The EC Department must provide individualized instruction in literacy but do so in a manner that allows the student to experience success in the regular classroom as well. LLI, or LLI, was the program that provided the connection that EC and regular education needed" (Lori Cauthen, Personal Communication, 2011). Little research, if any, has been provided to principals indicating that this intervention has been effective for our system.

Reading Recovery was introduced as an intervention in Union County Public School on a broad scale nearly six years ago. In its first year of existence within Union county nearly fifteen schools had this intervention in place. Little research has been presented to Union County Public School principals regarding the effectiveness of such intervention.

At the national level, strong research exists that demonstrates Reading Recovery has been successful at helping students who are below grade level expectations accelerate and maintain gains in their literacy skills when compared to their peers. With a new intervention gaining fast recognition because of reduced costs and flexible delivery model, LLI is threatening the tenure of the Reading Recovery intervention.

This chapter describes the differences in text level reading gains of students that were selected for this study. It further describes the statistical significance of these differences and helps audience members discern if the differences in text level reading gains can be useful in making decisions regarding program choice and resource allocation for schools with early intervention practices. Also described are the differences among gender, ethnicity, age, and teacher certification. A determination if any of these factors influenced the outcomes of text level reading gains is further described as part of the evidence for this action research.

Research Question

- 1) Is there a difference in the mean gains for students who participate in LLI when compared to the mean gains for students participating in Reading Recovery?

Null Hypothesis: There is no difference in the mean gains achieved by students who participated in LLI when compared to the mean gains of students that participated in Reading Recovery.

Results

Focus questions for this study involved determining if a significant difference existed between the two early intervention programs outlined in our study: Reading Recovery and LLI. Each intervention outlined throughout this study averaged twenty weeks. First grade students were selected for the study from three partially implemented schools. A single factor ANOVA was used to determine if mean growth in text level reading in Reading Recovery students was different from mean text level growth in LLI at a statistically significant level. Text level range is Leveled 0-28. Further in this chapter, data tables outline the results by demographic sample as well as by teacher credential and student-to-teacher ratio. Table 1 describes the differences in text level reading gains for all students who are represented in the study.

Table 1

Differences in Mean Text level Reading Growth by Intervention

Number of Students	Intervention	Text Level Increase
28	LLI	5.107143
31	RR	7.22

Note. Text level Reading gains were measured using pre- and post-observation survey data.

The differences in the means were compared using a single factor ANOVA. The F critical for the statistical analysis was 4.012973 and the F calculated was 3.597241 with one degree of freedom. This calculation demonstrates that there is not a statistically significant difference between the two reading interventions investigated at the $P < .05$ value. The null hypothesis which states “There is no difference in the mean gains achieved by students who participated in LLI when compared to the mean gains of

students that participated in Reading Recovery” is accepted and our research hypothesis is rejected. The variability within groups demonstrates that the differences found within the groups outperformed the differences between the two interventions. The data derived from this ANOVA shows differences in text level reading gains are more dependent on the individual students than on the intervention. Table 2 provides the findings in greater detail of the single factor ANOVA.

Table 2

<i>SUMMARY</i>						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
LLI	28	143	5.107143	9.062169		
RR	31	219	7.22	22.56207		

<i>ANOVA</i>						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	60.09278	1	60.09278	3.597241	0.063038	4.012973
Within Groups	935.4934	56	16.70524			
Total	995.5862	57				

Demographic Data

The following tables outline the mean gains in text level reading between interventions. These factors were not compared to determine if a statistical significance existed between the outlined variable, but to provide the reader with further information that might be useful in future studies. The results from ethnicity, age, gender, teacher ratio, and teacher credential are helpful in determining which intervention benefited a population and what ratio helps children progress at a faster pace. Each intervention outlined throughout this study averaged 16.59 weeks.

Ethnicity

The sample of students drawn for this study numbered 59. The ethnicities within the data sample are outlined in Table 3. Average text level reading gains were determined overall and by ethnicity to determine if any difference existed between ethnic groups.

Table 3

Mean text level reading gains by ethnicity

Number of Students	Ethnicity	Intervention	Text Level Increase
8	Black	LLI	6.625
4	Black	RR	7.25
9	Hispanic	LLI	3.44
16	Hispanic	RR	7.1875
11	White	LLI	4.909091
11	White	RR	7.272727

Note. Text level reading gains by ethnicity were calculated using the subtest of text level reading and pre to post text level gains on Clay's Observation Survey.

No statistical analysis was calculated regarding ethnicity to determine if there was a significant difference in text level reading gains and ethnicity. Reading Recovery students demonstrated higher text level reading gains as previously stated. Hispanic students in Reading Recovery gained nearly four text levels above what their counterparts did in LLI. A larger difference in text level reading gains also existed between interventions used with white students. The difference in text level reading gains for black students was less than one text level.

Gender

Student gender and text level reading gains were also examined to determine if differences in the mean text level reading gains between gender would help school leaders make decisions regarding intervention choice based on gender. Table 4 shows the text level reading gains for LLI and Reading Recovery for both male and female students.

Table 4

Text level Reading Gains by Intervention and Gender

Number of Students	Gender	Text Level Increase	Intervention
15	M	6.192982	LLI
12	M	6.26087	RR
13	F	6.175439	LLI
19	F	6.254545	RR

Note. Gender data was collected by the lead Reading Recovery teacher for each student.

When text level reading gains are compared by intervention and gender, very little difference exists. Male students enrolled in Reading Recovery scored slightly better than male students enrolled in LLI. The same is true when comparing the results for female students. Female students enrolled in Reading Recovery performed slightly better than their counterparts. The results within the same interventions are remarkably similar. Male and female students enrolled in Reading Recovery had nearly identical text level reading gain means. Similar results were found with LLI.

Age

Students selected for the sample had various ages, despite all being in first grade classrooms. The student age was entered in months and then compared to text level reading gains. Six months was used as the span to develop age ranges. Clay (2002) used the same six month span to develop her stanines for the observations survey. These age ranges are appropriately applied to this research as the study utilizes the same assessment

tool. The student's age as of June 10th was used, as this was the last day of school for first grade students within the sample. Table 5 outlines the differences in text level reading gains by intervention and age.

Table 5

Text Level Reading Gains by Age and Intervention

Number of Students	Age in Months	Text Level Increase	Intervention
8	79-84	5.125	LLI
8	79-84	8.875	RR
11	85-90	5.18	LLI
16	85-90	7.00	RR
0	91-96	NA	LLI
0	91-96	NA	RR
1	97-102	2.00	LLI
2	97-102	6.00	RR
8	103-108	4.75	LLI
5	103-108	5.8	RR

Note. No students in the age range of 91 – 96 were selected as part of the sample. This was not part of the research design.

Reading Recovery outperformed LLI in every age category. Younger students enrolled in Reading Recovery had greater text level reading gains than students in any other category. Students in the age span of 79 to 84 months and enrolled in Reading Recovery outperformed students in the same age span and enrolled in Leveled Literacy by more than three and half text levels. The age span of 85 months to 90 months had the greatest number of participants. In this category students enrolled in Reading Recovery outperformed students in Leveled Literacy by nearly two text levels.

The sample did not include any students from the age span of 91-96 months. The age equivalency in years for students in this category is seven years and six months to seven years and eleven months. Remembering that students with similar low stanines on the Observation survey were selected for this study, it is interesting to note that not one

student from the three schools selected for this study who fell into this category was enrolled in LLI or Reading Recovery .

School Designation

Three schools within Union County Public Schools were selected for participation in this study. The three schools were chosen specifically because of the process used for Reading Recovery implementation at each school. Each school used a random selection of classrooms that received Reading Recovery. Two schools were identified as Title One Schools (more than 50% of students on free and reduced price lunch) and one school was a non-Title One School. The data provided in Table 6 outlines differences in text level reading gains regardless of interventions between the three schools selected for this study.

Table 6

<i>Text Level Reading Gains by School Designation and Intervention</i>			
Number of Students	School Designation	Text Level Increase	Intervention
22	Title One	4.82	LLI
22	Title One	7.18	RR
6	Non-Title One	5.33	LLI
9	Non-Title One	7.33	RR

Note. Fewer students were selected from the non-title one school because smaller populations of students with similar low stanines on the observation survey were available.

Reading Recovery students outgained Leveled Literacy students in both Title One and non-Title One schools. Students in Title One schools and enrolled in Reading Recovery outgained students in Leveled Literacy by 2.3 text levels. Students served by Reading Recovery in non-Title One schools outperformed students in Leveled Literacy by two text levels. When comparing students in Reading Recovery at Title One Schools

to students in Reading Recovery at non-Title One schools, little difference is noted in text level reading gains.

Teacher Certification

Several students in this study were provided early literacy interventions by certified teaching staff, while others were provided their intervention by trained tutors. Teacher certification of the individual responsible for providing the intervention was tracked by the lead Reading Recovery teacher for each student. Several students were provided LLI by formally trained Reading Recovery teachers. These teachers came from two of the schools in the study. The principals in each of these schools made a decision to reduce the number of Reading Recovery teachers in their building, and they utilized the formerly trained Reading Recovery teacher as a Leveled Literacy teacher. The outcomes based on teacher certification are listed in Table 7.

Table 7

<i>Text Level Reading Gains by Teacher Certification and Intervention</i>			
Number of Students	Teacher Certification	Text Level Increase	Intervention
11	K-6 Certified	4.73	LLI
5	Tutor	6.00	LLI
12	Reading Recovery	4.66	LLI
31	Reading Recovery	7.22	RR

Tutors that implemented the LLI had greater text level reading gains than Reading Recovery teachers and K-6 Certified Teachers using LLI. However, students that received Reading Recovery and were taught by a Reading Recovery teacher had the highest gains. Reading Recovery teachers that taught the Leveled Literacy program had the lowest text level reading gains of any of the groups analyzed.

Intervention Weeks

The number of intervention weeks for students selected in the program varied. Students selected to participate in Reading Recovery are often exited from the program once they have advanced to the average reading level of their classroom. Furthermore, students enrolled in Reading Recovery as second wave students do not often get a full program, so intervention weeks are cut short. Students that are provided LLI are often provided more than twenty weeks in the program; however, the post-assessment was provided after twenty weeks of intervention so as to not exceed the maximum length of the Reading Recovery intervention. Table 8 provides a comparison of the intervention that was provided and the length to help school leaders make decisions regarding the intervention selection process and time required to make the greatest impact. The range of intervention weeks was five weeks to twenty weeks.

Table 8

Text Level Reading Gains by length of intervention and intervention provided

Number of Students	Length of Intervention	Text Level Increase	Intervention
7	Less than 10	8.14	RR
0	Less than 10	0	LLI
11	11 -19	8.64	RR
9	11-19	4.77	LLI
13	20	5.54	RR
19	20	5.00	LLI

Note. Length of time is measured in weeks. Text level reading has a range of 0 – 28.

There are no students from the sample who were enrolled in LLI for less than twenty weeks. Students in the sample who were enrolled in Reading Recovery for less than ten weeks had 8.14 gains in text level reading. Students enrolled in Reading Recovery for 11 – 19 weeks also outperformed students enrolled in Leveled Literacy by nearly four text levels. Students who had a full implementation of Reading Recovery had

similar text level reading gains when compared to students enrolled in at twenty weeks of Leveled Literacy with .5 text levels difference.

Student to Teacher Ratio

Reading Recovery students are provided one-on-one intervention through years of program design and research. LLI is designed for one teacher and three students.

However, within the sample instructors were provided permission to alter the ratio of student to teacher. Table 9 provides detailed information on the mean text level reading gains for students who were provided 1 to 1 intervention in Leveled Literacy and Reading Recovery, 1 to 2 in Leveled Literacy, and 1 to 3 in Leveled Literacy. There were no students selected for the sample who had a higher student-to-teacher ratio than 1 to 3.

Table 9

Text Level Reading Gains by Teacher Ratio and Intervention

Number of Students	Teacher Ratio	Text Level Increase	Intervention
1	1:1	0	LLI
31	1:1	7.22	RR
2	1:2	2.00	LLI
25	1:3	5.36	LLI

Note. Text level range is 0 - 28

The 1:1 ratio used in Reading Recovery provided the greatest increase in text level reading. One student received LLI with a 1:1 ratio and had zero text level gains at the end of the intervention. Two students were provided LLI using a 1:2 teacher-to-student ratio and had minimal text level reading gains. Students that were provided the 1:3 ratio in Leveled Literacy had a text level increase of 5.36.

Summary of Data

A single factor ANOVA was used to determine if there was statistical significance. The F calculated was 3.597241 and less than the F critical of 4.012973. Statistical significance was not found with at the $P < .05$ level. The mean text level gains for students enrolled in Reading Recovery is greater than the mean difference in text level reading gains for students enrolled in LLI. The mean gains between male and female enrolled in either intervention did not show a significant variance. Male and female students enrolled in Reading Recovery slightly outperformed students enrolled in LLI.

Students who received Reading Recovery in every ethnic group outperformed students from the same ethnic group who were enrolled in Leveled Literacy. White students enrolled in Reading Recovery had the highest text level increase. Hispanic students demonstrated greatest difference in mean gains within interventions. Hispanic students enrolled in Reading Recovery outperformed Hispanic students in LLI by nearly four text levels.

Students in the age range of 79-84 months in Reading Recovery outperformed students within the same age range by more than three text levels. Our sample had a mean age of 90.4 months or seven years and six months. Forty-three students were present in the sample data who fell below the mean age for the group. Students enrolled in Reading Recovery outperformed students enrolled in LLI in every grade level.

Students enrolled in non-Title One schools who received Reading Recovery as an early literacy intervention outperformed in every other category. Reading Recovery students outperformed students in Leveled Literacy in Title One and non-Title One schools.

Trained Reading Recovery teachers delivering Reading Recovery had the greatest text level gains. Non-certified tutors delivering LLI had higher text level reading gains than certified teachers and Reading Recovery teachers who implemented the same intervention.

Students enrolled in Reading Recovery between 11 -19 weeks had the greatest text level reading gains, followed closely by students in Reading Recovery for ten weeks or less. The smallest difference in text level reading gains between students in each intervention was found in students who received the intervention for twenty weeks. Less than .5 text level gain was found between students who were enrolled in Leveled Literacy or Reading Recovery for twenty weeks.

Students who received interventions 1:1 had greater gains than students who received interventions in 1:2 or 1:3. Students in LLI 1:3 had greater gains than students who received LLI 1:1 or 1:2.

Summary

This chapter shared the findings of our research and demonstrated that students who participated in Reading Recovery had greater text level reading gains than students who participated in LLI. The next chapter shares recommendations for school leaders based on this research.

Chapter 5: Summary and Conclusions

Two early literacy interventions prevail across Union County Public Schools. These interventions are LLI and Reading Recovery. LLI has been employed by schools for approximately two years, whereas Reading Recovery has been used throughout Union County Public Schools at varying schools for nearly a decade. LLI is gaining traction throughout the district. Schools across the county are using it to serve students who are behind their peers in their literacy development. Reading Recovery is losing ground. Over the past three years several schools have reduced the number of Reading Recovery teachers or eliminated the program. The research presented in the preceding chapter showed that the differences in text level reading gains are not statistically significant for students enrolled in Reading Recovery when compared to the text level reading gains of students enrolled in LLI.

As an action research capstone project this study contributes to the body of research for principals and district-level administrators for programming decisions. Administrators are forced to make decisions regarding interventions for students who are not performing on grade level. Many of these decisions are made based on financial resources, human resources, knowledge of best practice, and through collegial and non-collegial pressure. The greatest motivations for programming decisions made by principals are done in response to internal and external pressures that promote the highest passing rate for students. These accountability measures are set forth by our federal and state government and are monitored by local education agencies. The decisions principals make impact the livelihood of the students that populate their schools. Educators jump on the latest, greatest, and most cost-effective promise of raising test

scores. Reflective practice and great teaching will continuously prevail as the best means to meet the goals and objectives of any school or school system, time permitting.

Recommendations

In recent article published by Education Leadership, Richard Allington suggests that “We could know on the second day of kindergarten who is at risk of becoming a struggling reader, but yet we typically do nothing with this information (Allington, p. 41, 2011). In this research fifty-nine students were selected with similar low stanine scores on the Observation Survey. These students entered first grade with lower literacy scores than several of their peers. They were selected for interventions based on early benchmark assessments in first grade, including the Observation Survey and the Developmental Reading Assessment. Based on the data provided within this research, it was found that the younger students are when we intervene with at-risk students the more growth they experience. Principals must consider ways to provide early literacy interventions for kindergarten students. Reading Recovery teachers providing Reading Recovery intervention with young first grade students had the greatest gains. If Reading Recovery teachers were able to do early interventions with kindergarten students during their kindergarten year, lower numbers of students needing interventions in first grade would be a great possibility.

Having highly trained teachers in primary grades who provide a layer of intervention is helpful as well. Trained Reading Recovery teachers are not only trained on how to work with students, but also on how to work with teachers to improve instruction in the classroom. They are often used as coaches, models, or facilitators for effective literacy instruction. Having highly trained literacy experts such as Reading

Recovery teachers provides another layer of intervention at schools known as teacher intervention. Allington (2011) shares that having highly qualified literacy instructors in kindergarten, coupled with ongoing professional development, has proven to be a successful strategy in helping address the needs of students with lower levels of literacy achievement in kindergarten.

Reading Recovery and LLI can co-exist within the school building. In this research it was found that students in LLI did make gains in their text reading level. Hypothetically, a student entering first grade with low stanine scores on the Observation Survey would be screened for Reading Recovery. If the student qualifies as one of the lowest students across all the subtests of the Observation Survey this student would qualify for Reading Recovery services. However, if he or she does not fall into this category, or worse--the school is not fully implemented-- the principal is forced to make a decision on what intervention to provide. This is often a difficult decision to make. The decision for intervention intermingles the emotions of teachers, the fiscal and human resources available, and the dilemma of what is the best course of action for this child with what the school has available at the time.

Reading Recovery intervention has become harder to implement in schools because of the costs associated with employing a Reading Recovery teacher and the limited number of students who can be served. Reading Recovery teachers dedicate half of their instructional day to serve four students. The remainder of the day can be used in a variety of ways. Some ideas include: serving other students in the intervention process, professional development, classroom teaching, coaching, serving EC students, and several more. In order to serve more students schools must employ more Reading

Recovery teachers or select other interventions. This research found that students served one-on-one in literacy intervention show greater results than students served in groups of two or groups of three. Similar findings were also found in Schwartz's (2005) study on student-to-teacher ratio.

LLI allows schools to employ the spectrum of personnel. Certified and non-certified employees are hired to serve students enrolled in the program. The Leveled Literacy program allows for teachers to serve students 1:3. One teacher can serve three students at a time for a scripted thirty minute lesson. Schools that choose to use Leveled Literacy as the early literacy interventions have the ability to serve more students with fewer personnel. In addition to the lower teacher-to-student ratio, LLI is currently used in grade levels beyond first grade. Reading Recovery teachers spend half of their time with first grade students and the other half of their day serving students in any grade (including first).

Leveled Literacy and Reading Recovery, like many programs, have both positive and negative attributes connected with them. The research completed for this study indicated that Reading Recovery provided greater text level reading gains, although not statistically significant. It was found in this study that students who receive interventions from trained tutors experienced higher growth than students who were served by certified teachers and even Reading Recovery teachers. The Leveled Literacy program can be a barrier to trained staff who typically does not deliver the LLI with fidelity. Having trained Reading Recovery teachers deliver LLI during the second half of their day is clearly not the answer. Their knowledge is too extensive to be confronted with the challenge of implementing a rote program which doesn't allow these specialized teachers

to make the decisions and prompt learning the way they have been extensively trained. However, as found in the CREP study, providing LLI when compared to no intervention will produce higher text level reading growth.

The answer still lies in having highly trained teachers in every classroom. Higher education does not prepare teachers well enough to come into the classroom with a skill set to formatively assess and diagnose student interventions in literacy. This can only come with extensive training and years of experience. Having highly trained teachers who can provide both training for their colleagues and interventions for students is the one way to confront the literacy challenges that exist for our students in schools.

In this research students who received Reading Recovery or Leveled Literacy in non-Title One schools had higher growth results. Several questions arose from this finding: Are teachers at non-Title One schools getting better results because they have fewer students to serve? Are teachers at non-Title One schools getting better results because they are more formally trained? These questions were not part of the initial research questions; however, they would be worthy of more consideration. Allowing teachers who have traditionally served students in non-Title One schools the opportunity to serve students in Title One schools would provide the educational body of research with great information. Students that were served in non-Title One schools may have greater resources to help them overcome the challenges they have with their reading. These resources include time (classroom teachers with fewer students below grade level have more time to spend with students that are below grade level) and language (large numbers of the population in our study were Hispanic students, and the majority of these students came from Title One Schools).

The researcher also found students who identified themselves as Hispanic and received Reading Recovery as an intervention achieved greater results than Hispanic students in LLI. However, these students received the lowest results within the Reading Recovery intervention when ethnicity was analyzed. Hispanic students did not respond well to the Leveled Literacy Program. Hispanic students with language barriers need time and specialized training. The LLI is a scripted program, if implemented with fidelity; the program does not allow the interventionist the opportunity to slow down for second language students. It was not written for second-language learners, but for students who are struggling readers. There is a notable difference between the two. Serving Hispanic students who are not mastering language acquisition or literacy skills as quickly as their peers in kindergarten with trained Reading Recovery teachers will decrease the number of students needing intervention in first or second grade.

As found in the review of literature from Rogers et al. (2004), Reading Recovery is effective in closing the achievement gap. It was also found in this research that Hispanic students who participated in Reading Recovery had greater text level reading gains, thus reducing achievement gaps between ethnic groups in schools.

The number of weeks that students received intervention also provided valuable information to principals and school leaders. In this research it was found that students receiving Reading Recovery for less than 10 weeks and less than 19 weeks had greater text level reading gains than LLI in the same category. This is also true when students receiving Leveled Literacy for 20 weeks. Reading Recovery teachers can address problems quicker and release students back to their classroom teachers. Reading Recovery is not a scripted program; therefore, when a student starts to untangle the knots

they have in their learning, so begins an acceleration of literacy development. When the Reading Recovery teacher recognizes this acceleration, the student is independently assessed and is dismissed from the program. On the contrary, Leveled Literacy students are typically served for the full twenty weeks. Some students within this group of three accelerate more rapidly, yet they are held back with the group for the full implementation cycle. Employing more Reading Recovery teachers provides the opportunity for more at-risk students to receive a higher level intervention and a quicker opportunity for accelerated growth.

Lower student-to-teacher ratio in Reading Recovery produced greater results than any other intervention. Reading Recovery is implemented 1:1, whereas Leveled Literacy is 1:3. Greater results were found for students enrolled in Reading Recovery for fewer weeks and with a lower student-to-teacher ratio, helping negate the argument that Reading Recovery is a more costly program. When students were not provided LLI with the recommended 1:3 ratio, less text level reading gains were seen. Similar findings were found in Schwartz's (2005) study on teacher-to-student ratio.

Based on the results of this study, it is recommended that principals and school leaders consider having a fully implemented Reading Recovery program at each school. The Reading Recovery intervention provided greater text level reading gains. It was also found that this intervention was more effective in every demographic group that was analyzed. Reading Recovery consistently outperformed LLI in every non-demographic representation as well, including school designation and teacher ratio. Reading Recovery and Leveled Literacy can co-exist within a school; however, it is recommended that

schools do not compromise the knowledge and expertise of Reading Recovery teachers and assign these teachers to implement LLI.

Implications

Over the past two years Union County Public Schools has exhausted considerable resources in developing and implementing the LLI. At the same time, fewer Reading Recovery teachers are being employed and the Reading Recovery intervention is at a great risk of extinction within the school system. This study implicates that schools should strongly consider the use of Reading Recovery as their primary intervention for students who are struggling readers. Reading Recovery yielded greater text level reading gains in each subgroup of data represented in this research. It further implies that if schools do not find ways to help struggling students at a young age, their chances of recovery are much narrower.

Union County Public Schools has consistently promoted site-based decision-making. This practice has allowed school administrators at the elementary level to implement Reading Recovery and/or LLI. If Reading Recovery or Leveled Literacy is going to survive across the district, some level of fidelity training or commitment to an intervention program must be developed across all the elementary schools. This commitment and training would provide a clearer picture of what interventions are currently working for struggling readers in first grade. This research lays the groundwork for future action research within the county.

Public schools are not immune to these challenging times in our economy. The state allocation for Union County Public Schools is nearly twelve million dollars less than what the system received the previous year. The fiscal challenge for the current

school year has forced the educational leaders within the system to make tough decisions. How school systems continue to meet the needs of struggling students and their literacy development with less money is yet to be seen. The district must continue to commit to great teaching, early interventions for students, and reflective practice. This research implies the possibility that a district-level commitment to Reading Recovery could further advance our student success rate.

Limitations

Sample size was one of the greatest limitations. With only three schools with similar implementation of Reading Recovery, the sample size was less than what was originally hoped. Three schools within Union County Public Schools all had a partially implemented random Reading Recovery implementation. Partially implemented refers to not employing enough Reading Recovery teachers to meet the needs of the students that have low stanine scores on the Observation Survey within the same school. Fully implemented schools have enough Reading Recovery teachers to serve all students who are performing below grade level expectations and below the average band of their classmates. This research also used schools that implemented both Leveled Literacy and Reading Recovery. This further reduced the number of students able to be selected for the sample.

Fidelity of implementation was another limitation to the study. The research did not contain a control for the implementation of the Leveled Literacy program with fidelity. Leveled Literacy is designed for students who are below grade level in their literacy skills. The students selected for the program are to be administered the program

as it is written. In several cases the teacher ratio was compromised. Delivering the program on a daily basis the way it was intended was not analyzed.

Staff attendance was another limitation to the study. Staff members of Union County Public Schools who were hired to implement Reading Recovery and LLI were not provided substitutes on the days of their absences. Absences were not tracked during the intervention weeks. It is recommended that future studies use completed sessions rather than weeks of intervention.

Currently very little research on the effectiveness of the LLI exists. This inhibited the researcher's ability to complete a comprehensive literature review on LLI. This study will contribute to the body of research for future studies.

The single factor ANOVA compared the means and provided no statistically significant difference between the two interventions. The researcher considered using a multiple regression to analyze the demographic data; however, it did not seem to align with the initial research question and the scope of work submitted in conjunction with Union County Public Schools.

Statistical significance was not found between the interventions, homogeneity of variance was sacrificed in the ANOVA used for this study. Greater variance was found within groups as opposed to between groups. Data derived from this ANOVA shows differences in text level reading gains are more dependent on the individual student than on the intervention.

Implications for Future Studies

Future research in this area should consider the multiple factors that impact the progress of students enrolled in each intervention. Using a multiple regression analysis,

researchers should consider which factor contributes the greatest text level reading gains for students. Further consideration should be placed on securing a larger population and isolating factors such as school designation or teacher certification.

One small group of students was served using LLI by a non-certified teacher. This group had the greatest text level reading gains out of all three groups that were part of this research. Future studies should research if teacher certification plays a role in the text level reading gains of students enrolled in LLI.

Larger gains in text level reading were made by Hispanic students enrolled in Reading Recovery when compared to text level reading gains for Hispanic students in Leveled Literacy. The difference between these two groups proved to be one of the largest differences in the sample. Further research on the impact of either intervention on second language learners should be considered.

Age was also another factor that showed a larger difference in mean text level reading gains. Students in the sample who were younger had greater gains than older students. Furthermore, there was an age group that was not populated within our sample. There were no students aged 7 years and 6 months to 8 years and 0 months who were selected as part of our sample. Future research should consider the impact of age in each of the interventions. As found in the Schwartz (2009) study, students who were served in the early part of their first grade year (thus at a younger age) had greater text level reading gains than students served in the second wave of Reading Recovery. What impact does age play in the success of either intervention?

Lastly, consideration of the selection of students for each of the interventions should be considered in future research. Students within the sample of this research had

interventions during the kindergarten year. Several students in the sample were served in LLI and, after not making enough growth to be considered on grade level, were selected for LLI. Future research should consider isolating these students to determine if progress or lack of progress in one intervention impacts progress in the other. Next year several students from this sample will be served in LLI as second grade students. For some of these students, it could be the third year of this intervention. It is also possible that some students from the sample could be enrolled in Leveled Literacy who were previously in Reading Recovery. Tracking the progress of these students and determining if one intervention was more successful than the other as a case study would help principals make decisions regarding intervention selection.

Conclusions

Allington (2011) states “we can begin by acknowledging that at-risk readers need more expert reading instruction than we have been providing. We can figure out how to fund this and then get on with it. Only then will struggling readers become on-level readers” (p. 44). Trained Reading Recovery teachers produced greater results than other programs that yield little or no training for teachers before they begin their intervention. Reading Recovery teachers complete a minimum of one year of intensive training on how to work with struggling readers. After the first year, this training continues with ongoing classwork, reflective practice, and professional development experiences, all of which are required. Little or no evidence exists that the same is true of Leveled Literacy instruction. Year after year Reading Recovery asks for the lowest students from the rising first grade cohort. The challenges these students have are embraced by a team of

remarkably knowledgeable adults who have the understanding of where the knots are and how to untangle them.

Leveled Literacy teachers are handed a kit, provided a day or two of training, and then asked to serve students, three at a time, in thirty minute sessions ranging from twenty weeks to three years. Data tracking and reflective practice varies from school to school. Little evidence exists that the students will exit the program in twenty weeks and be successful back in the regular classroom with little support. On the contrary, students in Leveled Literacy are provided twenty weeks of intervention are often slowed down so they don't work ahead of their peers. Students enrolled in LLI, who accelerate at a faster rate than their peers, are held back for teacher convenience in delivering the scripted lesson. Data tracking is minimal and success rates are lower across the board in the research. Trained Reading Recovery teachers had fewer text level reading gains than non-certified tutors who were hired to implement the program.

School leaders must find ways to provide all students with the level of support they need. Schools with a myriad of interventions may not see the same success rates as those with a specific vision and plan for struggling first grade students. Allowing Reading Recovery teachers to serve the most struggling students at the youngest age possible prevents struggling and confused students in the later primary years of education. Allowing the first wave of intervention to occur with the school's greatest resource-- a highly trained teacher-- promotes literacy advancement and acceleration throughout the primary grades.

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Appendices

Appendix B

Teacher Ranking Form

School: _____

Date: _____

Classroom: _____

Grade _____

ALTERNATE RANKING

Directions: Please choose the highest-achieving reading student and list the name on the top line and choose the lowest-achieving student and list the name on the bottom line. Next choose the second highest and second lowest. Continue on through the list. Rank the middle students even though distinctions will be difficult in the middle. The top and bottom ranking are the most important so just estimate when you get to the middle. Please make a note of students who were retained in first grade. Kindergarten retentions do not need to be noted.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____

For kindergarten rankings only, please ask each teacher to draw a line indicating the answer to this question. Which children on your alternate ranking do you think will need supplemental reading help in grade 1?